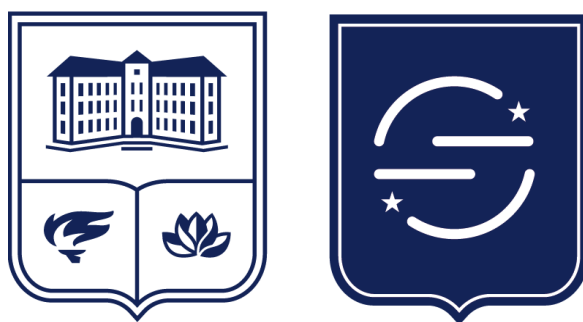


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*ECONOMICS, BUSINESS ADMINISTRATION, TOURISM AND
STATISTICS*

CONSIDERATIONS ON THE CULTURAL TOURISM MARKET AND CULTURAL TOURIST PROFILE

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Abstract: *The article proposes a conceptual analysis of the cultural tourism market and the profile of the cultural tourist. The way in which, depending on the different types of motivations, the cultural tourism market can be subdivided into a number of sub-markets or niche markets such as: tangible heritage (tangible), intangible culture (intangible), city breaks, tastings (food and wine), community tourism in which tourism experiences are managed by local communities and religious / spiritual tourism. Cultural tourists are individuals or groups looking for distinct experiences, focusing on visual arts and entertainment, architecture, cooking and crafts, often combining primary motivation with secondary motivation. Cultural tourism is linked to the profile of tourists, and here the generational component seems to be particularly relevant. Identifying and understanding the most appropriate tourist markets and the motivations and needs of tourists in travel experiences is a critical step in attracting tourists to tourist cities with cultural and heritage values. Cultural tourists validate the importance of heritage, arts and culture through experience in these destinations, and income from this type of tourism contributes to the prosperity of the community and local businesses, while supporting activities related to culture, art or local public services. The methodology used includes bibliographic documentation for the analysis, detailing and exemplification of niche markets of cultural tourism, as well as the investigation of the relationship between the availability of cultural goods and the motivation, typology and profile of cultural tourists.*

Keywords: *cultural tourism; cultural tourist; cultural tourism market*

JEL Classification: F63; L83; Z32.

1. Introduction

Cultural tourism is based on the mosaic of places, traditions, art forms, celebrations and experiences that define the diversity and character of destination places, and to a large extent the diversity and complexity of visitor experiences, expectations and

personalities. The United Nations World Tourism Organisation defines cultural tourism primarily in terms of visitor intent: "movements of people for essentially cultural motivations, such as study tours, performing arts and cultural tours, travel to festivals and other cultural events, visits to sites and monuments, travel to study nature, folklore or art, and pilgrimages" (UNWTO, 2020), (UNWTO, 2021) but most perspectives emphasise the value and desirability of cultural activities as part of a rich, consistent and rewarding visitor experience. Destinations, especially urban ones, have the opportunity to present outstanding cultural activities and experiences, whether we are talking about the defined attractions of a particular place, the existence of cultural districts, opportunities to discover the history of a community to which visitors feel connected, or simply to travel cultural routes or trails that thematically link different attractions and destination points in a country, or in different countries.

2. Description of the product and market of urban cultural tourism

Cultural tourism refers to travel based on the intention or motivation to get to know, experience and learn about the culture of a country or region. The cultural tourism market can be divided into two main groups. On the one hand, tourists whose main travel motivation is related to culture and who represent only about 5-10% of all cultural tourists (CBI, 2021). These tourists are keen to learn, discover or experience local culture. For the majority of tourists included in cultural tourism flows, however, their main motivation is not predominantly cultural. They simply like or are curious to visit cultural attractions or enjoy culture as one of the activities they undertake to complement and diversify their trip or holiday. To give an example, this could be, for example, the 'sun and beach' tourist who stays in a resort in Tunisia and visits a religious ensemble and then a nearby Roman site and ends the day in a remote desert village, enjoying the hospitality and traditions on show. The traditional cultural tourist is attracted to the main cultural sights and attractions, and the market for this type of cultural tourism has grown considerably in recent decades and has caused overcrowding in many such destinations, resulting in the loss of their authentic character.

Probably also for this reason, an increasing number of cultural tourists are no longer attracted by crowded cultural attractions, preferring instead more personal, small-scale and authentic cultural aspects. Examples of this include artisanal and handmade products and unforgettable and truly memorable experiences that touch visitors in an emotional way and connect them with that place, the people and the specific culture (whether tangible or intangible), in short, attractions, products and experiences that are unique and cannot be found anywhere else.

Based on the different types of interests/motivations, the cultural tourism market can be subdivided into a number of sub-markets or niche markets, listed in Table 1 below.

Table 1: Niche markets and niche markets specializing in cultural tourism

| Niche market | Products and services offered | Examples and observations |
|---------------------------------|---|--|
| Tangible heritage | Museums, art galleries, historical sites and areas, places of worship, buildings and constructions, architectural sights, other attractions and points of interest. | Malta's historical heritage, unique in the Mediterranean, is reflected in the country's architecture and national collections, heritage and cultural areas, restored fortifications, where past and present come together in an enduring and admirable lesson. Museums exhibit magnificent works of art from the early Renaissance to modern times. Another example is Songup Folk Village, on Jeju Island in Korea, which offers a cultural heritage with traditional lifestyles and historic landscape dating back more than 500 years. |
| Intangible culture (immaterial) | Music festivals and events, film, genealogy, battlefields, dark tourism, festivals and events. | Among the many traditional practices and customs still alive, authentic expressions of Greece's intangible cultural heritage are the "Veggera of Andros" (an impromptu traditional visit or gathering at a friend's house to meet and have fun), "Melekouni" of Rhodes (a traditional cake with sesame and honey), the famous pottery tradition of Sifnos, the famous outdoor festivals (panegyria) of Ikaria, the agricultural networks of Limnos and the Orthodox Easter tradition "Kalandira" of Nisysros. In South Africa, tours and performances are offered on the battlefield of Kwazulu Natal. |
| City breaks | City breaks - considered the best way to explore the history, culture and art of a place in a short space of time - leave powerful memories, snippets of local life and the chance to see some of the world's most iconic attractions and architectural sights. | With world-famous landmarks such as Big Ben, Buckingham Palace and the Houses of Parliament, as well as museums and art galleries, London is a top cultural destination. Marakech, the 'red' city on the edge of the Sahara is exotic adventure, from the acrobatics and taming of Jemaa El Fna Square, to the noisy souks, the tiled courtyards of Bahia Palace, or the enchanting Majorelle Garden. |

| | | |
|---|--|---|
| Tastings - Food and wine | Culinary festivals, gastronomic routes, culinary museums, food tastings, cooking classes, wine tastings, wine routes, wineries and vineyards, vegan tourism, visits to producers in local farmers markets. | There are many tour operators offering wine and culinary holidays and tours to Latin America, Africa or Europe. Among the many culinary and wine experiences offered by tour operators are preparing traditional local dishes with a local chef on the Greek island of Crete, visiting a cork factory and tasting olive oil in the Alentejo region of Portugal and exploring truffle fairs in Tuscany and helping to prepare and test dishes with this special ingredient. |
| Community tourism / Community-Based Tourism (CBT) refers to tourism experiences hosted and managed by local communities that are sustainable and responsible. | Accommodation and activities, visits to villages / communities, local festivals, learning local crafts, participating in community life. | In Tanzania, tour operators offer cultural experiences, village visits and wildlife viewing and share the profits from tourism with the local Maasai communities. Other examples include trips to small, eco-friendly settlements in the Rosalie rainforest valley in the Dominican Republic. The women, who are subsistence farmers, make unique, finely woven handicraft souvenirs (purses, mats, bowls, vases, picnic and laundry baskets, bread trays, wall decorations) which can then be purchased by tourists. |
| Religious / spiritual tourism | Pilgrimage, visiting a sacred place, church tourism / mosque / temple, missionary travel, worship, spiritual guidance, etc. | In Africa, the Vodun festival in Benin and the Osun-Osogbo festival of the Yoruba people in Western Nigeria are religious events that attract tourists from all over the world. The Ethiopian festival of Timkat (also known as Epiphany) is another world-famous attraction. The Chapel of the Apparition in Fatima, Portugal or the pilgrimage to Santiago de Compostela, Spain are other well-known examples. |

Source: adapted by the author after (CBI, 2021), (UNWTO, 2021), (European Commission, Internal Market, Industry, Entrepreneurship and SMEs, 2022)

3. Opportunities in cultural tourism

There are a number of general and practical guidelines and guidelines for carrying out these activities and businesses in tourism, especially important for tourism in

small communities with limited information and financial resources. The 2019 Kyoto Declaration on Tourism and Culture makes it clear that investing in cultural tourism is an investment in future generations, provides useful direction for innovatively using the positive potential of cultural tourism to sustain tangible and intangible heritage, enhance community capacity, generate inclusive wealth and strengthen capabilities (UNESCO/UNWTO, 2019). The Community Tourism Programme initiated by AirBnB provides financial support to innovative projects in local communities that encourage tourism in new ways to strengthen communities, empower citizens and preserve and promote local culture. One category of projects that local entrepreneurs and associations can apply to are festivals and events: projects "preserving or celebrating local festivals and events while introducing them to a wider, open audience to these events" (CBI, 2021).

Cultural tourism is not only profitable for large companies and established tour operators, it can offer interesting opportunities for small and medium-sized enterprises, including businesses that would otherwise be excluded from tourism. This means that cultural tourism offers the opportunity to collaborate and build useful relationships with other businesses and organisations, both inside and outside the tourism industry. This approach to cultural tourism starts with what the community considers important, and what the community wants to show.

The community, local government, tourism and adjacent businesses in the receiving areas need to carefully and responsibly examine the potential cultural tourism offer in their area, and propose the development of real, well sized attractions and sights. Secondly, they must understand the motivations of the cultural tourist and try to shape a cultural tourism offer with elements of uniqueness and authenticity. Collaboration with other businesses and organisations in the community can generate synergy and a better presentation and promotion of the place to better attract tourists. Cultural tourism is not the only trend in tourism, so local organisers can think about creating intersections between cultural tourism and, for example, volunteer tourism, ecotourism, wellness or adventure tourism.

In order to provide the market with a specific cultural offer, it should not be forgotten that the contemporary tourist needs online presence and convenience. Social networks, integration into home-sharing operators, etc. are just some of these opportunities, revealing the need to strengthen the offer and enter the cultural tourism market well prepared.

Local communities should not forget that success in this form of tourism can be the first enemy of the medium and long-term sustainability of the tourism offer and business. Too high a presence of tourists in these communities can lead to the danger that cultural tourism will have a negative impact on culture and heritage and affect the long-term sustainability of both the tourism and cultural sectors. It is therefore important to define the limits of change that the community finds acceptable and to manage cultural tourism properly.

4. The generational profile of the cultural tourist

Understanding cultural tourists, their typology, motivations and profile is not straightforward, however, and as Hargrove (2014) expressively points out most people do not go on holiday saying "Today I'm going to be a cultural tourist!", but often their motivations, actions and activities are affected by the availability of cultural goods.

"Cultural" tourists are individuals or groups seeking distinct experiences that focus on visual and performing arts, architecture, cuisine, and crafts, and the difference between a cultural tourist and a local resident (difficult to determine, apparently, in the hustle and bustle of urban traffic) is often that these individuals travel to a destination for a specific purpose - visits, events, business, conventions, leisure - staying overnight in a hotel or even combining their primary motivation with others, secondary or chosen ad hoc, before returning home.

A much debated issue in the theory and practice of cultural tourism is the assessment of tourist flows, specifically, how much of the tourist flows are culturally determined. The most widely held view, based on UNWTO research and publications, is that purely culturally motivated tourists (specific motivation) account for a relatively small share of total tourist flows, around 10-15%. However, the share of tourists with significant cultural motivations in their overall holiday motivation is much higher, at around 40% (UNWTO, 2021), (European Commission, Internal Market, Industry, Entrepreneurship and SMEs, 2022). While there is little dispute about the first figure, the second, of tourists combining cultural motivations with those of relaxation, visits to family and friends, health care, nature, etc., is divided. For example, according to a 2013 report by Mandala Research, 76% of all leisure travelers in the US engage in cultural activities and the market size is estimated at 129.6 million adults, who spend approximately \$171 billion annually (Hargrove, 2014). In Australia, between 39% and 45% of domestic tourists are motivated by cultural and heritage attractions (Arts Hub, 2018), and in the UK research shows that although the majority of domestic and international tourists visiting the UK do not necessarily (self-)identify as cultural tourists, 57% agree that history and culture have a strong influence on their choice of annual holiday destination, and 62% are keen to see famous and well-known locations, the UK's vibrant and exciting cities (Audiences London, 2010).

The importance of knowing the size of the cultural tourism market also stems from the fact that these tourists usually spend more and stay longer than other types of tourists. For example, cultural tourists in the US spend 60% more, about \$1,319 per trip, compared to \$820 for domestic leisure travel (Hargrove, 2014). The cultural traveller also takes more trips than the average tourist in this country: 3.6 versus 3.4 trips annually, and numerous statistics, surveys and polls support this behavioural profile over more than two decades. In the UK, cultural tourists (mostly foreign) spend on average £560 per trip, more than 2.5 times more than domestic tourists with the same motivations, whose lengths of stay are shorter anyway (Oxford Economics, 2016).

Cultural tourism in its modern forms dates back to somewhere in the 1980s. Initially, cultural tourism was driven (in developed countries) primarily by the interest of the baby boom generation to visit major cultural sights and attractions such as museums and monuments, scenic settlements, often travelling in groups. Based on these findings, the image of the cultural tourist belonging (more or less) to this generation is predominantly that of middle- and high-income, well-educated people, with over 55% preferring leisure travel that also has educational and cultural components, interested in interacting with locals through "immersive experiences" (Hargrove, 2014), and over 40% of them being willing to pay more in distinctive, distinct forms of accommodation (such as boutique hotels, hostels, etc.) that reflect the culture of a destination.

Beyond this generation that has been carefully analysed in studies, and which has contributed to the strong growth of cultural tourism (Centre for the Promotion of Imports from developing countries (CBI), 2020), but which will obviously shrink quantitatively over the horizon of the next decade, research in recent years highlights the growing impact of Millennials on cultural tourism. Of course, we are willing to accept the rather imprecise temporal and conceptual boundaries between all these generations (baby-boomers, millennials, centennials, X generation, Z generation, etc.) and, above all, the limited overlaps and correspondences between American and European or national perspectives on the composition of these generations. However, it is worth noting the efforts made by researchers and economic and social players to identify the characteristics and specificities of each generation and to adapt or design cultural and tourism products (and not only) for the specific characteristics of each generation.

Returning to the importance of new cohorts (generations) of cultural tourists, numerous studies, attempting comparisons between different generations, show that 73% of millennials "want to benefit from the cultural goods and artistic activities of a destination", being by far the most highly rated activity in terms of importance, even if cultural motivations and interests are also of high importance for baby boomers (65%) and generation X (68%). More than two-thirds of millennials also rated the "authenticity" of experiences as extremely important. Ethnically, racially and culturally diverse, open to technological innovation and communication, millennials (those born roughly between 1977 and 1994) represent the largest cohort since the Baby Boomers and are clearly the target of today's tourism policies.

We could say that the generations following the Baby Boomers, Generation Y (millennials) and Generation Z (centenarians) have shifted the demand towards more authentic, unique, small-scale and personal experiences, for a culture closer to everyday experiences. For these generations it is more important to "be somewhere" than "go somewhere", stating that "we want to do it our way, not their way" (CBI, 2021). As a rule, people from these generations prefer to travel alone (or with their families) and less in large, organised groups. In Figure 1 below we schematically present a number of general features of the contemporary cultural tourist.

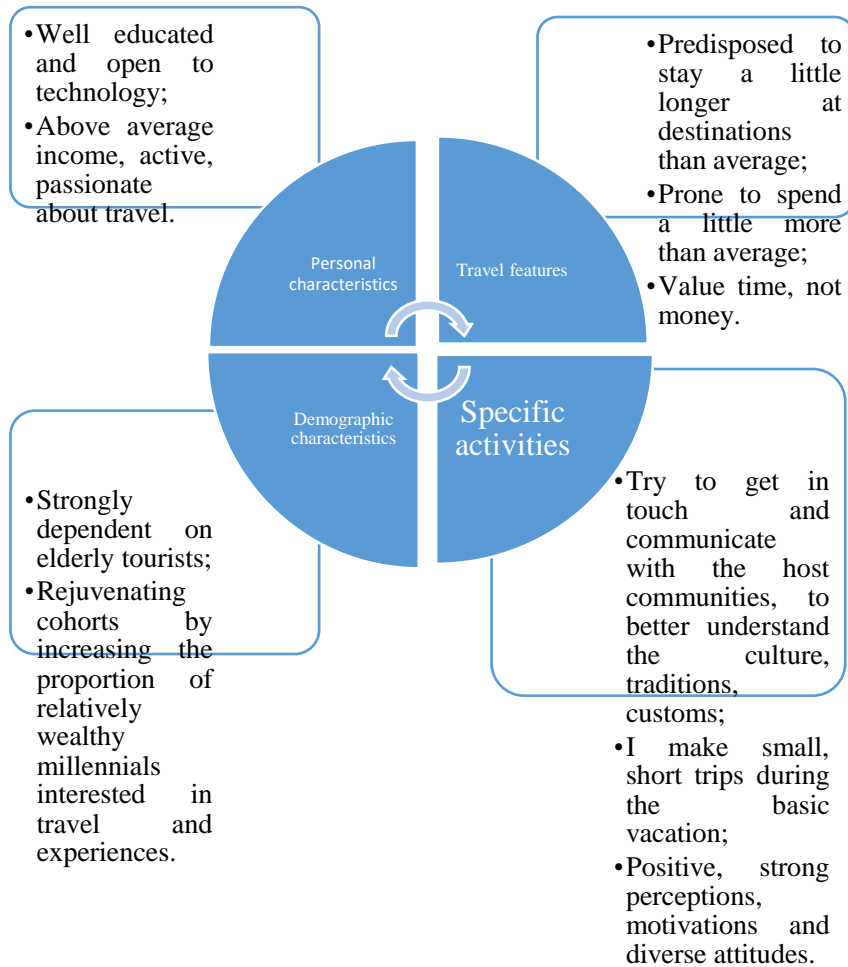


Figure 1: Cultural tourist profile

Source: adaptation from (CBI, 2021), (Hargrove, 2014), (Richards & van der Ark, 2013)

The different types of urban cultures and cultural attractions (and not only) are not sequential, but coexist in most cultural-tourist destinations. Thus, some tourists will limit themselves to a particular type of culture, such as lovers of classical culture, who will often be attracted by historic buildings, museums or classical concerts or traditional music. Others prefer to switch (voluntarily, or driven by impulses and opportunities) from one type of cultural experience to another, the so-called omnivorous consumption type described by Richards and van der Ark (2013). Thus, Greg Richards gives the example of Barcelona, where tourists like to think of themselves as 'cultural tourists', but who, after visiting Gaudi's 'iconic' attractions (Sagrada Familia, Casa Batllo, Parc Guell, La Pedrera) also visit the Camp Nou stadium or spend time on the beach in Barceloneta (Richards, 2018).

In other words the profile of the cultural tourist not only combines different types of culture, but the motivations for engaging in cultural tourism can also be mixed. A consistent research finding is that there are many more visitors with a general

interest in culture, but who see this as only one of many reasons for visiting a particular destination. This seems to be a confirmation of UNWTO (2018) research on cultural tourism, which shows that around 10% of cultural tourists are culture-specific tourists, directly motivated by culture in their decision to visit the destination, and the number of tourists who are also motivated by culture and other reasons, or who carry out cultural activities during their holidays exceeds 40% of all international tourists.

The Association for Tourism and Leisure Education and Research (ATLAS) notes that in recent decades, young people form a significant part of the audience for cultural experiences (2021). This seems to contrast with the traditional image of cultural tourists as predominantly older people. One explanation may lie in the rising levels of education in recent decades, which has given a boost to cultural consumption also among younger generations. Over 60% of cultural tourists surveyed by ATLAS have some form of higher education, and 25% have a postgraduate qualification, an unexpected side-effect of the 'degree inflation' affecting education in recent years (Richards, 2018). Young people are also more likely to be employed in cultural and creative occupations, and these are also linked to more sophisticated levels of cultural tourism. Moreover, a proportion of these young people interested in cultural tourism do not see it in contrast to everyday life, a regular escape from the banality of everyday life, but try to integrate it into their profession, ideas, career opportunities or future business, etc.

5. Conclusions

Cultural tourism is a huge opportunity, fuelled by a steady growth trend over the last decades, and there are, at least for the time being, no signs that this trend will slow down in the coming decades. As of 2018, it is estimated that at least 40% of all tourists worldwide can be considered cultural tourists (World Tourism Organization, 2018), and with all the quantitative decreases in tourist flows in the recent pandemic period, we have no reason, nor any particular data, to question the preservation of this percentage in the last few years (2019-2021). Culture is one of the most important motivations for the majority of international tourists, especially European ones. Cultural tourists, regardless of their origin, are more likely to travel by air and provide more economic benefits to host areas, as they tend to stay (and consume) longer in those places than regular tourists. Cultural tourism can help preserve the tangible and intangible heritage of host communities, provide opportunities to develop all kinds of creative activities and offer tourists memorable and authentic experiences.

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THE TOURISM INDUSTRY IN ROMANIA DURING THE COVID-19 PANDEMIC

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Abstract: *The COVID-19 pandemic has had a dramatic and unprecedented impact on the tourism sector, drastically reducing tourism flows and, therefore, the revenues of businesses in this sector. International, regional and local travel restrictions immediately affected national economies, including tourism systems, international travel, domestic tourism, air transport, public transport, accommodation, restaurants, festivals, sports events etc. Beyond the immediate shock, the tourism sector faces other, longer-term challenges, related to its green and digital transformation, its competitiveness, its sustainability and its resilience (according to ECA, Special Report 27 p.4)*

The paper presents an analysis of tourism in Romania during the 2019-2021 period, based on the analysis of the main indicators and the presentation of the solutions proposed by the European Union to recover the tourism sector. The multiannual financial framework for the 2021-2027 period comprises a number of 14 programs designed to finance actions in the tourism sector and the Recovery and Resilience Mechanism (RRM) provides Member States with the opportunity to finance investments and reforms, including in the tourism sector. Romania's National Recovery and Resilience Plan approved by the Commission in September 2021 focuses, in particular, on digitizing services, increasing responsiveness and ensuring institutional resilience at national level. Furthermore, through the S.O.S. Romanian Tourism, the Alliance for Tourism (APT) presents us with two important objectives: helping tourism out of the critical state in which it currently is and resetting the entire hospitality industry, as well as the measures taken to achieve the proposed objectives.

Keywords: *tourism; COVID-19 pandemic; Recovery and Resilience Mechanism; Romania's National Recovery and Resilience Plan; the Alliance for Tourism.*

JEL Classification: L83; Z32

1. Introduction

The EU is the most visited region in the world, with a share, in 2019, of around 37% of the total number of international tourists. Thus, tourism is a key economic sector in the EU, accounting for 9.9% of the gross domestic product and 11.6% of the total employment in 2019. Four EU Member States (France, Spain, Italy and Germany) are, individually, among the top 10 countries in the world in terms of international tourist arrivals and tourism revenues (according to ECA, Special Report 27 pp.4-6). Following the COVID-19 pandemic, the tourism industry has been among the most affected industries. As a result of travel and other restrictions, tourism has gradually

ceased its operations in the first quarter of 2020 in the EU and worldwide. The OECD estimates that this decline in activity ranges between 45% and 70%, depending on the duration of the health crisis and the pace of recovery (according to the European Commission, 2020 pp.9-11). The development of the EU tourism sector faces major medium- and long-term challenges related, in particular, to its environmental transformation, its digitization and the integration of new technologies, as well as competitiveness and resilience. In this regard, sustainable tourism is one of the most important concepts related to the development of tourism. This involves balancing the environmental, economic and socio-cultural aspects of tourism development, in order to guarantee the long-term sustainability of tourism (according to ECA, Special Report 27 pp.18-20).

2. Research Methodology

In this paper, we have focused both on a quantitative, as well as a qualitative analysis. In order to perform the quantitative analysis we used statistical data provided by the National Institute of Statistics and Eurostat and, in terms of the qualitative analysis, we focused both on documenting official sites (EU, Ministry of Investments and European Projects, etc.) and on synthesizing the aims and objectives proposed by the Alliance for Tourism through the S.O.S. Romanian Tourism project

3. EU support for the tourism sector in 2021

In March 2021, the Parliament adopted a resolution on “establishing an EU strategy for sustainable tourism”, calling on the Commission to present an action plan in 2021 and to draw up an updated EU strategy to replace the one presented in the 2010 Communication on Sustainable and Strategic Tourism (according to ECA, Special Report 27 p.29).

Also in May 2021, the EU Council invited the Commission and Member States to draw up a European Agenda for Tourism 2030/2050. This should be conducted in cooperation with relevant stakeholders and address the key strategic challenges in order to drive the green and digital transition of the tourism ecosystem and to strengthen its competitiveness, resilience and sustainability (according to the Council of the European Union, Brussels, May 27, 2021)

In June 2021, the European Parliament and the Council reached an agreement on developing a certificate under the name of "EU Digital Certificate on COVID" to relaunch tourism both at national and international level. Thus, the EU digital certificate on COVID played a key role in resuming intra-EU travel for the summer of 2021. The EU digital certificate system for COVID provided for three different types of COVID-19 certificates: a vaccination certificate, a test certificate and a recovery certificate. The certificate was issued by all EU Member States and could be used in all EU Member States, as well as in Iceland, Switzerland, Liechtenstein

and Norway. A common drafting model was developed with the Member States (according to https://ec.europa.eu/health/system/files/2021-05/covid-certificate_paper_guidelines_en_0.pdf) to facilitate the recognition of EU COVID certificates issued on paper (according to ECA, Special Report 27 pp.40-44).

In the multiannual financial framework, there is no budget dedicated to tourism. Several EU initiatives and programs can provide funding for investments in tourism. During 2014-2020, there were 12 programs that could be used to fund actions in the tourism sector, through direct management or shared management. For 2021-2027, this number will increase to 14 such programs, including those created to mitigate the impact of the COVID-19 pandemic (according to ECA, Special Report 27, p.14). According to the Official Journal of the European Union (2021:34) for 2021-2027, the legislative framework of the ERDF includes two common indicators related to tourism: “Cultural and tourist sites receiving support” (as an indicator of achievement) and “Number of visitors to cultural and tourist sites receiving support” (as a result indicator). The recovery and resilience mechanism provides Member States with the possibility to finance investments and reforms, including in the tourism sector, as part of their national recovery and resilience plans. According to the situation of October 2021, 26 of 27 such plans had been submitted to the Commission and 19 had been adopted by the Council. The funding available under the RRM should be engaged by the end of 2023. The Commission has the obligation to prepare an evaluation report on the implementation of the RRM, by February 2024, as well as an ex-post evaluation report, by December 2028 (according to ECA, Special Report 27, p.17).

4. Romania’s National Recovery and Resilience Plan (Component C11. Tourism and Culture)

Romania’s National Recovery and Resilience Plan was approved by the Commission in September 2021.

Component C11. *Tourism and culture* fall under the policy field of European importance on social and territorial cohesion (Pillar 4). “The reforms and investments of the component aim for Romania to become a well-known tourist destination, of high quality, throughout the year, focused on the uniqueness of its cultural and natural heritage and offering services of international calibre, but also supporting the digital transition of cultural and creative sectors through measures that increase the resilience of enterprises in the field by accelerating the digital transition” (according to the Ministry of European Investments and Projects p.34). Also, by improving the accessibility of tourist areas and digitizing them, the strategic capitalization of cultural heritage will be accelerated as a national competitive advantage, supporting economic and social resilience. Investments for the digitization of services, the development of infrastructures, as well as the increase of skills provide an integrated response to possible unforeseen situations, the increase of responsiveness and ensuring the institutional resilience at national level (according to the Ministry of Investments and European Projects p.43). Measures of

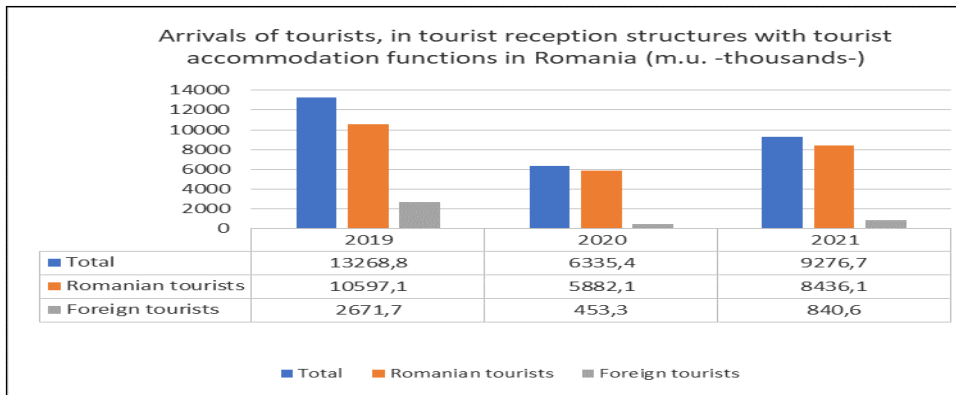
component *C11. Tourism and culture* “support the mitigation of the economic and social impact of the crisis due to the numerous economic connections it generates in relation to other economic sectors, jobs creation and contribution to the GDP, and also due to the construction and strengthening of an image identity, of a notoriety in the collective mind and through the construction of a country brand, which is proof of the novelty and quality of the destination” (according to the Ministry of European Investments and Projects p.46).

5. Tourism during 2019-2021. Statistical data

Traditional tourist destinations, such as Croatia, Cyprus, Greece, Malta and Spain, have suffered the largest reductions in the contribution of travels and tourism to the GDP (over 60%), (According to ECA, Special Report 27, pp.12-13). The economic importance of the tourism sector varies considerably from one Member State to another, from 4% to 6% of the GDP in Ireland, Poland, Belgium and Lithuania and up to over 20% in Croatia and Greece. Also, the ratio between domestic and foreign visitors varies greatly from one Member State to another. In Sweden, Poland, Romania and Germany, over 75% of tourists are visitors who already live in that respective country. Countries with a low population (Luxembourg and Malta), as well as Croatia, have the highest ratio of foreign visitors (the ratio for these countries is of approximately 90%). In two of the EU’s main tourist destinations, Italy and Spain, the distribution is more balanced (according to ECA, Special Report 27, pp.7-8).

According to the data presented in the chart below, we can say that the number of tourists in Romania registered a decreasing trend in the period 2019-2021. Thus, if in 2019 the number of tourists arriving in the structure of tourist reception with tourist accommodation functions in Romania was 13268.8, in 2020, the number of tourists has halved, registering only 6335.4 people. The decrease in the number of tourists in 2021 was caused, on the one hand, by the accelerated increase in the number of cases Covid-19, and, on the other hand, by the requirement of the green certificate as a condition for accommodation. Of the 9.3 million tourists who arrived in the accommodation units between January and December 2021, only 840,000 were foreigners, i.e. 9% of the total number of tourists. The statistics show a slight recovery in the number of tourists in 2021 compared to 2020, but the values are still far from the level recorded in 2019, the reference year for the local travel market (according to Diaconu, M 2022b).

Chart no.1 Arrivals of tourists, in tourist reception structures with tourist accommodation functions in Romania (m.u. -thousands-)

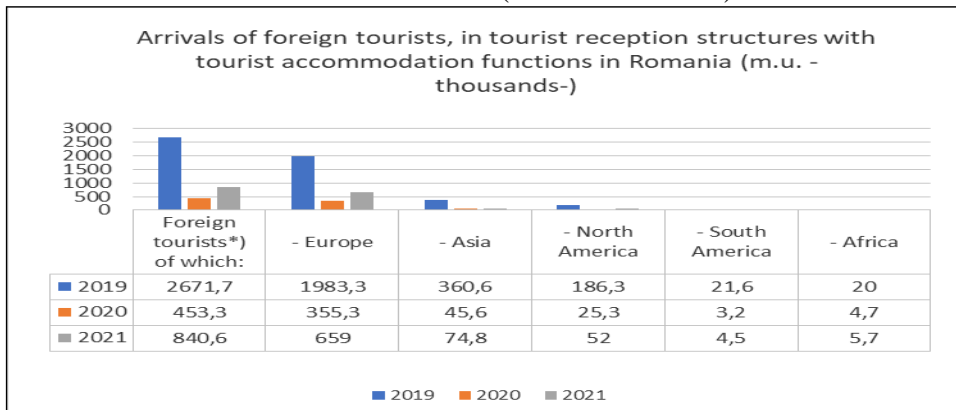


Source: created by the author, based on the information provided by INS 2021 and 2022

Arrivals registered in the tourist reception structures in 2021 totalled 9276.7 thousand people, an increase by 46.4% compared to 2020. In 2020, in the context of the pandemic, the arrivals registered in the tourist reception structures totalled only 6335.4 thousands, a decrease by 52.3% compared to 2019.

By comparing the number of Romanian tourists with that of foreigners, we notice that in the period 2020-2021, the arrivals of Romanian tourists in the tourist reception structures with accommodation functions accounted for approximately 91% of the total number of tourists, while the foreign tourists, around 7% -9%. We infer from this that during 2020-2021, Romanian tourists focused particularly on national tourism.

Chart no.2 Arrivals of foreign tourists, in tourist reception structures with tourist accommodation functions in Romania (m.u. -thousands-)

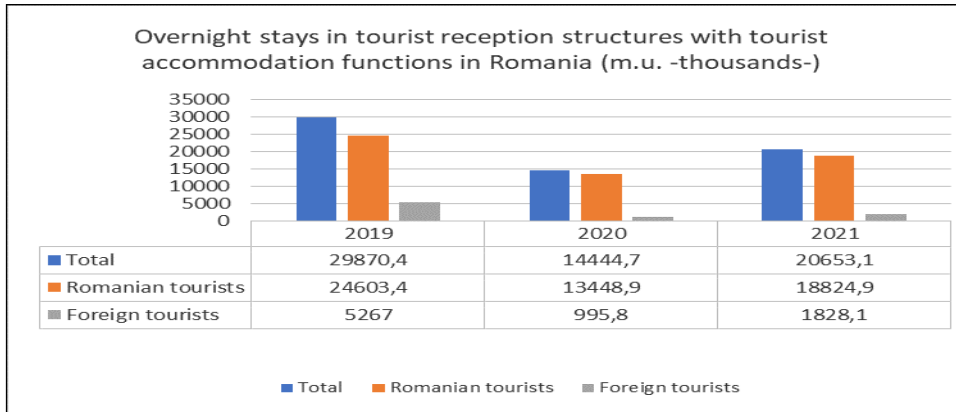


Source: created by the author, based on the information provided by INS 2021 and 2022

Monitoring the indicator regarding the arrivals of foreign tourists in the tourist reception structures by country of residence, we notice that during 2019-2021 the largest share consisted of those arriving from Europe (78.4% in 2021 and 76.7% in

2020) and of these, a significant percentage represented tourists from European Union countries (76.8% in 2021 and 75.8% in 2020).

Chart no.3 Overnight stays in tourist reception structures with tourist accommodation functions in Romania (m.u. -thousands-)

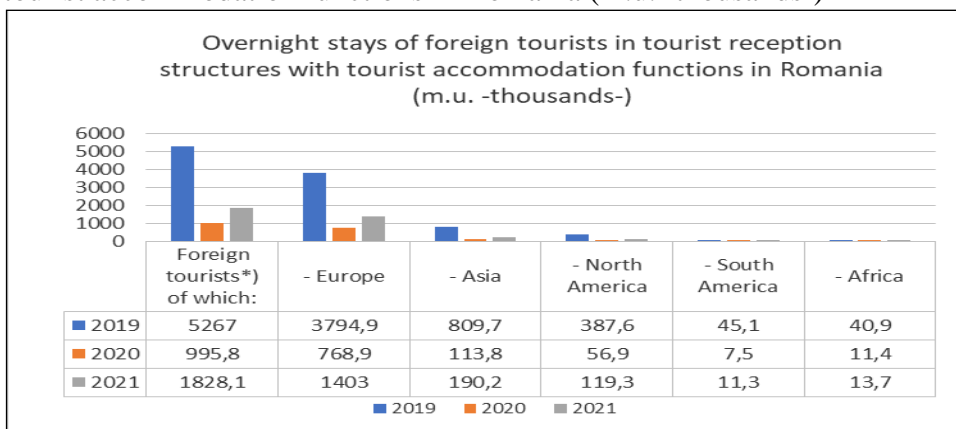


Source: created by the author, based on the information provided by INS 2021 and 2022

Overnight stays registered in the tourist reception structures during 2021 totalled 20653.1 thousands, an increase by 43.0% compared to those in 2020. In 2020, overnight stays registered in the tourist reception structures totalled only 14444.7 thousands, a decrease by 51.6% compared to those in 2019.

Overnight stays of Romanian tourists in the tourist reception structures with accommodation functions in 2021, accounted for 18824.9, an increase by 40% compared to 2020. Also, overnight stays of foreign tourists in 2021 accounted for 1828.1, an increase by 55% compared to 2020.

Chart no.4 Overnight stays of foreign tourists in tourist reception structures with tourist accommodation functions in Romania (m.u. -thousands-)



Source: created by the author, based on the information provided by INS 2021 and 2022

Regarding the overnight stays of foreign tourists in the tourist reception structures by country of residence, we notice that during 2019-2021 the largest share was represented by those arriving from Europe (76.7% in 2021 and 77.2% in 2020) and of these, the majority were from European Union countries (75.8% in 2021 and 73.0% in 2020).

The average length of stay, in 2021, was of 2.2 days, for both Romanian and foreign tourists, and, in 2020, it was of 2.3 days, for Romanian tourists and of 2.2 days for foreign tourists.

The index of net use of tourist accommodation places, in 2021, was of 26.5% per total tourist accommodation structures, an increase by 3.6% compared to 2020, while, in 2020, it was of 22.9 % per total tourist accommodation structures, a decrease by 11.3% compared to 2019. Higher indices of net use of tourist accommodation places, in 2021, were registered in hotels (32.1%), bungalows (25.2%), tourist villas (25.0%), accommodation on ships (24.3%), camping sites (20.4%), tourist houses (19.9%), tourist stops (18.6%), tourist pensions (18.3%), hostels (17.7%), agritourism pensions (17.3%) and tourist chalets (15.6%) and, in 2020, were registered, for accommodations on ships (29.3%), in bungalows (28.9%), hotels (26,7%), camping sites (24.3%), tourist houses (22.1%), tourist villas (21.4%), tourist stops (19.4%) and agritourism pensions (16.7%).

6. Solutions for the Organisation and Support of Romanian Tourism - the Alliance for Tourism

The Alliance for Tourism (APT) is an open, informal structure, voluntarily constituted. To date, 18 professional organisations of Romanian tourism have joined this group of attitude and initiative, many other organisations and experts expressing their interest, APT being the expression of unity, will power and determination of the entire hospitality industry in the face of these great threats and challenges, that Romanian tourism has to deal with.

Nevertheless, the primary purpose of the S.O.S. Romanian Tourism project is for the Romanian tourism to achieve much better performances as a result of implementing the measures in this document (according to Alliance for Tourism, 2020, p.8):

- ✓ Increasing revenues from tourism:
 - accommodation, from the current level of EUR 1.4 billion, in 2019, to EUR 3 billion, in 2025
 - restaurants and public catering from the current level of EUR 3.5 billion, in 2019, to EUR 7 billion, in 2025
 - travel agencies and tour operators, from EUR 0.8 billion, in 2019, to EUR 2 billion, in 2025
 - activities for organisation of fairs and events, from EUR 120 million, in 2019, to EUR 500 million, in 2025

- ✓ Increasing the average expenditure per tourist – from the current level of EUR 480, in 2019, to EUR 575, in 2025;
- ✓ Increasing the average length of stay of tourists – from 2 days, in 2019, to 2.8 days, in 2025;
- ✓ Increasing the number of foreign tourists – from 2.85 million, in 2019, to 5.5 million, in 2025;
- ✓ Increasing the number of jobs in hotels and restaurants – from 220,000, in 2019, to 450,000, in 2025.

Romanian Tourism (Solutions for the Organisation and Support of Romanian Tourism) is the first project of this Alliance and constitutes a unitary approach, coordinated and focused on the future of Romanian tourism (according to Alliance for Tourism, 2020, pp.7-8)

Table 1: The objectives pursued by the S.O.S. Romanian Tourism project

| Proposed objectives | Measures to achieving the objectives |
|--|--|
| Objective 1 pulling tourism out of the critical state in which it currently is, during these extremely difficult times we are going through, in the context of the crisis generated by the coronavirus epidemic | For the first objective, the 70 professional practitioners in the field, constituting ten working groups, devised a plan of 10 urgent measures, that would allow the overcoming of the critical moment generated by the pandemic, with as little damage as possible. |
| Objective 2 resetting of the entire hospitality industry, positioning it on other coordinates, that would take into account the global trends in the field, that would take into consideration successful international models, but also local specificities. | However, in order to reset the entire field of tourism, a plan has been structured, which currently contains a number of 50 measures dedicated to several generic lines of action: increasing administrative efficiency, promoting investment in tourism, labour and education, digitization and innovation, sustainability in tourism, but also actions specifically aimed at the main sectors of tourism: accommodation structures, restaurants, recreation facilities, tour operators and agencies, tourism guides, related services and tourist transport. |

Source: created by the author based on the information presented in the article Solutions for the Organisation and Support of Romanian Tourism - Alliance for Tourism

Achievement of the proposed objectives requires a broad undertaking of a ten-year multiannual program for tourism, a National Pact for Tourism, in which all government structures, all political parties and all employers' and professional associations in the field should conclude an agreement, both formally and informally, that together with the business and professional environment in the hospitality industry, to follow a rational, consistent and visionary strategic line leading us, as

soon as possible, to achieving the goal: Romania, a preferred and unanimously appreciated European tourist destination.

7. Instead of conclusions... Challenges and opportunities in the hospitality industry in 2022

Consumer satisfaction is the main concern when it comes to hospitality. In the last year, the new expectations and the new technologies have been evident in the hospitality market at international level. The various challenges the hospitality industry is facing are related to technology, reputation, skilled labour, digital marketing, customer loyalty, etc. Electronic check-in is the latest technology adopted by the industry. When guests plan their trips, hotels check-in guests and then send key cards equipped with the new identification recognition. Regardless of the sectors of the national economy, a high level of trust should be maintained between the service provider and the consumer. The reputation of a hotel is what guests say about the hotel through online reviews, comments and pictures. Most of the reviews are posted on high-ranking social media networks i.e. Instagram, Facebook, Yelp and TripAdvisor. Reviews and comments can destroy or promote a hotel's reputation. This is a challenge that the industry is facing and will continue to face in the years to come. Moreover, retaining employees is a significant challenge, regardless of the sector. Focusing on referral-based hiring is a significant method that needs to be implemented in order to protect such talent. The industry will also need to adopt processes that will increase employee productivity and morale. Work schedules, technology or favourable incentives are among the ways to motivate employees. As the industry continues to grow, retaining and attracting top talent will become a priority. Hiring staff who can fluently speak several languages, provide information and provide services in different languages, will be essential. Technology giant Google has recently launched headphones that could help hotels meet this challenge. Wireless headphones can automatically translate in 40 languages. Effective use of digital channels to boost sales and build a customer base are two of the primary challenges of digital transformation the hotel industry is facing (according to article *Challenges and opportunities in the hospitality industry in 2021*).

Another critical challenge, which hotels face and will continue to face in the upcoming years, is related to the loyalty programs based on discounts and special offers aimed at customer retention. For local tourism, 2022 will mean further return of the tourism business, but reaching the level of 2019 is questionable, in a context where the rising food prices, but also the increase of utility bills, put even more pressure on tourism operators, who barely managed, in 2021, to recover some of the losses caused by the pandemic (according to Diaconu, M 2022a). Experts believe that tourism will return to the level of 2019 only in 2023, but everything will depend on the evolution of the pandemic and the conflict between Russia and Ukraine.

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THE NEXUS AMONG RENEWABLE ENERGY, R&D ACTIVITIES AND GENDER INEQUALITY: EVIDENCE FROM EASTERN EUROPE

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Abstract: *The ecological transition process is of vital importance to modern economies. In the literature, little attention has been paid to the role that social factors can play in the diffusion of renewable energy. The paper aims to contribute to this debate by focusing on the connections between R&D activities, gender inequality and renewable energy. Specifically, many authors have underlined the positive influence that R&D activities can have on the ecological transition process, by favouring the diffusion of green innovations within the various economic sectors. On the other hand, some studies have shown that gender inequality can represent an obstacle towards the adoption of more sustainable consumption and production choices in the energy context. In our study we wanted to combine the two aspects: is it possible that a greater participation of women in R&D activities could have a positive impact on the diffusion of energy from renewable sources? To answer the question, we employ a panel vector autoregressive model in first differences to test complex dynamic relationships among renewable electricity production (as a proxy of the ecological transition), R&D expenditures (as a proxy for a country's innovative capacity), and share of female researchers (as a proxy for gender equality in the sector), controlling for per capita income. The study concerns 9 Eastern European countries for the period 2000-2019. The results show that the R&D expenditure is positively related to the production of electricity from renewable sources. Moreover, increased employment of women in R&D activities seems to support the ecological transition process. Finally, an increase in R&D spending seems to ensure easier access for women in the research sector. Supporting R&D activities, however, may not be enough, since women participation in those activities does not show a path dependence. Furthermore, from the impulse response analysis, a shock exerted on the share of female researchers produces positive effects on the diffusion of renewable energy, but only for a short period. Policymakers should make constant efforts to favour the participation of women in R&D activities: the global energy transformation needs to be inclusive and women have to be part of it.*

Keywords: *Renewable energy; R&D activities; Gender inequality; PVAR; Eastern European countries.*

JEL Classification: *Q56; J16.*

1. Introduction

The energy question has always been at the centre of the evolutionary history of countries, starting from the most remote times (such as the Industrial Revolution) up to the present day, due to its link with the environmental question. Energy has positive aspects, as it is essential for human life, for the production of consumer goods that are used daily, etc. (Al-Mulali and Normee Che Sab, 2013), but this does not remove the downside. Increasing energy consumption, as well as its production, has increasingly highlighted the limits of traditional energy sources (Sun et al., 2022; Anwar et al., 2021; Salem et al., 2021), other than an increase in greenhouse gas emissions (Bourcet, 2020). For these reasons it is necessary to decarbonise the economy through the increased use of renewable energy (RE) sources (Quan et al., 2021; Li et al., 2021).

To safeguard the environment, therefore, an energy transition towards alternative and ecological sources such as renewables is necessary. The expansion of RE guarantees energy security, reduction of production costs, diversification of energy consumption by decreasing the dependence on fossil fuels in production. Due to the importance of RE development, various studies are conducted on the its determinants (see Bourcet, 2020, for a systematic literature review).

The relationship between economic growth and RE has been studied over the past decade. Several studies have confirmed the conservation hypothesis, which implies a one-sided causality between economic growth and RE diffusion (Tiwari, 2011); other studies emphasize the bidirectional causality between RE diffusion and economic growth (Amri, 2017; Al-mulali et al., 2014; Eren et al., 2019).

Although the literature focuses mainly on the effects of economic growth, financial development and trade, other factors such as social aspects have not been adequately considered (Bourcet, 2000). Specifically, there is a notable lack of studies on the relation between RE ad R&D activities as human capital projection (uz Zaman et al., 2021), as well as on the impact that gender inequalities can have on the industry (Feenstra and Özerol, 2021).

R&D activities, due to their effects on CO₂ reduction, can help the economy move towards RE production (Chen and Lee, 2020; Li et al., 2020; Cheng et al., 2019). The development and diffusion of renewable energies require adequate technologies, which guarantee a competitive and efficient energy supply; this can be stimulated by human capital and knowledge deployment (Przychodzen and Przychodzen, 2020). The literature is particularly lacking on the link that may exist between gender inequality and RE. Women can bring new viewpoints to the workplace and improve collaboration, thanks to their skills and sensitivity. Still, according to an IRENA survey (2017), women represent 32% of the fulltime employees in the sector; moreover, their participation in participation in science, technology, engineering and mathematics (STEM) jobs (28%) is much lower than in administrative jobs (45%).

Can gender inequality in R&D activities affect production from renewables?

We studied this link on a sample of EU transitional economies (Bayar et al., 2021), specifically in Eastern Europe. As a method of analysis, we used the Panel vector autoregression (PVAR) model, following the recent empirical literature (Charfeddine and Kahia, 2019; Lin and Zhu, 2017).

2. Empirical analysis

2.1. Methodology and model specification

The purpose of the analysis is to highlight the role of some determinants of the RE, and specifically gender equality in R&D activities, in a panel of 9 Eastern European countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovak Republic), using the longest time span possible from 2000 to 2019. Our empirical strategy is based on the PVAR approach, combining the traditional VAR, which treats all the variables in the system as endogenous, with the panel data approach, which borrows strength from the cross-sectional dimension and focuses on bidirectional effects. Following the literature, we have introduced a model based on the variables listed in Table 1.

Table 1: Data description and sources

| Variable | Definition | Source |
|----------|--|-------------------|
| REN | Share of electricity production from renewables | Our World in Data |
| GDP | GDP per capita, PPP (constant 2017 international \$) | World Bank |
| RAD | Research and development expenditure (% of GDP) | World Bank |
| WOM | Share of female researchers by sector of performance (Percentage based on full-time equivalents) | Eurostat |

Following Love and Zicchino (2006), we introduced the specified PVAR model:

$$X_{it} = f_i + G(L)X_{it} + e_{it} \quad (1)$$

where X_{it} represents the vector of stationary variables in our analysis, f_i represents a vector of individual (country in our case) fixed effects, $G(L)X_{it}$ is a square matrix of polynomials in the lag operator, and e_{it} is the random error term (later, d denotes the first difference operator). The descriptive statistics for the variables are reported in Table 2.

Table 2: Descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|----------|-----------|----------|----------|
| REN | 180 | 19.64 | 19.83 | 0.12 | 80.00 |
| GDP | 180 | 24388.10 | 6437.76 | 10503.62 | 40981.06 |
| RAD | 171 | 0.85 | 0.40 | 0.36 | 2.28 |
| WOM | 171 | 40.95 | 8.52 | 23.10 | 60.80 |

2.2. Empirical testing

Macroeconomic variables are usually characterized by non-stationarity, which can cause spurious results in the context of VAR and panel analyses. A possible solution is the use of the first-difference transformation. The first step of the empirical analysis is to check the stationarity of the various series using both first- and second-generation unit root tests. Specifically, two first-generation unit root tests (IPS and MW) and a second-generation unit root test (Pesaran) have been used. All tests are characterised by a null hypothesis that assumes a unit root. The results of these panel unit root tests are reported in Table 3 (variables in level) and Table 4 (variables in first differences).

Table 3: Unit root tests: variables in level

| Variable | IPS W-t-bar | MW | Pesaran |
|----------|-------------|-------|---------|
| REN | 3.289 | 0.884 | 0.218 |
| GDP | 3.437 | 1.000 | 0.025** |
| RAD | 1.885 | 0.925 | 0.109 |
| WOM | -1.360*** | 0.446 | 0.517 |

Note: *p < 0.1; **p < 0.05; ***p < 0.01

Table 4: Unit root tests: variables in first differences

| Variable | IPS W-t-bar | MW | Pesaran |
|----------|-------------|------------|-----------|
| dREN | -8.677*** | 120.922*** | -4.485*** |
| dGDP | -4.985*** | 55.186*** | -0.618 |
| dRAD | -7.434*** | 72.939*** | -2.633*** |
| dWOM | -10.479*** | 118*** | -5.589*** |

Note: *p < 0.1; **p < 0.05; ***p < 0.01

The results show that not all the variables are stationary in levels. However, all the chosen variables are stationary after the first difference: all the series are integrated of order one (I(1)).

Table 5 shows the results of the cointegration tests introduced by Westerlund (2007). These tests assume the null hypothesis of no cointegration, which cannot be rejected based on the results of all four tests. Therefore, the empirical characteristics of the chosen variables require estimation in first differences, as the variables in level are not cointegrated, as well as non-stationary.

Table 5: Cointegration tests

| Statistic | Value | p-value |
|------------------|--------------|----------------|
| G _t | -2.039 | 0.220 |
| G _a | -4.771 | 0.260 |
| P _t | -4.087 | 0.820 |
| P _a | -3.812 | 0.760 |

Note: p-value are robust critical values obtained through bootstrapping with 100 replications

We examined the correlation matrix and the variance inflation factor (VIF) to assess whether collinearity and multicollinearity were a concern for our analysis. The statistics are shown in Table 6 (dREN is used as dependent variable). Given the low correlation values and the low VIF and mean VIF values, we can conclude that collinearity and multicollinearity were not a concern.

Table 6: Correlation matrices and VIF statistics

| | dREN | dGDP | dRAD | dWOM |
|-----------------|-------------|-------------|-------------|-------------|
| dREN | 1.00 | | | |
| dGDP | -0.03 | 1.00 | | |
| dRAD | -0.08 | 0.03 | 1.00 | |
| dWOM | 0.04 | -0.06 | -0.09 | 1.00 |
| VIF | | 1.00 | 1.01 | 1.01 |
| mean VIF | 1.01 | | | |

The final preliminary step is lag order selection. Following the econometric literature, the optimal lag length should minimize the moment model selection criteria developed by Andrews and Lu (2001): the moment Bayesian information criterion (MBIC), moment Akaike’s information criterion (MAIC), and moment Hannan and Quinn information criterion (MQIC). Based on the three model selection criteria, a first order PVAR model is the chosen one (see Table 7).

Table 7: Lag order selection criteria

| Lag | MBIC | MAIC | MQIC |
|------------|-------------|-------------|-------------|
| 1 | -219.82 | -57.05 | -122.79 |
| 2 | -168.13 | -46.05 | -95.36 |
| 3 | -105.75 | -24.36 | -57.24 |
| 4 | -58.26 | -17.57 | -34.01 |

We removed the deterministic fixed effects f_i in Eq. (1) by using the first difference transformation. As well known, this method may generate the so-called Nickell bias (1981) due to the correlation between the first-differenced lag and the first-differenced error term, which both depend on e_{it-1} . In this context, estimating the

model using OLS will produce biased and inconsistent results (Baltagi, 2008). We use forward mean-differencing, also referred to as the Helmert transformation (Love and Zicchino, 2006; Arellano and Bover, 1995) to overcome this problem. The system may thus be estimated using the Generalized Method of Moments and the lagged values of regressors can be used as instruments.

2.3. Results

The first order PVAR results are shown in Table 8.

Table 8: PVAR results

| | | Dependent variables | | | |
|------------------------------|------|---------------------|-------------|-----------|-----------|
| | | dREN | dGDP | dRAD | dWOM |
| Lagged independent variables | dREN | 0.377*** | 70.169*** | -0.022*** | -0.167*** |
| | dGDP | 0.000 | 0.408*** | 0.000** | 0.000 |
| | dRAD | 3.998** | 3423.896*** | 0.637*** | 1.213*** |
| | dWOM | 4.892*** | -746.522*** | -0.251*** | -0.820*** |

Note: *p < 0.1; **p < 0.05; ***p < 0.01

The results show that GDP does not have a statistically significant impact on REN. In the literature this influence is often proved to be negative (Marra and Colantonio, 2021 and 2022; Sung and Park, 2018; Cadoret and Padovano, 2016; Omri and Nguyen, 2014; Salim and Rafiq, 2012). An increase in income is usually followed by an increase in energy consumption; in the past, this was mainly satisfied through traditional sources, while nowadays there is a greater use of renewable sources.

As expected, an increase in RAD generates an increase in REN. We can emphasize that we used generic R&D expenditure, since green innovation pervades every kind of sector. Moreover, RAD shows a positive incidence on GDP.

An increase in time spent by women (WOM) in R&D activities is usually followed by an increase in the production of energy from renewable sources (REN), used as a proxy for the ecological transition process. In other words, women's participation in STEM jobs allows their talents and sensibility to be fully utilised and it can represent a boost for sustainable development.

An increase in REN usually implies an increase in GDP, that is a greater production of energy from renewable sources does not represent an obstacle to economic growth.

Interestingly, an increase in R&D spending allows women to spend more time on those activities.

Finally, observing the main diagonal, all the variables show a path dependence, with the exception of WOM.

The stability of the PVAR model was analysed and verified as the eigenvalues are strictly less than 1 (see Table 9). Moreover, the test of overidentifying restriction (Hansen's J chi²) is equal to 72.25 (p = 0.224): this confirms the goodness of the model, since the null hypothesis that the over-identifying restrictions are valid is

verified (the included instrumental variables are valid instruments and uncorrelated with the error term, while those instruments not included are properly excluded).

Table 9: Eigenvalue stability condition

| Real | Imaginary | Modulus |
|--------|-----------|---------|
| -0.159 | -0.860 | 0.874 |
| -0.159 | 0.860 | 0.874 |
| 0.460 | -0.401 | 0.610 |
| 0.460 | 0.401 | 0.610 |

We also executed the Granger causality test, which is based on the Wald test. Specifically, the blocks of exogeneity analysis (ALL) confirmed the existence of endogeneity (see Table 10).

Table 10: Granger causality test

| Equation Variable | Excluded Variables | Chi2 | p value |
|-------------------|--------------------|---------|---------|
| dREN | dGDP | 0.512 | 0.474 |
| | dRAD | 4.782 | 0.029 |
| | dWOM | 95.360 | 0.000 |
| | ALL | 107.936 | 0.000 |
| dGDP | dREN | 9.776 | 0.002 |
| | dRAD | 24.371 | 0.000 |
| | dWOM | 60.031 | 0.000 |
| | ALL | 119.483 | 0.000 |
| dRAD | dREN | 13.553 | 0.000 |
| | dGDP | 5.427 | 0.020 |
| | dWOM | 102.040 | 0.000 |
| | ALL | 135.121 | 0.000 |
| dWOM | dREN | 105.086 | 0.000 |
| | dGDP | 0.373 | 0.542 |
| | dRAD | 9.096 | 0.003 |
| | ALL | 131.207 | 0.000 |

Table 11 reports the variance decomposition, which assesses the relative weight of shocks in one variable to variation in other variables over time. The forecast error variance decomposition follows the Cholesky decomposition and was performed using 1000 Monte Carlo simulations for 10 periods. The table shows that each variable is mainly influenced by its lag. Particularly, REN is mainly determined by WOM (31.78%) on average during a 10-year period.

Table 11: Variance decomposition analysis

| | | Impulse Variable | | | |
|-------------------|------|------------------|--------|--------|--------|
| | | dREN | dGDP | dRAD | dWOM |
| Response variable | dREN | 62.35% | 0.52% | 5.35% | 31.78% |
| | dGDP | 17.14% | 54.20% | 11.13% | 17.53% |
| | dRAD | 47.93% | 4.44% | 16.19% | 31.43% |
| | dWOM | 40.99% | 0.51% | 5.20% | 53.29% |

Note: Variation in response variable explained by the impulse variables in the columns (10 periods ahead)

The impulse response functions (see Figure 1) illustrate the reaction of one variable in the system to shocks in another variable, while keeping all other shocks equal to zero (a Gaussian approximation based on 200 Monte Carlo simulation was employed to estimate the impulse response functions, which in this case also followed the Cholesky decomposition). When one positive unit shock is exerted on one variable in the current period, the response variable usually exhibits a remarkable response in the early phases, followed by a slight fluctuation thereafter. Specifically, positive shocks exerted on WOM generate a significant response in REN during the early periods.

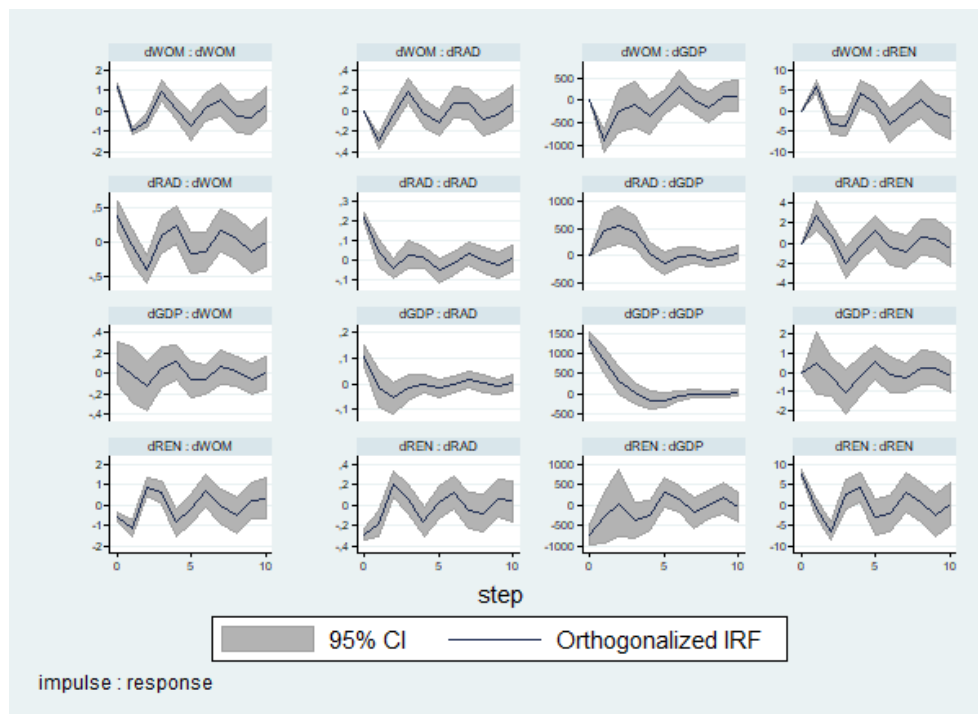


Figure 1: Impulse Response Analysis

Conclusions and Policy Implications

Little attention has been paid to the role that social factors can play in the ecological transition process (Bourcet, 2020). This paper contributes to the debate by considering the link among R&D activities, gender inequality and the production of energy from renewable sources, for a group of Eastern European countries in the period 2000-2019.

The results of the analysis (based on a PVAR model) highlighted some interesting relationships over time:

1. as expected, the R&D expenditure is positively related to the production of energy from renewable sources (nowadays almost all sectors, from logistics, to construction, agri-food, packaging, etc. are interested in green innovation);
2. increased employment of women in R&D activities seems to support the ecological transition process;
3. an increase in R&D spending seems to ensure easier access for women in the research sector.

Supporting R&D activities, however, may not be enough!

WOM, which from the variance decomposition analysis seems to have a relevant weight on REN variation, does not show a path dependence. Furthermore, from the impulse response analysis, a shock exerted on WOM produces positive effects on REN, but only for a short period. Policymakers should therefore support “gender equality” in R&D activities over time, for example through scholarships, grants, fiscal and financial facilities, etc. to have a greater chance of success on the road to a more sustainable development.

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THE ROLE OF TOURISM DESTINATION MANAGEMENT ORGANIZATIONS IN THE DEVELOPMENT OF TOURISM ACTIVITIES

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Abstract: *The increasing competitiveness between local, regional, national and international tourism destinations has determined the parties involved in the tourism industry (local, central authorities, tourism service providers) to initiate a series of actions that would contribute to the diversification of tourism offers and obtaining economic advantages and not only. In this regard, destination management organizations have responded to the need of stakeholders by providing some opportunities for the development of the tourism destination. Among the activities performed by the destination management organizations the following can be mentioned: the elaboration of some plans for the sustainable development of tourism activities in a certain tourism area, the collaboration with the providers of tourism services, the identification of some competitive advantages, the promotion of the image of the tourism destination and the creation of a brand image, the provision of information to all stakeholders, the creation of some authentic tourism products, which would offer unique experiences to tourists, ensuring the well-being of the local community and offering strategic alternatives, which would ensure the sustainability of tourism activities. This paper aims to provide insight into the role of tourism destination management organizations.*

Keywords: tourism destination, tourism destination management, specific activities.

JEL Classification: A1; M1; Z3; Z31; Z32; Z33.

Introduction

The World Tourism Organization (2019) defines destination management as a basic entity that can include authorities, stakeholders, professional associations, facilitating partnerships in order to create a common vision regarding the tourism destination.

The functions of the destination management organizations may vary from national to local and regional level depending on the concrete needs and the level of decentralization of the public administration.

The performance of a destination management organization will be determined by its ability to be credible and trustworthy among its stakeholders and beyond.

As regards the WTO policies (2020) on destination management, it aims to provide guidance and examples of good practice regarding the destination management policies and models, with the purpose of supporting the tourism sector at national, regional and local level.

WTO specialists appreciate that the development and management of tourism destinations requires a holistic approach to policy and governments. Furthermore, WHO proposes to its members in terms of development and implementation of some models and policies such as: strategic planning, a cooperation between national, regional, local authorities, partnerships between the public and private sectors.

According to WTO, destination management involves the management and coordination of all elements that make up a tourism destination. Destination management requires a strategic approach in order to be able to efficiently manage the elements that are part of the tourism destination. The destination management involves an alliance of several organizations and parties that cooperate in order to achieve a common objective, namely the competitiveness and sustainability of the tourism destination.

The role of the destination management organization according to WTO should be to lead and coordinate activities within a coherent strategy that pursues the achievement of a common goal.

Research methodology

The main objective of this paper is to offer an insight into the role of the destination management organization in the success of tourism activities carried out at local, regional and national level. The steps taken in performing this research were: studying the literature and selecting the most relevant papers using as a selection criterion for the articles, the number of citations on Google Academic (initial research 118000 results) and their relevance in relation to the analyzed topic (Morrison et al 176 citations, Presenza et al - 359 citations, Sainaghi - 344 citations, D'Angella and Go - 441 citations, Elbe et al -137 citations, Bornhorst et al - 1012 citations, Shirazi and Som - 55 citations, Munar - 195 citations, Pechlaner et al - 181 citations, Pearce - 91 citations, Volgger and Pechlaner - 336 citations, Tuohino and Konu - 84 citations, Sheehan et al - 108 citations), examining the reviewed articles, centralizing and analyzing the points of view formulated by the specialists in the field on the role of destination management organizations, formulating hypotheses, issuing conclusions and establishing new directions of research.

Specific approaches, functions and activities related to the management of tourism destinations

The review of the literature (1995-2020) reflects the fact that there are two approaches in respect to the destination management: managerial and marketing.

Table 1 presents the main functions, specific activities aimed at managing tourism destinations, which are taken from the reviewed literature

Table 1: Specific approaches and functions related to the management of tourism destinations

| Year | Author | Approach | Specific functions/activities |
|------|-----------------------|----------------------|---|
| 1997 | Morrison et al | Marketing | It generates revenue, provides information, represents the interests of the parties, ensures the well-being of the local people. |
| 2005 | Prezenza et al | Marketing Management | Strategic activities regarding the image of the destination, branding, positioning within the market. Resource management, stakeholder coordination. |
| 2006 | Sainaghi | Marketing | Supporting local companies in obtaining competitive advantages. |
| 2009 | D'Angella and Go | Marketing Management | Promoting, planning and developing the destination. |
| 2009 | Elbe et al | Marketing | Cooperation between the involved parties. |
| 2010 | Bornhorst et al | Management | The well-being of the locals, providing experiences to tourists, effective management of the tourism destination. |
| 2011 | Shirazi and Som | Marketing | Satisfying tourists, increasing competitiveness. |
| 2012 | Munar | Marketing | Creating a strong brand. |
| 2012 | Pechlaner et al | Management | Managing the destination, managing the relationships inside it. |
| 2013 | Pearce | Marketing | Developing the tourism product, strengthening the connections. |
| 2014 | Volgger and Pechlaner | Management | Exchanging information, using synergies and coordinating the action. |
| 2014 | Tuohino and Konu | Marketing Management | Developing and promoting the destination. |
| 2016 | Sheehan et al | Marketing | Gathering information, gaining a favorable position in the market, disseminating information, collaborating stakeholders. |

Source: created and processed by the author

Analyzing the above table, we can see that the management activity of the tourism destinations is a varied one and depends on the political, economic and social conditions of each tourism destination, their objectives and the way of organizing/approaching the activity of these bodies.

Morrison et al (1997) state that CVBs (Convention and visitor bureaus) represent an organizational concept originating in the United States of America as the main force in local destination marketing organizations. The authors identify 5 functions of these offices (1995, p.5): "engine" of the local economy (generating new incomes, jobs), "community marketer" (provides information to the target segments), "industry coordinator" (encourages joint activities in order to ensure increased

economic advantages resulting from economic activities), "representative of the interests of the parties" (between tourism service providers and tourists) respectively "creator" of the sense of local belonging and pride (by improving the quality of locals' life).

Prezenza et al (2005) consider that the DMOs play an increasingly important role in the development of the tourism destinations. Over time, the DMOs have been considered marketing organizations for tourism destinations. Moreover, a series of authors still consider that the main competence of destination management organizations is marketing activity. However, there is a tide of opinion according to which the role of the DMO is more than just specific marketing activities, with activities that help increase competitiveness and sustainability.

Prezenza et al (2005) suggest two ways in carrying out the activities for the DMOs: Destination external marketing and destination internal development. The activities specific to the external marketing of the destination take into account the following: strategic marketing activities regarding the image of the destination, branding, positioning within the market. Internal development of the destination implies activities such as: resource management, coordination of stakeholders.

Sainaghi (2006) considers that the DMOs have a central role for supporting local companies to build a sustainable competitive advantage.

Paskaleva (2007) identifies 4 key challenges for urban tourism destinations: developing some competitive and sustainable urban destinations, managing complex urban tourism systems, creating a quality urban tourism, specific marketing activities.

D'Angella and Go (2009) consider that destination management organizations are responsible for both the marketing of the destination and its planning, existing possible constraints in the execution of these tasks from government authorities. Moreover, D' Angella and Go (2009) state that the DMO has the role of developing the destination tourism being able to function as a "controller" allowing companies to carry out certain activities, such as hosting congresses, leisure events and exhibitions.

Elbe et al (2009) consider that one of the main functions of the destination management organization is that of being responsible for the tourism destination marketing.

Furthermore, Elbe et al (2009) formulate the idea according to which the DMO should encourage the cooperation between the involved parties in order to mobilize resources for a joint marketing programme.

Bornhorst et al (2010) identify the following roles that destination management organizations perform: to contribute through their activities to the increase of the well-being of the locals of the tourism destination, to ensure that tourists are offered at least satisfactory and, where possible, even memorable experiences and to effectively manage tourism destinations.

Shirazi and Som (2011) consider that destination management can create an environment appropriate in a tourism destination to satisfy tourists in the effort to increase the competitive advantage.

According to Munar (2012) the DMO has the role of creating and managing a strong and competitive brand for the tourism destination.

Pechlaner et al (2012) consider that the DMOs play a major role in managing relations within the destination and in encouraging the cooperation between the stakeholders, occupying an important role in the management of destinations.

Pearce (2013) considers that destination marketing is one of the most important functions named for the DMOs, followed by the consolidation and coordination of relationships, where DMOs play a key role, namely the development of the tourism product.

Volgger and Pechlaner (2014) consider that DMOs can bring a flexible management system and promote responsibility, self-organization and self-regulation in respect to the connections within the destination. The authors name the exchange of information, the use of synergies and the coordination of the action basic elements for the development of the destination and its competitiveness.

Tuohino and Konu (2014) formulate the idea according to which the role of the DMOs in various tourism destinations can vary greatly. In some regions, the DMO can play a very important role in the development of the destination, while in other areas the DMO can have only a minor role in the marketing of the destination. At the same time, Tuohino and Konu (2016) consider that "without collaboration, small and medium-sized tourism enterprises will not be able to maintain their competitiveness" and "the characteristics of each destination (regional, political, economic) influence the destination management strategies".

Sheehan et al (2016) suggest an approach that change the orientation of the DMOs from tourism destination marketing to the idea that these organizations are agents that act as key factors between the external and internal environment of the destination. For the external environment, the objective of the DMO is the collection of information and a favorable positioning of the destination in the market, while for the internal environment, the objective is the dissemination of information and the collaboration of the stakeholders. Moreover, the authors consider that the DMOs are able to help the tourism industry adapt and cope with the changes to the benefit of the industry and of the consumers.

Conclusion

The review of the literature on the importance of the tourism destination management organizations in the development of the tourism services sector highlights a series of diverse and complex activities that differ from one tourism destination to another. This fact is due to the particularities of the tourism services sector in each tourism destination as well as to the degree of involvement of the stakeholders. This paper shows only a part of the points of view formulated on the role of tourism destination management organizations and tries to provide an analytical presentation of different approaches, functions and specific activities regarding the management of the tourism destination.

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YOUNG CONSUMERS' BEHAVIOUR IN THE CONTEXT OF EUROPEAN GREEN DEAL'S IMPLEMENTATION

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Abstract: *For decades, the environment is struggling with the growing pollution, resources' scarcity, climate change and other negative impacts; as the time is ticking and there is no reasonable solution yet, the European Union takes over the leading role in elaborating and implementing the European Green Deal, a set of objectives and strategies targeting a series of environmental issues. By meeting the European Green Deal's objective, the European citizens will benefit of higher quality air, water, soils, a richer biodiversity, energetic efficient buildings, fresher and more affordable food, developed infrastructure, green energy and technological innovation, more green jobs and more resilient and competitive economy. In order to make all these possible, the European Commission is funding the investment project in line with the European Green Deal's objective, and considering the late crisis caused by the Covid -19 pandemic, we have the highlight that positive effects of these investments as also part of a recovery plan. Considering the young population decisive in the changing process, our research aimed to assess their values and perspective regarding the environmental issues and the approach of overcoming them. Our premise implied an optimistic view of the Romanian young generation and the environment protection, and as the survey's results proved, our first assumption was right.*

Keywords: European Green Deal; climate neutrality; young population; consumption; environmentally responsible behaviour.

JEL Classification: *Q51; Q57; Q58.*

1. Introduction and methodology

The European Green Deal (EGD) brings a paradigm shift in the overall European Union's (EU) action and foreshadows major developments in the ecological transition, focusing on climate protection and biodiversity conservation, towards a sustainable development as an absolute priority. It is a part of pre-existing European policies, such as energy efficiency, waste management, circular economy, eco-design, all these needing a new and more efficient approach (European Commission, 2021).

However, the involvement and commitment of the population and of the stakeholders is the key for the EGD's success. The past proved that the success of paradigm shifting policies is met only if the citizens are fully involved in their conception. People are concerned with their jobs safety and the resources needed for their

everyday lives, and so, the European Commission prepared this action plan – the EGD – in order to ensure a higher standard of living for the Europeans, an efficient resource scarcity management and a more competitive European economy in the long term.

This paper aims to present the EGD's importance and objectives, their impact on the European economy, and also to assess the young generation's conception and concern regarding the major values and actions promoted by the EGD. They represent the future, and as we mentioned above, a successful implementation relies on citizens' conception. In order to assess their beliefs and behaviour changes, we designed a survey, which was answered by 102 persons in March 2022.

2. The European Green Deal

2.1. What is the European Green Deal?

The EGD was launched by the European commission in December 2019 and represents a package of policy initiatives designed to put the EU on the path to a green transition with the ultimate goal of achieving climate neutrality by 2050 (European Council, online). It supports the transformation of the EU into a just and prosperous society, with a modern and sustainable competitive economy, by creating opportunities for new business models, new markets, job creation, research and innovation, and so technological development.

The EGD emerged as a solutions' plan for the crucial needs to protect and conserve the natural European capital, to protect the health and well-being of European citizens against environmental risks and related impacts, while ensuring a fair and an inclusive transition of regions, industries and also workers to this more sustainable way of living and working (EU advisors, online). As it involves substantial changes, the active participation of citizens and also their trust in the transition, have an outstanding importance in making the policies work and to be accepted. The EGD highlights the need for a holistic and cross-sectoral approach, in which all relevant policy areas contribute to the ultimate climate goal. The deal covers initiatives concerning climate, environment, energy, transport, industry, agriculture and sustainable finance, all of them being interconnected (European Council, online).

EGD appears to be a European climate deal aiming to propel the EU as global leader in climate change and environment protection (Hass & Sander, 2020). The changes regard all the EU members, so there are considered additional measures to ensure a fair transition by supporting it with large investments (Greenpeace, 2020). The EGD actions will address:

- EU's goals towards climate neutrality set for 2030 and 2050;
- Stable and affordable supply of green energy;
- Industrial changes towards a green and circular economy;
- Building refurbishments in order to raise energetic efficiency and to lower resources consumption;
- Enhancing research and innovations;

- no pollution;
- manufacturing repairable, recyclable and reusable products;
- fresh air, clean water, healthy soils;
- conservation and preservation of biodiversity;
- fair, healthy, affordable food;
- accelerating the transition towards smart and sustainable public infrastructure;
- a more resilient and competitive European economy (Greenpeace, 2020).

Actually, the ultimate goal of the EGD is to dissociate economic growth from resource consumption, and to restore the quality of the environment and health of the citizens, by promoting efficient resources' use, reduced emissions and pollution, and higher adaptability to climate change.

The diversity of the European countries and cultures are perceived as potential threats and slowing down the process (Dupont & Torney, 2021), but the alienation of the EU members is mandatory and supported by large investment efforts in all economic sectors; e.g., achieving the 2030's goals concerning gas emissions'' reduction require investments of €260 billion / year by 2030 (CECCAR Business Magazine, 2019). These funds will support people and communities by facilitating employment and re-qualification opportunities, improving energy efficiency of their households and combating energy poverty; companies by making the transition to low-carbon technology more attractive for investments; and European countries and regions by investing in the creation of new green jobs, sustainable public transport and green energy infrastructure (EY, 2021).

Anyway all EU actions and policies have to contribute to the objectives of the EGD as the challenges are complex and interconnected. In order to maximize health benefits, quality of life, economic resilience and competitiveness, intensive coordination is needed to exploit the existing synergies between all policies areas. In order to implement this plan, many projects will be conducted in:

- transport: aiming a greener mobility, carbon emissions have to be lowered by 55% by 2030 for cars and by 50% for vans, targeting a zero emission for new cars by 2035;
- climate change adaption strategy;
- agriculture: reorientation of the food system towards a sustainable model, food security and safety, nutritive and affordable food supply, sustainable food production, promotion of a healthy diet and food consumption;
- industry: building refurbishments, job creation and income generation, reducing energy poverty;
- affordable and stable green energy: supporting renewable energy production, developing the energetic infrastructure, etc.;
- EU forest strategy (European Commission, 2019).

2.2. The European Green Deal in Romania

Romania should have been more prepared for this moment, because it is obvious that it will have an impact on the less prepared and poorer economies. The EGD was adopted in 2019 and we should have expected these measures. Western countries are far ahead in terms of transportation, renovation, mining and economic alternatives. For a transition to clean energy, 40% of the energy share should come from renewable sources, such as wind energy or solar energy. Romania has a huge capacity to produce renewable energy, but uses less than a third of it.

In order to avoid gaps and to help sectors and areas that could be affected by the transition, the EU has set up the Just Transition Fund (European Parliament, online). In this international context aiming to greener economies, the stakes of climate change are high for the Romanian economy, both in terms of opportunities, including by attracting European funds of about 60 billion euros - only to fund green projects (Financial Intelligence, 2021). Romanian companies operating in sectors with significant carbon emissions generate over 40% of the added value produced and accumulate over 50% of the assets of all companies in the country. With the right policies, these companies could increase their business and access to finance in a sustainable way. Romania can capitalize on these opportunities, and its position as an attractive country for foreign direct investment in the green sectors is supported by the progress made in recent decades, a period in which our country was the largest reduction in greenhouse gas emissions in the region, compared to the EU average, promoting the broadest plans for the biggest share of renewable energy in total energy sources.

In Romania, the decarbonisation of the energy sector is largely based on the support provided by the EGD. The potential of renewable energy on the local market can become the engine of decarbonisation of the Romanian energy sector, as long as public initiatives are synchronized with business intentions, according to the analysis EY (Ernst & Young) - Decarbonisation of the Romanian energy sector through renewable energy (EY, 2021). Romania is slightly ahead in terms of the share of energy from renewable sources compared to the European Union average. At the same time, we are at the top of EU countries in terms of coal dependence for electricity generation at a cost of about 50% above the average price in the energy market in 2020 (EY, 2021). Romania has reached the target of 24% of total renewable energy consumption in 2020. For 2030, the new target set by the Romanian government is 30.7%. In 2020, the production of electricity in Romania came in proportion of 16% from renewable energy sources (wind, solar panels and biomass).

3. Empirical analysis and discussion

In March 2022 we conducted a survey consisting of 24 questions. It was answered by 102 respondents, the majority of them (58%) ranging in age from 18 to 25 years,

and living in Western Romania. Most of the respondents were females, living in both in urban (54%), and rural areas (46%). Their interest regarding the conservations and preservation of the environment, but also the actions they were willing to take, were assessed by a series of questions regarding their transportation means, fuel, selective waste collection, eco-friendly behaviour, and more.

When asked about their means of transportation, we notice a high preference or dependency (considering the almost 50% of the respondents live in the rural area) on the personal cars, public transport being the next, and the fewest chose walking.

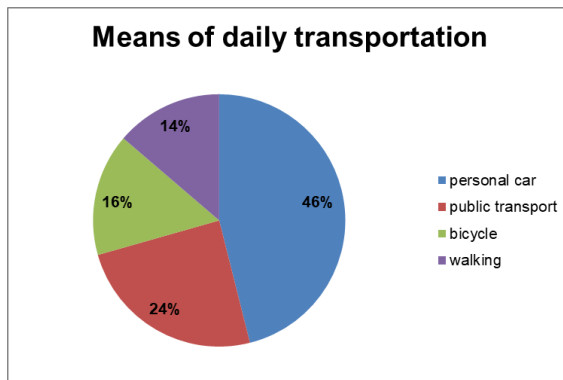


Figure 1: Means of transportation preferences

Source: own survey

The following answers make us believe the respondents are using rather their personal cars because of the poor infrastructure between the rural and the urban areas; those answers were related to their concern about being involved in making the environment healthier, 62% proving an average preoccupation, while 30% are highly interested. Even more, 80% declared themselves interested in replacing the fossil fuel with renewable fuel.

Regarding the selective waste collection, as seen in the following figure, only 51% are permanently devoted to collect selectively the waste, and from on a scale from 1 to 5, only 60% are really concerned (4 and 5) with the selective collection of the waste.



Figure 2: Selective collection of waste

Source: own survey

From other answers, we noticed a high concern for a healthy environment, lower pollution, fresh air and water, and biodiversity, paying conscious attention to their actions and behaviours which could harm the environment. This fact is proved by their involvement in ecological activities and also their willing to reduce resource irrational consumption by renting different types of goods and so, to prolong the products life.

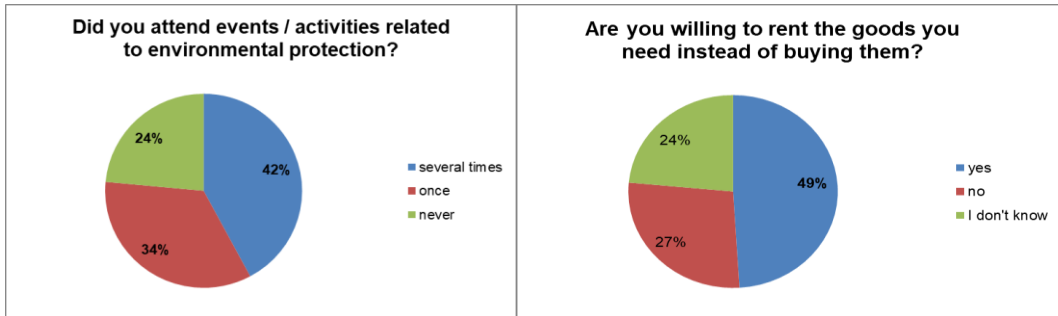


Figure 3: Active involvement in environmental behavioural changes
Source: own survey

Although the respondents show a great trust in the future of the green economies, and also a high interest for the environmental issues, when asked if they would pay more for a eco-friendly, a less-harmful product, they wouldn't make the sacrifice. The survey highlights that the young generation is aware of the climate change and environment degradation problems; they possess the information related to these matters, and also are willing to behave accordingly to the actions taken to protect the environment and to promote a sustainable development. The actions they are willing to take are consisting rather in changing their behaviour regarding consumption and waste collection, but they are not willing to pay more for eco-friendly products. This unwillingness could be motivated by the fact that Romania doesn't enjoy a very develop economy, so its citizens aren't able to afford luxuries as paying more in order to save the environment.

4. In conclusion

Only a solid and ambitious review of the framework for energy and climate change will create the proper environment for the EU to achieve, as soon as possible, climate neutrality and to avoid particularly serious consequences of the climate change. The EU's future depends on the planet's health; the current climate and environmental challenges require urgent and ambitious responses. The EGD represents the EU's strategy to a green transition.

The EU enjoys the collective capacity to transform its economy and society in order to guide them to a more sustainable path. Achieving all EGD's goals oriented towards climate and environment protection, consumers' rights and gas emissions' reduction require massive public investment and increased efforts to direct private

capital to climate and environment action, while avoiding or at least limiting the unsustainable practices. These investments represent also an opportunity for Europe to determine a decisive sustainable economic growth and development – aimed even more after the negative impacts caused by the Covid-19 pandemic - EGD being the accelerating and supporting instrument so necessary in the transition of all sectors.

The EGD launches a new growth strategy for the EU, supporting the EU's transition to a prosperous society able to face the challenges brought by climate change and environmental degradation, meanwhile improving the quality of life of nowadays and future generations (Eckert & Kovalevska, 2021). The late Covid-19 pandemic has changed the entire decision – making landscape in the entire world. The health crisis and the measures taken to address it, led to job losses, substantial financial losses, psychological problems and economic recession. Combining the funds allocate for post-pandemic economic recovery with those allocate for supporting the implementation of the EGD, the EU should enjoy in the following years of a fulminant sustainable economic growth.

The EGD is a plan with long term goals, but its success depends on individual and collective efforts; even if its objectives and outcomes are clear, the cultural diversity and the economic disparities of the European members slower the transition towards a greener European economy.

Considering the human being as the decisive factor in the EGD's implementation, we conducted a surveys aiming to assess the perception of the young population regarding the environmental issues and the environmentally responsible behaviour. Our respondents proved to be aware and concern of the current issues and actions needed to be taken in order to ensure a sustainable development in a healthy environment, are also willing to adapt and to actively involve.

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HUMAN CAPITAL INVESTMENT THROUGH CONTINUING VOCATIONAL TRAINING – ROMANIA 1999 – 2015 DATA

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Abstract: *The purpose of this paper is to present the aspects of continuing vocational training (CVT) that companies provide for their employees as a human capital investment. Enterprises provide CVT to address the continuing structural changes in the labour market that require development and update of the technical skills, abilities, attitudes and capacities of the employers. EUROSTAT and Romania National Institute of Statistics data were analysed to observe for the Romanian labour market the global participation rate in CVT courses, the distribution of enterprises by the economic activities, the average CVT courses length of time, the CVT's participant employer's average cost, the type of courses and the skills targeted. The following results of the descriptive analysis were found of the latest data, the 2010 – 2015 time period : the CVT's courses global participation rate increased by 3.5 % in 2015 compared to 2010; by the distribution of economic activities of the enterprises, financial and insurance, electricity, gas, steam supply, and information and communication activities registered the highest CVT rates, where transportation, storage and accommodation and food service activities registered the lowest rate; information and communication, electricity, gas, steam supply and mining and quarrying activities per participant employee had the highest hourly CVT courses cost. The recommendation is to increase the participation rate in CVT courses, to qualify employees according to the needs of the enterprise to perform and adapt among the multiple and permanent changes in the global economy. Thus, the employee could be apt to embrace the change and be flexible on the labour market and the employer could be able to manage the new technologies requirement for the prosperity of the individual and of the company.*

Keywords: *continuing vocational training, human capital, transversal employment skills*

JEL Classification: O15, J24, I25

1. Introduction

Continuous Vocation Training offered by the employer can upskill the employee to be apt and efficient for the new demands due to the continuing and rapid changes in the economic activities and the utilisation of the new digital technologies. Update existing skills and form new required abilities to improve the employee's job performance, thus the work results are more productive. On the job performance, an increase efficiency of the employee is reached by sustained training, upgrading the abilities necessary for the specific work environments.

To achieve company's sustainability and welfare the resilience and adaptability of the individual has to be brought forth. By participating at job specific training, the individual can become apt, flexible and better prepared for new job tasks due to the digital transformation that has been reshaping the labour market.

2. Theoretical overview

The role of CVT courses

The economic modernization challenges employers to best use the potential of the employees and to invest in the development of specific job skills to increase productivity and manage the upcoming economic challenges. (Becker, 2019, Pischke, 2001)

Due to utilisation of the digital technologies the demand for qualified human capital is rising, companies invest in training programs for the employees to obtain the required skills, to apply the obtained abilities and to best respond the rapid changes and ambiguity of the present and future challenges. (Harris and Clayton, 2020, Weber 2020)

Becker underlines the importance of training for the individual to be able to secure the occupational opportunities and be prepared to thrive through the labour market structural changes by upgrading the job skills, improving qualifications. (Becker, 2019)

Continue Vocational Training translates into learning environments for the employees mostly paid by the employer targeted toward the development of the needed abilities for the specific working environment. Businesses' strategic planning for the vocational training should become a continuous process, followed by ongoing evaluation of the skills shortage. Human capital is the greatest asset of a company, thus the need to upgrade and upskill to become a competitive and business by maintain a sustainable productivity of the employee. (Acemoglu and Pischke, 1999, Zwick 2005, Weber 2020)

The participation in CVT improves the ability of the employee to counter the implications of the rapid international labour market dynamics and of the switch to a digital workplace. (Schömann and Becker 1995, Zwick 2005)

Maintaining the individual's employment status during economic recession is a benefit of the CVT, through the enhancement of the employment capacities for a smooth and fast recovery. Schömann enumerates the benefits of the CVT not only for the employee but also for the employer, as income growth, human capital's improvement and job security. (Schömann et al. 1997)

3. Research Methodology

This paper seeks to highlight the aspects of continuing vocational training (CVT) that Romanian companies provide for their employees. Statistical data were analysed for Romania, latest data was found for the time period 1999 – 2015. EUROSTAT and Romania National Institute of Statistics data were analysed to observe for the Romanian labour market the global participation rate in CVT courses, the distribution of enterprises by the economic activities, the average CVT

courses length of time, the CVT's participant employer's average cost, the type of courses and the skills targeted.

3.1 Characteristic of CVT in Romania

Companies organize continuing education courses with the purpose of improving the employees' skills to better fit the needs of the enterprise. CVT courses' purpose is provide training by the qualified personnel for a group of employees for a specific period of time. The CVT courses take part in a classroom style setting or inside a training centre. By the classification of the organizer, the company itself or another organization, there are two times of CVT courses, internal or external.

There are other forms of CVT, planned periods of time, focused on for the professional development of the personnel, like on-site practical training for the use of specific work equipment and tools. (INSSE, 2017)

The following figures visualize the particularities of CVT of the Romanian companies.

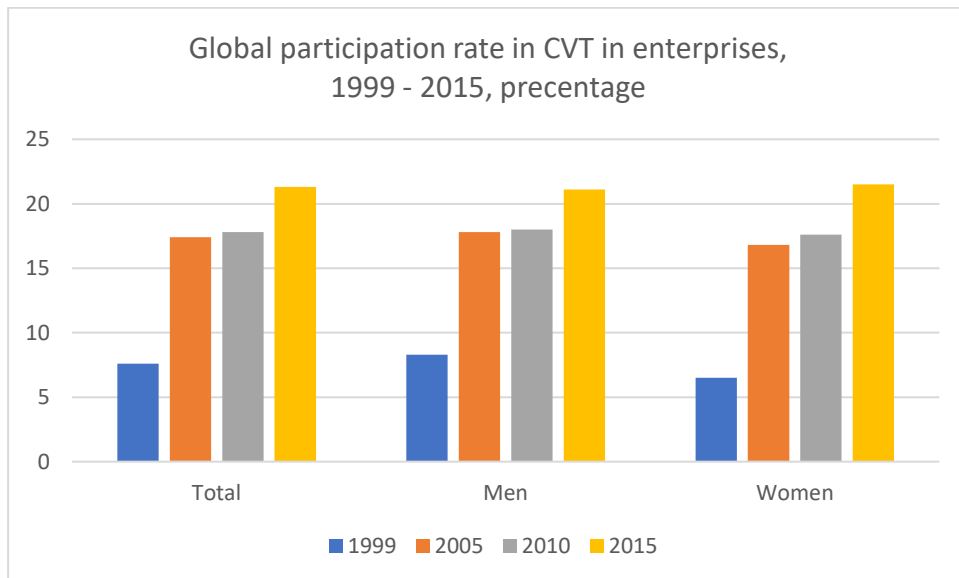


Figure 1: Global participation rate in CVT in enterprises, Romania, 1999 - 2015, percentage

Data source: INSSE, TEMPO online

A three-time boost can be observed in the date of the CVT participation rate, 7.6 % in 1999 to 21.3 % in 2015. Employers provide more training for the employee's skills upgrade to better react to the new economic challenges. Raising course also noticed for the employment rate, data for Romania for the same period of time, from 69.4 % in 1999 to 70.8 % in 2015.

Comparing statistical data for Romania and European Union, Romanian employees participate less into CVT courses. Romanian enterprises offer three times less training for their employees, but the gap considerable reduced by 2015, the percentage of persons employed in all enterprises was 23.0 % in 1999, 24.8 % in 2015. We can imply to believe that Romanian companies acknowledged the benefits of the CVT for the company's prosperity.

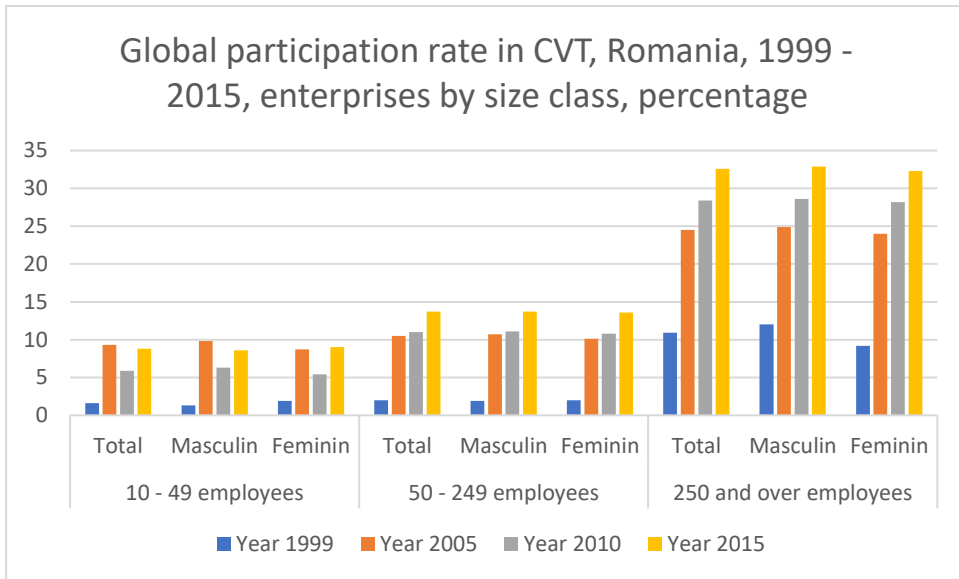


Figure 2: Global participation rate in CVT, Romania, 1999 - 2015, enterprises by size class, percentage

Data source: INSSE, TEMPO online

Considering the global participation rate in CVT, classification by men and women, a difference can be observed between the two records, the difference scaled down by 2015. The gap between men and women's participation to training is considerable reduced, in 2015 women's participation rate recorded a slight positive difference to men's participation, 21.5 % women's rate to 21.1 % men's CVT rate. (Figure 2)

As observed, large companies invested more into CVT courses to enhance the employee's performance, to upskills the employee, to raise the adaptation to the new technologies' requirements. Large companies usually provide more career development opportunities, therefore more training opportunities.

Classification by economic sectors, for the 1999 CVT rate was the highest for the employees of transport and storage sector, followed by real estate sector. Year 2005 brings a significant increase in participation in training financial, banking and insurance sector, as it grows quicker and requires continuous skills labour force.

Table 1: Participants in CVT courses by NACE Rev. 1.1 activity - % of persons employed in enterprises providing CVT courses, Romania

| Year | 1999 | 2005 |
|--|------|------|
| Participants in CVT courses, NACE Rev. 1.1 activity | 20.2 | 30.8 |
| Industry - total | 18.4 | 31.4 |
| construction | 13.9 | 23.1 |
| Wholesale and retail trade and repair of motor vehicles | 20.7 | 30.3 |
| Hotels and restaurants | 24.3 | 27.8 |
| Transport and storage | 32.7 | * |
| Post and telecommunication | 13.6 | * |
| Transport, storage and communications | * | 22.2 |
| Financial, banking and insurance activities | 16.8 | 63.7 |
| Real estate transactions, rental and business services, collective, social and personal services | 27.4 | 34.5 |
| Other collective, social and personal services | * | 24.4 |

Data source: EUROSTAT, data for Romania, * data not provided

The highest value of CVT rates were recorded by the financial intermediation and insurance economic sector, followed by real estate transactions and industry sector. The lowest global participation rates were registered among the construction, transport sector. These sectors provide more on-site practical training along side the use of specific tools and equipment rather than organized planned and specialized staff taught courses.

Table 2: Participants in CVT courses by NACE Rev. 2 activity - % of persons employed in enterprises providing CVT courses, Romania

| Participants in CVT courses by NACE Rev. 2 activity - % of persons employed in enterprises providing CVT courses | | |
|--|------|------|
| Participants in CVT courses, NACE Rev. 2 activity | 2010 | 2015 |
| Manufacture of coke oven products and crude oil products | 92.2 | 69.3 |
| FINANCIAL INTERMEDIARIES AND INSURANCE | 64.2 | 67 |
| Manufacture of basic pharmaceutical products and pharmaceutical preparations | 70.6 | 60.1 |

| | | |
|--|------|------|
| Manufacture of computers and electronic and optical products | 44.9 | 54.4 |
| Manufacture of rubber and plastic products | 62.7 | 54.1 |
| Manufacture of beverages | 61.8 | 51.3 |
| Metallurgical industry | 40 | 50.7 |
| Manufacture of machinery, machinery and equipment n.c.a. | 47.7 | 49.8 |
| Manufacture of other non - metallic mineral products | 50.6 | 49.3 |
| Manufacture of road transport vehicles, trailers and semi-trailers | 59.5 | 49.3 |
| <i>Sectors recording the lowest CVT rate:</i> | | |
| CONSTRUCTION | 21.8 | 27.4 |
| Manufacture of furniture | 16.6 | 25.5 |
| Woodworking, manufacture of wood and cork products, except furniture; manufacture of articles of straw and plaiting materials | 29.2 | 22.7 |
| Other industrial activities n.c.a. | 25.5 | 20.2 |

Data source: EUROSTAT, data for Romania

By the distribution of economic activities of the enterprises, financial and insurance, electricity, gas, steam supply, and information and communication activities registered the highest CVT rates, where transportation, storage and accommodation and food service activities registered the lowest rate.

3.2 Specific characteristics for CVT courses for the period 2010 - 2015

Alongside the statistical data analyzation, specific data were found only for the years 2010 and or 2015. Data provided for Romania by EUROSTAT and INSSE.

Private training organizations and equipment supply companies were the most providers of the CVT courses, where union and professional trades providers were used the least. Companies tent to provide more external training than train its employees through internal courses. (INSSE)

Figure 3 shows, the largest the company is, the higher the costs are, as the highest the participation rate in CVT is. A large company constantly improves employee's productivity and adherence to quality standards to reach the targeted profit and secure the place in the market. By classification of economic sector, information and communication, due to rapid digital change and new technologies use, followed by the sector electricity, gas, steam supply and mining and quarrying activities per participant employee had the highest hourly CVT courses cost.

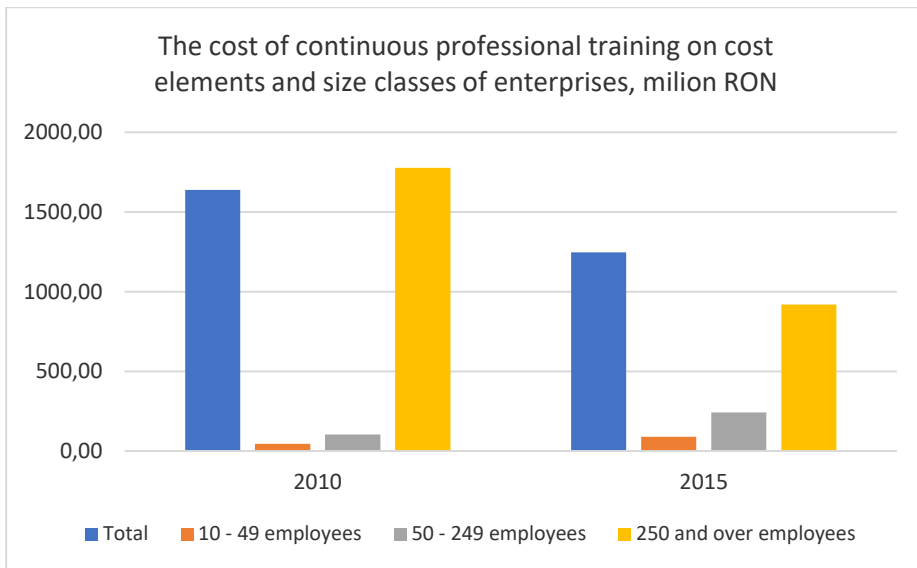


Figure 3: The cost of continuous professional training on cost and size classes of enterprises, Romania 2010-2015
 Data source: INSSE, TEMPO online

Figure 4 represents the classification of CVT average duration by enterprise's size class, as we can observe medium and large enterprises allocated more hours for the courses. By the time the CVT classes were held the majority took place during the normal working hours. By the size of the enterprise, the longest average time spent in training is held by the medium-sized companies, slightly higher than the large companies' recorded rate.

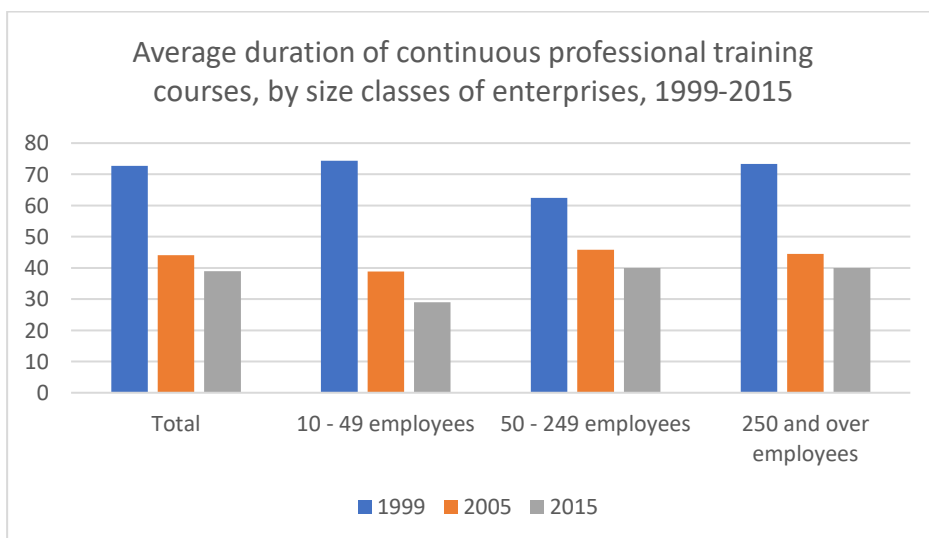


Figure 4: Average duration of continuous professional training courses, hours per participant, by size classes of enterprises, Romania 1999-2015
 Data source: INSSE, TEMPO online

The highest average hours per participant was recorded for electricity and heat production, supply of gas and hot water, 62 hours per participant in 2015 compared to the 23 hours per participant national average. Hotels and restaurants sector's average rate was 21 hours per participant, 2015 data recorded 18 hours below the national average, average national rate was 39 hours per participant. (INSSE data)

3.3 Main reasons for not supplying CVT courses

Table 3: Enterprises not providing training by reason for non-provision, % of non-training enterprises, Romania

| Eurostat data for Romania | 2005 | 2010 | 2015 |
|---|-----------|-------------|-----------|
| People recruited with the skills needed | 79.5 | 62.7 | 78.3 |
| Existing qualifications, skills and competences corresponded to the current needs of the enterprise | 86.4 | 64.4 | 83.5 |
| High costs of CVT courses | 52 | 29.7 | 34 |
| Focus on IVT rather than on CVT | : | 1.5 | 5.4 |
| Major CVT efforts made in recent years | 2.8 | 2.5 | 5.6 |
| Lack of suitable CVT courses in the market | 19.6 | 4.1 | 8 |
| Difficult to assess enterprise's training needs | 24.1 | 3.8 | 6.7 |
| High workload and limited / no time available for staff to participate in CVT | 32.2 | 14.4 | 26.1 |

Data source: EUROSTAT, data for Romania

The first four reasons for not providing CVT were the already existing the skills needed of the employees, individuals recruited with the necessary qualifications, high costs of CVT and not enough time for the employee to participate to CVT. Table 3 pinpoints a significant decrease, at least two times, in the reason of lack of courses availability, thus an increase in the offer of specific training courses.

3.4 Specific and transferable skills targeted by the CVT

CVT courses aimed to develop the following specific skills: technical, practical or job-specific capacities, office administration abilities, customer handling and management skills. There is an increased orientation of the CVT courses towards digital basic and advanced skills and companies have shown a significant interest in the development of transversal employment skills like: team working, problem solving aptitudes; foreign language skills, oral and written communication, numeracy and literacy skills (INSSE, 2017)

For the data analysed, there were not observed main differences by the classification of size of the enterprise, most targeted main skills were technical, practical or job-specific, global rate 72.3 %, team working 51.2 % and problem-solving skills 47.0 %, thus we can see the importance of transversal employment skills for the working environments of each economic sector. (INSSE data)

4. Conclusion

The vocational program training curriculum entails to be earmarked not only on formation of the abilities but also to prepare the individual to conquer the unplanned situations and unprecedented circumstances.

From the year 1999 we can see a boost in the CVT participation rate by three times as companies increased the opportunities of further training. The greatest provision of CVT was granted by large companies for the employees, thus, the lowest interest in CVT was seen in small ones.

The CVT indicator data collection is done every five years; thus, the latest data is provided for the year 2015. To capture the provision of CVT, we can correlate the CVT rate with the most recent data for the adult participation in education and training rate, last four weeks indicator, classification by NACE activity and participation rate of employees in training. Further research of the Romanian data will be applied to point out and discover the motivation of the seven times increase in the participation rate of employees in education and training, from a decreasing trend of 1.8 percent in 2015 toward 1.1 % in 2020 to a jumping 7.5 % in 2021. (EUROSTAT data for Romania)

The recommendation is to continuously increase the participation rate in CVT courses, to qualify employees according to the needs of the enterprise to perform and adapt among the multiple and permanent changes in the global economy. Thus, the employee could be apt to embrace the change and be flexible on the labour market and the employer could be able to manage the new technologies requirement for the prosperity of the individual and of the company.

Further research is required to best pinpoint the reason for not providing CVT for the employee, alongside finding ways to best suit the companies' needs, including applying for national and European funding for the courses and partnership between companies and training providers. We plan to analyse the future published data for the CVT year 2020 and correlate it with the participation rate of employees in training, last 4 weeks, and the participation rate in non-formal education for job related training, to bring awareness of the importance of training and finding the role of implementing flexible learning environments fit for the individual's needs to better adapt to labour market changes.

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INVESTMENTS WITH PROMOTION. INFLUENCES IN TOURISM 2019-2021

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Abstract: *Investments, those expenditures made at an early stage, in order to obtain subsequent effects, have been a point of interest of economists, who seek to reproduce more and more aspects and links of cause and effect between investments made in various fields and their effects. The present paper is meant to analyze the investments with the promotion made by the states in the field of tourism. We chose 2019 and 2021 as reference years because these were the years that determined sudden changes in what represents the G.D.P of a country and the global G.D.P as well as its way of accomplishment. This article represents a review of existing studies on this topic and outlines and validates a number of objectives. The existing statistical data on the promotional budgets of the states are analyzed from a quantitative point of view and a small case study on Germany was carried out.*

Keywords: *investments with promotion; tourism; review of existing studies; the effects of the pandemic*

JEL Classification: *E22; Z32*

1. Investments. General framework.

The field of tourism and the effects of investments in this area have attracted the attention of specialists. Numerous specialized works reproduce a series of stages of investments in tourism, appealing to the establishment of the company's development strategy. This article is the result of a close review of specialized studies. This is the key research method. Regarding the objectives of the paper, they were set as follows: O1: Achieving a conceptual framework and identifying different points of view on investments with promotion; O2: Analysis of the economic landscape in the field of promotional investments determined by the COVID pandemic19, O3: Analysis and representation of the evolution of investment budgets in different countries taken as a benchmark, O4: Carrying out a small case study and analysis of Germany as a reference country. Therefore, the two major chapters will try to point out the elements taken into account in terms of objectives.

Any development strategy of the company must contain three key moments, namely: the determination of objectives, the diagnostic analysis of the enterprise and the

evaluation of the economic environment. Hospitality marks as main activity, the need to constantly adapt to the trends of the target market and implicitly the development of an appropriate program for the development of the products offered and communication of value. Starting from these trends and activities, we can distinguish a separate area of investments in the tourism sphere, namely, investments with promotion.

Part of the promotion activity, the determination of the investments in this area imposed in the first instance, the determination of the marketing budgets related to the enterprises. P. Kotler (1997) presents the ways of setting budgets, depending on the possibilities of the company: establishing a percentage of sales that will later be invested in marketing, establishing competition as a benchmark for determining the budget or based on goals set by the company. At the same time, J. Einser (1991) also mentions four basic elements in the activity of setting the budget, namely: planning, setting the products offered, the demand for them, the price and how to communicate with the audience.

The way in which investments are made and the budgets for promotional activities are set, differs from one sector to another, depending on the size of the companies and their location.

2. Studies carried out in the field of establishing budgets related to promotion activities

J. Bigne (1995) conducts a study aimed at understanding the behavior of companies in the allocation of promotional budgets in North American and European companies in various industries, finding that the most commonly used technique is the allocation of a certain percentage of sales. M. Fischer et al. (2011) aimed at researching the analysis of how to establish the promotional budget, in correlation with the size of the company, thus concluding that the budget allocated to promotion must be proportional to the size business and at the same time with the effectiveness of the marketing activity and implicitly, the growth potential of the product. Also, the budgets allocated to traditional marketing versus digital marketing have been a topic of interest to researchers. Y. Huang (2012) reveals from his research that at that time, most of the budget went to the promotional activity in the media, followed by the percentage dedicated to digital promotion. Factors influencing the decision to allocate budgets can also range from unit sales to marketing efficiency and contribution to unit profit (Y. Peers et al, 2017). T. Kim et al. (2019) complete the set of studies dedicated to this topic. They conducted a review of the literature aimed at identifying key implications in the field (the E.R.C tool for measuring profitability on the information it provides on current performance), concluding that those tourism companies that have achieved increased performance, were the companies that spent larger amounts in the field of advertising, immediately after a global financial crisis.

Moreover, the tourist sphere has a series of peculiarities but also common to the services. Tourist services are also characterized by perishability. Thus, an increased

interest will be manifested in the sale of all products and services on time. These are impossible to store for subsequent sales, which implies an increased focus on tourism activities and investments in this direction. Over time, companies in this field have become increasingly concerned about the efficiency of investments in advertising and promotional expenses are associated with sales performance in the hotel industry (Assaf et al.2017).

The efficiency of investments in promotion, in the tourism industry, was, as previously mentioned, a topic of interest for research in the field. K. Park and S. Jang conducted a study in 2012 on the relationship between promotional investment and sales, noting a positive short-term effect of increased restaurant sales as a result of the acceleration of promotional activity, Herrington and C. Bosworth (2016), share the same opinion, namely that there is a strong connection between them. S. Kamal and G. Wilcox (2014) do not agree with the same conclusions, drawing their own study and highlighting the fact that there is a relationship with a low impact between promotional expenses and sales of fast food restaurants. A. Assaf (2017) makes new contributions in this regard, noting a positive impact of long-term investment in the hotel industry. Moreover, there is a significant heterogeneity in the efficiency of promotion in the various subsectors of the tourism and hospitality industry, as evidenced by R.Qui (2014) whose study examines the effects of promotion and investment in tourism business. At the same time, it highlights the future benefits of these investments, which are much greater than in other areas. R.Qi et al. (2018) partially contradict the above conclusion, emphasizing that the effects of investment vary in the tourism and hospitality industry compared to other industries, but they do not vary between subsectors in this industry.

As a result, there are sets of contradictory conclusions. This issue of massive differences in research results was explained by E. Landes, A. Rosenfield (1994). According to them, the potential problem that would bring significant differences in the models and results obtained are the specific factors of the companies that implicitly significantly influence the results.

Thus, although many studies focus on the analysis of the cause-effect relationship, few studies talk about the actual investments in promotion and their approach in a value expression.

3. Changes brought by the years 2019-2020 in the economic landscape. Influences on promotion.

Analyzing statistically the advertising expenses, respectively the establishment of the promotional budgets, we find that they were strongly influenced by the changes of the economic landscape due to the pandemic. Thus, in recent years, new trends and trends have been cemented, with industries registering different levels of this global decline. 2020 was the least successful year, financially, according to Eurostat.

Analyses of the gross domestic product, illustrate its impressive decreases, both in general, according to Figure 1 and in the tourism industry, as shown in Figure 2.

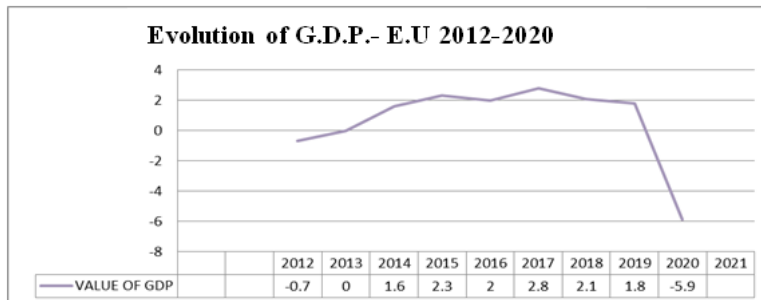


Figure 1: Evolution of G.D.P in E.U (2012-2020) expressed in percentage increases
 Source: Adapted by author, Eurostat, 2021, Real GDP growth rate – volume

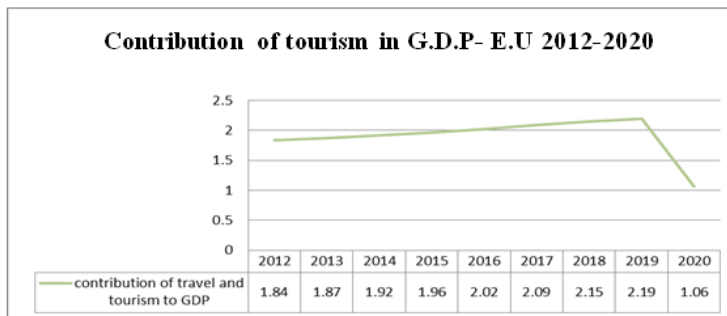


Figure 2: The contribution of the tourism industry to the global P.I.B expressed in billions of dollars
 Source: Adapted by the author, Statista, 2021 Total contribution of travel and tourism to GDP in Europe from 2012 to 2020

Moreover, these trends have led to collapses in the promotional budgets of companies in the market. However, experts predict significant percentage recoveries and improvements (Business Intelligence, 2020). Although there are relatively few statistics available, there are a number of research reports that highlight the evolution of promotional investments in the key period 2019-2020. One such report belongs to Business Intelligence and aims to highlight the colossal impact of the pandemic that was felt at the level of 12 key industries in a number of 13 countries that were sampled, as follows: Australia, Canada, China , France, Germany, India, Italy, Poland, Russia, Spain, Switzerland, United Kingdom, United States of America, countries which together account for a total of 74% of the total expenses with global promotion. Thus, the way in which the investments in the field of promotion have evolved is shown in Figure3.

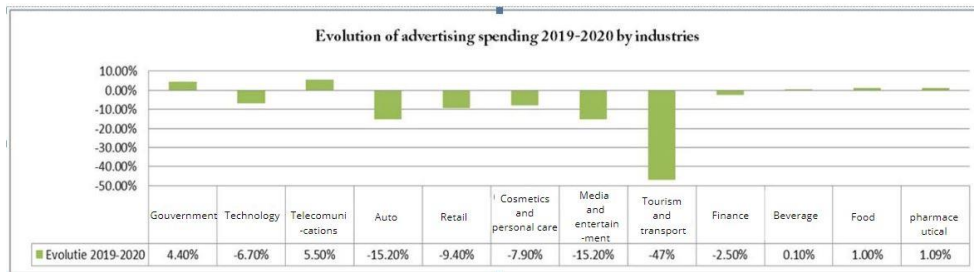


Figure 3: Evolution of advertising spending 2019-2020 by industry

Source: Adapted by the author, DENTSU, Global Ad Spend Forecast, 2021

As expected, the trend of investment in promotion shows declines in half of the industries, respectively maintaining the trend or even small increases in industries such as pharmaceuticals (10.9%), telecommunications (5.5%), government (4.4%) and food (5%). At the same time, it can be seen that the industry most severely affected was tourism and transport. Promotional budgets allocated to companies in the field decreased by 47%. Due to the uncertainties caused by the pandemic, restrictions and restrictions on free movement, the activity of many tourism companies has been limited or even stopped, which has implicitly led to lower investment in promotion.

Based on this information, the overall trend of promotional investments was analyzed and calculated, using the simple arithmetic mean, it was found that in the countries analyzed, the general trend was a percentage decrease of 7.65%. Using the formula of the relative size of the structure as a derived indicator, we will relate the value recorded by tourism and transport (aggregate value of the characteristic) to the total value of the characteristic and the sum of the percentages that mark the evolution of advertising expenditures by industries. Thus, we find that the proportion of tourism and transport compared to the reporting indicator (the sum of the percentages that mark the evolution of advertising spending by industry) is 40.52%.

Although the amounts available for promotional activities have decreased considerably, it is interesting to analyze how the available budget has been divided, thus, according to Zenith (Business Intelligence, 2020), there is a significant share of digital promotion, occupying a percentage of 58, 4% of the budget allocated to promotion. Moreover, in the case of tourism organizations, there are even higher values, the investment in digital promotion representing 62% of the total budget. This type of promotion registers the highest percentage in the tourism industry, precisely due to the characteristics of this field, among which, a leading place is presented by intangibility, the aim being to capture the consumer, from the research stage.

According to previous studies, it has been found that at European level, the United Kingdom and Germany can be considered as benchmarks of digital promotion and due to the amounts they dedicate to promotional budgets. Thus, in the following, we will analyze the case of Germany and the evolution of digital promotion in this country. As can be seen in Table 1, the budgets for tourism promotion increased

from year to year in the period 2016-2018. Thus, the percentages were calculated, the increases, the average increase being 11.15%.

Table 1: Evolution of the budget for digital promotion in Germany 2016-2018

| Evolution of the budget for digital promotion in Germany 2016-2018 | | | |
|---|------|--------|--------|
| Period | 2016 | 2017 | 2018 |
| Promotional budget (Euro billion) - Absolute frequency | 0.53 | 0.61 | 0.69 |
| Promotion budget (%) - Relative frequency | | 15.09% | 13.11% |

Source: Adapted by the author, eMarketer, 2020, Germany Ad Spend

At the same time, the second table, respectively Table 2: The evolution of the budget for digital promotion in Germany 2019-2021 summarizes the results of the statistical data regarding the increases of investments in promotion in the period 2019-2021.

Table 2: Evolution of the budget for digital promotion in Germany 2019-2021

| Evolution of the budget for digital promotion in Germany 2019-2021 | | | |
|---|-------|--------|--------|
| Period | 2019 | 2020 | 2021 |
| Promotion budget (%) - Relative frequency | 8.40% | 42.70% | 26.40% |

Source: Adapted by author, eMarketer, 2021, Germany Digital Ad Spending by Industry, 2021

Thus, the effect of the pandemic in 2020 in the tourism industry in Germany can be observed. Based on this, one can see the picture of the evolution of investments with the promotion in tourism. Taking as a benchmark the value of investments in 2016, there is a trend of steady and significant growth of investments until 2019.

Starting with 2019, due to the situation imposed by the pandemic, the value of investments in the field of promotion decreases suddenly to a minimum of 2020, a year that canceled all the increases from previous years. The next step tends to be a comeback, so in 2021 there is already an accelerated increase in the budgets allocated to promotion. This trend tends to be copied by other European countries.

5. In conclusion

Although many studies address these issues, few studies address the issue of investment for promotion, from a value approach. In this sense, the expenditure on advertising, respectively the promotional budgets at the level of enterprises and implicitly of the tourism enterprises in the last years were analyzed and interpreted statistically, focusing mainly on the effects caused by the pandemic.

Although the statistical data are relatively few, as expected, it was found that the trend of investment with promotion in all industries was a decrease, by 7.65%. The

largest decrease was recorded in the tourism and transport industry, 47%. By using the relative size of the structure, it was determined that the share of tourism in the respective decrease is one of 40.62%. Moreover, within this budget, 62% belongs to digital promotion.

At the level of the European Union, England and Germany are the countries taken as a standard in terms of promotion and investment. Analyzing the situation in Germany, it was found that in the period 2016-2019, investments in tourism promotion showed a steady growth trend, but this growth changed its exchange rate, in the year of pandemic restrictions, the year 2020, cancelling all increases previous. However, the return is already noticeable, in 2021 there will be an increase in promotional budgets in the field of tourism and this trend tends to be copied by other developed countries in the European Union.

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THE EVOLUTION OF ROAD TRANSPORT INFRASTRUCTURE IN ROMANIA AFTER 1990. ECONOMIC IMPLICATIONS

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Abstract: *The scope of this paper is to present the evolution of Romanian roads infrastructure, its economic impact based on data extracted from the European Statistical Database (EUROSTAT) and the opportunities for strategic investments with potential highly positive impacts on the nation's economy. The data used for this research spans over a period of 29 years, from 1990 right after the fall of the communist regime, to 2019 when Romania is already a Member of the European Union. The Romanian roads infrastructure is analysed according to its classification and compared with infrastructure from other European countries. The development of the Romanian transportation infrastructure in the selected timeframe was done in a complicated political environment with constant threat from corruption in all Public Authorities. The paper also aimed to establish the influence of road infrastructure over the economic development and international trade of goods and services of Romania. The econometric analysis was performed using Ordinary Least Squares method and studied the correlation between road length, as independent variable and GDP per capita, export and import of goods and services of Romania, as dependent variables. Based on empirical analysis, we found that Romanian road infrastructure is a significant determining factor for the development of the country's economy, as well as for international trade, thus, its importance is undeniable and efforts should be made in order for it to flourish. Policy implications are also included, as well as suggestions for strategic investments in a national motorway network that would connect the Black Sea to the European Markets. Effects of such investments would ripple through the entire Romanian economy.*

Keywords: *Romania; transport infrastructure; economic development; transport policies, investments.*

JEL classification: *F63; F68; L92*

1. Introduction

The larger context of this research is a broad analysis of the transportation infrastructure in Romania and the ways in which it can influence economic growth and economic competitiveness. The motivation for the topic comes from the desire to analyse a country that has emerged from a communist administration, transitioned to democracy, and became a member of the European Union (EU). Thus, we notice

a closed economy opening to the global market while receiving financial support from the EU. To enable such broader analysis, we had to study the availability of data on the subject and its evolution in time.

The impact of transportation infrastructure development on economic growth has been analysed and debated extensively (Fedderke et. al., 2006; Farhadi, 2015; Meersman & Nazemzadeh, 2017; Wang et al., 2021). Numerous empirical studies have shown that increased mobility improves the wellbeing of the population through enhanced access to higher-quality education, medical care, workplaces, social services or even leisure activities (Medeiros et. al., 2020; Churchill et. al., 2021).

This paper intends to investigate the impact of Romanian road infrastructure on the economic development of the country. Using the Least Squares method, it was established that there is a positive significant association of the road infrastructure with economic development and international trade over the period of 2002 to 2019. The intent is to show the gap between the current situation and potential benefits after implementation of a functioning and operational investment plan. Other Romanian researchers have shown before that Romanian authorities have drawn rather big and promising plans before 2007. These plans have been aiming at road, freight and inland waterways infrastructure and it is shown how they failed in the years to come, especially through a very low absorption rate of the cohesion funds allocated for Romania by the EU (Popescu and Fistung, 2014).

The paper is structured as follows. After the introduction, the paper presents the classification of roads in Romania and the evolution of communal, provincial and state roads over time. The next segment is focused on the evolution of the motorway network over the observed time frame, also in comparison to some other European countries. The fourth section presents the data and methodology used to obtain the empirical results presented in the fifth section of the paper. The final part of this paper is dedicated to conclusions of our research.

2. The Classification of Roads in Romania

The first observation was that data regarding the transport infrastructure in Romania largely became available only after the revolution in 1989. The economic development of the following years was under an agitated political class that was struggling to find its place in the new order of things. A political class that had to resist the temptation of corruption facilitated by the instability Romania was dealing with. We underline this aspect since we know corruption can hinder the economic development of a country (Cieslik & Goczek, 2017), and to somewhat try to explain the trend we discovered in the development of transport infrastructure as we shall further show in this paper.

Roads in Romania and other European countries are classified as state, provincial, and communal roads, whilst main routes benefit from wider, better-quality roads classified as express roads and motorways. In Figure 1 we ranked the countries by the total length of the state, provincial, and communal roads. The countries included in the figures depended on data availability on EUROSTAT platform. For example,

Germany and Spain are not included due to lack of data in 2019 and not because it does not account for enough kilometres. Romania is situated 12th with a total of 85.525 km.

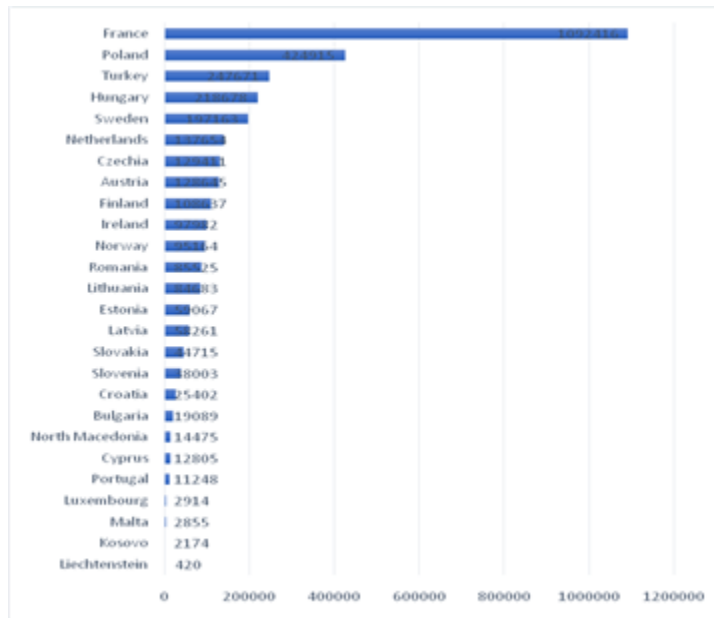


Figure 1. Length of State, Provincial and Communal roads in 2019 (km)

Source: Authors' computation based on Eurostat, ROAD_IF_ROADSC, accessed on 12.11.2021.

In Figure 2 it is shown that there is a big leap forward in the length of Romanian state roads from 1990 to 2007 with a total of 6.048km. The provincial roads have seen an even greater increase with an expansion of 8.468km. The communal roads on the other hand have lost a total of 1.826km which could represent part of the 8.468km increase in the provincial roads. This could have happened if investments were made in the provincial roads for reasons of economic or social importance as per decisions made by the local Authorities. The evolution of the total length of motorways was also included in Figure 2, to show the large mileage gap between the lengths of various types of roads in Romania (ROAD_IF_ROADSC; ROAD_IF_MOTORWA).

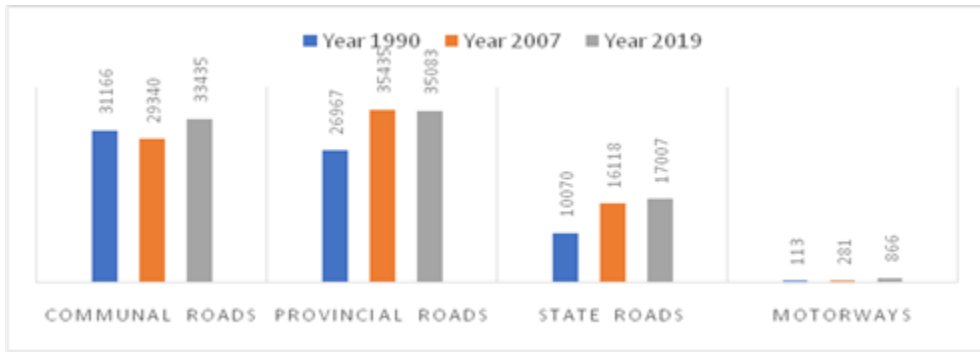


Figure 2. Evolution of Road Length in Romania by Category of Roads (km)

Source: Authors' computation based on Eurostat, ROAD_IF_ROADSC, accessed 12.11.2021; ROAD_IF_MOTORWA, accessed 12.11.2021.

We did not put much emphasis on express roads due to the lack of constant data across the selected timeframe and also the length of express roads in the observed countries did not change much due to the fact that during the observed time frame they have been mainly modernizing the national roads and building motorways, so the focus was on a different category.

3. Evolution of the Romanian Motorway Network

In 1990 Romania had a total of 113km of motorway and in 2007 when Romania became a member of the European Union (EU), it had a total of 281 km. In 2019, Romania had 866 km of highway which means 168 km were built in the 17 years following the fall of the communist regime and another 585 km in the 12 years after entering the EU. This ranks Romania 15th, as shown in Table 1, amongst European Countries in 2019, being surpassed by much smaller countries, area wise, like Austria, Hungary, or Ireland (ROAD_IF_MOTORWA).

Table 1: Length of Motorways in European Countries in 2019

| No. | Countries | Length of Motorways (km) in 2019 |
|-----|-------------|----------------------------------|
| 1 | Germany | 13.183 |
| 2 | France | 11.671 |
| 3 | Portugal | 3.065 |
| 4 | Turkey | 3.060 |
| 5 | Netherlands | 2.790 |
| 6 | Sweden | 2.133 |
| 7 | Austria | 1.743 |
| 8 | Hungary | 1.723 |
| 9 | Poland | 1.676 |
| 10 | Croatia | 1.310 |
| 11 | Czechia | 1.276 |
| 12 | Norway | 1.008 |
| 13 | Ireland | 995 |

| | | |
|----|-----------------|-----|
| 14 | Finland | 926 |
| 15 | Romania | 866 |
| 16 | Bulgaria | 790 |
| 17 | Slovenia | 623 |
| 18 | Slovakia | 495 |
| 19 | Lithuania | 403 |
| 20 | North Macedonia | 335 |
| 21 | Cyprus | 257 |
| 22 | Luxembourg | 165 |
| 23 | Estonia | 161 |
| 24 | Kosovo | 137 |

Source: Authors' computation based on Eurostat (ROAD_IF_MOTORW accessed on 01.11.2021)

Table 2 shows the evolution of motorway networks in European countries throughout our selected timeframe. Germany and France have not been included in the table since they dispose of a very extensive motorway network. The timeframe focuses on the year 1990, first year of available data for Romania, 2007 the year when Romania became a member of the EU and 2019 the beginning of the Covid-19 Pandemic. We shall try to keep this timeframe throughout the paper as much as availability of data allows, since we believe these years represent turning points in Romania's economy and policy.

Table 2. Evolution of Motorway Networks (km) in European Countries

| Countries / Years | 1990 | 2007 | 2019 |
|-------------------|------|---------|-----------|
| Portugal | 316 | 2613(d) | 3065(d) |
| Turkey | 281 | 1908 | 3060 |
| Netherlands | 2092 | 2582 | 2790 |
| Sweden | 939 | 1836 | 2133 |
| Austria | 1445 | 1696 | 1743 |
| Hungary | 267 | 858 | 1723.2(d) |
| Poland | 257 | 663 | 1676 |
| Croatia | 291 | 1156(d) | 1310 |
| Czechia | 357 | 657 | 1276 |
| Norway | 73 | 239 | 1008 |
| Ireland | 26 | 269 | 995 |
| Finland | 225 | 700 | 926 |
| Romania | 113 | 281 | 866 |
| Bulgaria | 273 | 418 | 790 |
| Slovenia | 228 | 578 | 623 |
| Slovakia | 192 | 364.5 | 495 |
| Lithuania | 370 | 309 | 403 |
| North Macedonia | 83 | 221 | 335 |
| Cyprus | 154 | 257 | 257 |

| | | | |
|------------|----|-----|-----|
| Luxembourg | 78 | 147 | 165 |
| Estonia | 41 | 96 | 161 |

Source: Authors' computation based on Eurostat, ROAD_IF_MOTORWA, accessed on 08.11.2021.

Table 2 shows a clear positive trend in motorway development in all countries selected but also shows how Romania has one of the shortest motorway networks if we take into consideration the size of the country as well and not only the number of kilometres independently. This leaves much room for future investments in this sector, to increase the mobility of goods and work force but also to stimulate the process of urbanisation which has been shown to have a positive impact on economic growth (Pradham et al., 2021).

Investment in the development of the motorway infrastructure could also be encouraged by the geographical location of Romania. Linking the Black Sea with Continental Europe is an opportunity for international transit of goods and merchandise. This has been shown to be a potential generator of workplaces and economic growth in the case of Belgium, who serves as a similar gateway to Europe but in the West. While Belgium is an attractive market due to the proximity to Europe's largest purchasing powers, Romania could be an attractive market due to cheaper labour force and easier access to cheaper goods supplied in the ports at the Black Sea (Meersman & Nazemzadeh, 2017).

An interesting observation is to be made regarding data in Figure 3 referring to Lithuania, which is the only country to show a decrease in the total length of motorways between years 1990 and 2007. Since the focus in this paper is on Romanian roads infrastructure, we shall not investigate this topic in more depth, but it leaves room for further explorations to see the reasons for such data evidence.

In Table 3, we calculated the percentage by which the length of motorways increased in each country. This shows that from 1990 to 2007 Romania was ranked 11th and that from 2007 to 2019 it was ranked 4th. This ranking is based on percentage of increase in the length of motorway, but because Romania only had 113 km of motorway built in 1990, to avoid confusion we ranked the countries again based on the increase in the number of kilometres. Now Romania is ranked 16th from 1990 to 2007 and 9th from 2007 to 2019. This shows a positive impact on the development of transport infrastructure, after Romania became a member of the EU and shows how cohesion funds helped speed up the construction of the motorway network.

Table 3: Increase in Motorway Networks in European Countries (%)

| No. | Countries | Length of motorway built from 1990 to 2007 (km) | Increase in motorway length from 1990 to 2007 (%) | Length of motorway built from 2007 to 2019 (km) | Increase in motorway length from 2007 to 2019 (%) |
|-----|-----------|---|---|---|---|
| 1 | Germany | 1.740 | 16.03% | 589 | 4.67% |
| 2 | France | 4.134 | 60.58% | 713 | 6.5% |
| 3 | Portugal | 2.297 | 726.89% | 452 | 17.29% |

| | | | | | |
|----|-----------------|---------|---------|---------|---------|
| 4 | Turkey | 1.627 | 579% | 1.152 | 60.37% |
| 5 | Netherlands | 490 | 23.42% | 208 | 8.05% |
| 6 | Sweden | 897 | 95.52% | 297 | 16.17% |
| 7 | Austria | 251 | 17.37% | 47 | 2.77% |
| 8 | Hungary | 591 | 221.34% | 865,2 | 100.83% |
| 9 | Poland | 406 | 157.97% | 1.013 | 152.79% |
| 10 | Croatia | 865 | 297.25% | 154 | 13.32% |
| 11 | Czechia | 300 | 84.03% | 619 | 94.21% |
| 12 | Norway | 166 | 227.39% | 769 | 321.75% |
| 13 | Ireland | 243 | 934.61% | 726 | 269.88% |
| 14 | Finland | 475 | 211.11% | 226 | 32.28% |
| 15 | Romania | 168 | 148.67% | 585 | 208.18% |
| 16 | Bulgaria | 145 | 53.11% | 372 | 88.99% |
| 17 | Slovenia | 350 | 153.5% | 45 | 7.78% |
| 18 | Slovakia | 172 | 89.84% | 130,5 | 35.80% |
| 19 | Lithuania | -61 | -16.48% | 94 | 30.42% |
| 20 | North Macedonia | 138 | 166.26% | 114 | 51.58\$ |
| 21 | Cyprus | 103 | 66.88% | 0 | 0% |
| 22 | Luxembourg | 69 | 88.46% | 18 | 12.24% |
| 23 | Estonia | 55 | 134.14% | 65 | 67.7% |
| 24 | Kosovo | No data | No data | No data | No data |

Source: Authors' computation based on Eurostat, ROAD_IF_MOTORWA, accessed on 08.11.2021.

4. Data and Methodology

The paper starts with the research hypothesis that Romanian road infrastructure has a direct and positive influence over the economic development and international trade of goods and services of Romania. For this purpose, a database was built regarding Romanian road infrastructure, economic development and trade using data published by Eurostat. Since all the data was available for the period 2002-2019, the database includes the following variables for this time period:

- road length (LENGTH) to express the developments of Romanian road infrastructure;
- GDP per capita (GDPCAPITA) to show the economic development of Romania;
- export (EXP) and import (IMP) of goods and services of Romania.

In order to estimate the impact of road infrastructure on economic development and international trade we will use the following regression equation:

$$Y_t = \alpha + \beta_1 \cdot X_t + \beta_2 \cdot z_t + \varepsilon_t \quad (1)$$

where: Y_t is the dependent variable, t -denotes time, X_t is the explanatory variable, z_t is a dummy variable, α is a constant, β_1 β_2 are regression parameters, and ε_t is the error.

A dummy variable was included, in order to capture the effect of market liberalization after the inclusion of Romania in European Union (EU).

We will estimate there separate equations, one for each dependent variable (GDPCAPITA, EXPORT and IMPORT), as follows:

$$GDPCAPITA_t = A_1 + A_2 \cdot LENGTH_t + A_3 \cdot EU_t + \varepsilon_t \quad (2a)$$

$$IMP_t = B_1 + B_2 \cdot LENGTH_t + B_3 \cdot EU_t + \varepsilon_t \quad (2b)$$

$$EXP_t = C_1 + C_2 \cdot LENGTH_t + C_3 \cdot EU_t + \varepsilon_t \quad (2c)$$

Where: GDPCAPITA denotes Gross domestic product per capita, LENGTH express the Romanian road length, IMP signifies Romanian import of goods and services, EXP represents Romanian export of goods and services, and EU specifies the inclusion in European Union (the value is 0 for 2002 to 2007 and 1 for 2007-2019). The models are estimated with the E-Views software using the Least Squares method.

5. Empirical results

Figure 5 exposes the distribution and descriptive statistics of the variables. The abnormal distribution, according to Jarque-Bera test ($p > 5\%$), and a platykurtic kurtosis (Kurtosis < 3) can be noted for all variables. There is a negative skewness of GDP per capita and road length (Skewness < 0), but a positive skewness of import and export (Skewness > 0).

Table 4: Descriptive statistics of variables

| | LENGTH | IMP | GDP | EXP |
|--------------|-----------|----------|-----------|----------|
| Mean | 81541.56 | 53491.19 | 131452.9 | 46489.83 |
| Median | 82703.50 | 56722.35 | 132276.4 | 44742.40 |
| Maximum | 85525.00 | 99317.50 | 223162.5 | 90120.20 |
| Minimum | 73215.00 | 14461.30 | 48695.70 | 11693.30 |
| Std. Dev. | 4237.904 | 24730.05 | 49897.11 | 25385.79 |
| Skewness | -1.010172 | 0.097576 | -0.094468 | 0.206127 |
| Kurtosis | 2.738741 | 2.274079 | 2.363839 | 1.842234 |
| Jarque-Bera | 3.112537 | 0.423784 | 0.330298 | 1.132781 |
| Probability | 0.210922 | 0.809052 | 0.847767 | 0.567570 |
| Sum | 1467748. | 962841.4 | 2366152. | 836816.9 |
| Sum Sq. Dev. | 3.05E+08 | 1.04E+10 | 4.23E+10 | 1.10E+10 |
| Observations | 18 | 18 | 18 | 18 |

Source: Authors' computation based on Eurostat NAMA_10_GDP,ROAD_IF_ROADSC accessed 12.11.2021

The results of the first regression equation regarding the influence of road length over GDP per capita in Romania are presented in Table 5 and show that the Romanian road length has a positive impact on GDP per capita ($A_2 = 0.438415$), being a significant determining factor ($p < 5\%$). However, it seems that the integration in European Union has a positive influence on GDP per capita ($A_3 = 1196.290$), even if it is not a significant factor ($p > 5\%$).

Table 5. Empirical results of regression equation 2a

Dependent variable GDPCAPITA

Method: Least Squares (Gauss-Newton / Marquardt steps)

Sample: 2002 2019

Included observations: 18

| | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| A(1) | -30080.79 | 11432.63 | -2.631134 | 0.0189 |
| A(2) | 0.438415 | 0.150630 | 2.910549 | 0.0108 |
| A(3) | 1196.290 | 1385.050 | 0.863716 | 0.4013 |
| R-squared | 0.782162 | Mean dependent var | | 6532.222 |
| Adjusted R-squared | 0.753117 | S.D. dependent var | | 2658.515 |
| S.E. of regression | 1320.944 | Akaike info criterion | | 17.36109 |
| Sum squared resid | 26173382 | Schwarz criterion | | 17.50949 |
| Log likelihood | -153.2498 | Hannan-Quinn criter. | | 17.38155 |
| F-statistic | 26.92932 | Durbin-Watson stat | | 0.832475 |
| Prob(F-statistic) | 0.000011 | | | |

Source: Authors' computation based on Eurostat,
NAMA_10_GDP,ROAD_IF_ROADSC accessed 12.11.2021

The results of the second regression equation regarding the influence of road length over the imports of Romania are presented in Table 6. It is noted that Romanian import of goods and services is positively ($B2 = 4.430989$) and significantly influenced by the developments of road infrastructure, with a p value less than 1%. Also, the integration in European Union implies a positive influence on the import ($B3 = 6883.067$), but it was not a significant explanatory factor of Romanian import of goods and services ($p > 5\%$).

Table 6. Empirical results of equation 2b

Dependent Variable: IMP

Method: Least Squares (Gauss-Newton / Marquardt steps)

Sample: 2002 2019

Included observations: 18

| | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| B(1) | -312789.7 | 111272.2 | -2.811031 | 0.0132 |
| B(2) | 4.430989 | 1.466056 | 3.022387 | 0.0086 |
| B(3) | 6883.067 | 13480.49 | 0.510595 | 0.6171 |
| R-squared | 0.761526 | Mean dependent var | | 53491.19 |
| Adjusted R-squared | 0.729729 | S.D. dependent var | | 24730.05 |
| S.E. of regression | 12856.56 | Akaike info criterion | | 21.91211 |
| Sum squared resid | 2.48E+09 | Schwarz criterion | | 22.06050 |

| | | | |
|-------------------|-----------|----------------------|----------|
| Log likelihood | -194.2090 | Hannan-Quinn criter. | 21.93257 |
| F-statistic | 23.94991 | Durbin-Watson stat | 0.945487 |
| Prob(F-statistic) | 0.000021 | | |

Source: Authors' computation based on Eurostat, NAMA_10_GDP,ROAD_IF_ROADSC accessed 12.11.2021

The results of the last regression equation regarding the influence of road length over the exports of Romania are presented in Table 7. As it can be seen, the coefficient of the Romanian road infrastructure reflects a positive influence on the export of goods and services ($C2 = 5.299010$), being a significant explanatory factor of it with a p value less than 1%. However, the integration of Romania in European Union has a negative influence over the exports ($C3 = -796.0006$), but it was not a significant explanatory factor based on a p value much higher than 5%.

Table 7. Empirical results of equation 2c

Dependent Variable: EXP

Method: Least Squares (Gauss-Newton / Marquardt steps)

Sample: 2002 2019

Included observations: 18

$EXP01=C(1)+C(2)*LENGTH+C(3)*EU$

| | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| C(1) | -385024.8 | 114434.5 | -3.364588 | 0.0043 |
| C(2) | 5.299010 | 1.507720 | 3.514584 | 0.0031 |
| C(3) | -796.0006 | 13863.60 | -0.057417 | 0.9550 |
| R-squared | 0.760641 | Mean dependent var | | 46489.83 |
| Adjusted R-squared | 0.728726 | S.D. dependent var | | 25385.79 |
| S.E. of regression | 13221.93 | Akaike info criterion | | 21.96815 |
| Sum squared resid | 2.62E+09 | Schwarz criterion | | 22.11655 |
| Log likelihood | -194.7134 | Hannan-Quinn criter. | | 21.98861 |
| F-statistic | 23.83362 | Durbin-Watson stat | | 1.099970 |
| Prob(F-statistic) | 0.000022 | | | |

Source: Authors' computation based on Eurostat, NAMA_10_GDP,ROAD_IF_ROADSC, accessed 12.11.2021

The obtained results confirmed the research hypothesis and are in line with other studies such as that of Chen et al. (2020), who showed the investments made under the Belt and Road initiative positively influenced the economic growth in regions impacted by the development project. Trade costs are reduced while volumes are stimulated to grow thus the economic productivity is following an increasing curve. Our results are also in line with Herranz-Loncan (2007) who analyzed the implications of infrastructure investments over more than eighty years of Spanish

economic development proving that even with significant inefficient investments the returns were still larger than zero.

6. Conclusions

The transport infrastructure has been shown to be a contributor to economic development and population wellbeing. Considering the market liberalization, the transport infrastructure plays an important role in stimulating international trade and therefore increasing the competitiveness of a country. This paper proposed to enhance the role of Romanian road infrastructure in economic development and international trade. The empirical results established the direct correlation between road length and GDP per capita, import and export of goods and services, being a significant explanatory factor. Also, it can be seen that the accession to the EU had a positive influence on the GDP per capita and imports, but manifested a negative correlation regarding export. However, it is not a significant explanatory factor and the export volumes of Romania are influenced by many other factors such as the huge deindustrialisation of the country caused by the collapse of most of the large Romanian producers in areas such as mining, agriculture, rolling stock, etc. These results can be a start point for policy makers, which must understand the “whole picture” regarding the importance of the investments in transport infrastructure. The geographical positioning of Romania must be seen as an advantage for governmental initiatives that support economic development through efficient transport infrastructure. As highlighted by other authors (e.g., Fistung et al., 2014) a policy option could be to refocus financial budgetary allocations to modernize and increase of the European national roads.

One of the most impacting strategic investments in this sector would be also linking the Black Sea to Central European and Western European markets through a network of motorways in order to stimulate the movement of goods on Romania’s territory. This strategic investment would positively impact the economy through increased income from road taxes, creation of workplaces in the logistics sector and road maintenance, facilitating the development of logistics hubs, construction companies and business in general since the spill over effect would be felt in all sectors of the economy.

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INFLUENCE OF THE WINE SECTOR ON TOURISM DEVELOPMENT

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Abstract: *Wine tourism is the priority form of tourism for a series of countries. It must be integrated and adapted to the tourist market necessities worldwide, to increase the number of tourists. Investigations carried out in the field of wine tourism should be integrated with those conducted globally. At the same time, it is necessary to integrate the two industries: wine and tourism. Wine production and tourism are essentially on opposite ends of the industrial spectrum, while the characteristics of each activity are different from a microeconomic perspective. On one end, wine production is a primary and partially secondary activity based on industry, characterised by being dependent on supply prices and by producing a standardised and homogeneous product, relying on capital increase to create wealth. At the other end of the industrial spectrum, tourism is a services industry characterised as a heterogeneous service determined by demand, by obtaining prices, maximising profit, and relying on profits to create wealth. Wine tourism may generate substantial earnings, thus contributing to the development of regions and making the labour market and the companies conducting their activities in this sector more dynamic. By allotting various funds, one may increase wine quality and readjust the supply of tourist services, thus determining an increase in location popularity and incomes, implicitly. This paper approaches the interaction between wine tourism and wine production. It is due to the fact that wine tourism development is in the charge of wine producers, most often small and medium enterprises. Hence, the increase in wine quality is one of the challenges for the interested parties in wine enterprise development. The article aims to determine the influence of the wine sector on the development of tourism in the world's leading countries in wine production. In order to achieve the objective, the statistical data for the period 2016-2021 regarding the evolution of wine production in 22 countries with the highest volume of wine production were analyzed. Travel and tourism competitiveness index and International tourist arrivals were analyzed for the same 22 countries. The results of the research showed that the countries with the highest volume of wine production have the highest International tourism inbound receipts. The countries leading the world in wine production such as Italy, Spain, France, USA among the top 5 countries with the largest International tourist arrivals.*

Keywords: wine tourism, development, tourists, wine tasting, vine and wine.

JEL Classification: L83; Q26; Z32.

1. Introduction

Wine has become a lifestyle product for an increasing number of consumers. Visiting cellars has become a leisure and tourism activity among wine connoisseurs. Wine tourists visit cellars not only for wine tasting but also to admire the landscapes and get an insight into the traditions and heritage of the wine-producing area. Producers can demonstrate their wine-production process and display the vines and gardens for visitors of the cellars. Specifically, wine tourism may prove effective in increasing brand awareness and loyalty among cellar tourists, which may contribute to higher incomes.

Wine tourism is the priority form of tourism for a series of countries, hence the need to integrate and adapt it to the global tourist market needs, to increase the number of foreign tourists; the investigations in the field of wine tourism should be integrated with the ones conducted worldwide. At the same time though, there is a need to integrate the two industries (i.e., wine and tourism). Wine production and tourism are essentially on opposite ends of the industrial spectrum, while the characteristics of each activity are different from a microeconomic perspective. On one end, wine production is a primary and partially secondary activity based on industry, characterised by being dependent on supply prices and by producing a standardised and homogeneous product, relying on capital increase to create wealth. At the other end of the industrial spectrum, tourism is a services industry characterised as a heterogeneous service determined by demand, by obtaining prices, maximising profit, and relying on profits to create wealth.

2. Wine culture and art

Whereas the exact date and place of wine emergence are unknown, from time immemorial there are numerous wine-related mentions in works by writers, painters, scientists and politicians alike. It is well known the wine was used in medicine, festivities, religious ceremonies, and public events.

In ancient Egypt, wine was widely appreciated; it was the beverage of choice for rich people and high priests during their meals, which were part of religious rituals. Furthermore, wine represented important and expensive trading merchandise. The Egyptian civilisation was probably the first to have used wine in religious ceremonials and economic activity. However, the Greeks were the ones who disseminated vine culture across Western Europe, up to France (Johnson, 2004, p. 25).

In Greece, wine has been known from time immemorial. Greeks used to dilute wine using water before drinking it. This practice allowed them to increase the amount of wine, considered an expensive product; it also prevented them from becoming intoxicated, mostly during long afternoon debates, which were an inherent part of Greek cultural relations. It is indisputable that Greeks were considered moderate wine lovers; they did not prefer drunken escapades but focused on the friendly and

social atmosphere of communication during celebrations. They were aware of the risks entailed by excessive intake of strong alcoholic beverages (Johnson & Robinson, 2015, p. 15).

Romans adopted many Greek traditions, including the possibility of getting pleasure from wine. In the Roman culture, wine became a daily food tradition; it was related to religious ceremonies and luxury banquets. Greeks cultivated vines in the Italian peninsula long before the flourishing period of the Roman Empire; they founded harbours for wine commerce and other merchandise trade in the Mediterranean Sea. Romans extended the vineyards in their provinces. They cultivated vines in France (Bordeaux), Germany, Spain, and even Great Britain (the western limit of the empire). Romans along with the Gauls are said to have invented the wooden barrel to facilitate wine trade and shipment over long distances. The expansion of the Roman Empire and the simultaneous increase in surfaces where the vines were cultivated disseminated wine availability to several social classes. However, only wealthy people had access to the best types of wine.

Wine is a symbol of the area where it was created. No other product reflects better the history, geography, and culture of its area of origin. Every year produces unique wines that bring together various human and climatic processes. Wine is simple and complex at the same time: it is a momentary euphoria of the senses, but also the excellent expression of a moment in time and a piece of land.

The concept of wine tourism development and its various influences on various aspects of the local community (business, environmental and social) have been widely discussed, especially as fears of depletion and degradation of natural resources increase. The wine industry and one of its sub-sectors, wine tourism, is increasingly mentioned in the discussion on sustainability, and not only in terms of environmental concerns. Ohmart (2008), for example, explains that one of the goals of sustainable viticulture is to contribute to the local community in a positive way, while leaving a smaller impact on the environment. Hall and Mitchell (2000) and Hall et al. (2004) explored the development of wine tourism in terms of the opportunities and challenges of this concept as a business activity. Alonso and Liu (2012) in their research are concerned with exploring the potential of wine tourism, but also with the government's possibilities to support wine producers in organizing the activity with limited resources to use wine marketing opportunities among tourists.

Torres et al. (2020) in their research identified the key factors in the adoption of wine tourism. Five factors influence tourists: word of mouth recommendations, the attractiveness of products, tourist services, information available on the Internet and recommendations of tour operators. Tour operators and travel services are key factors in increasing the number of wine tourists, but the attractiveness of the products has a stronger influence in the long run.

Tafel and Szolnoki (2020) explored the impact of German wine regions as tourism destinations that are developing sustainably through job creation, while preserving the heritage of a region. Tafel and Szolnoki (2020) estimated the economic impact of tourism in German wine regions to help stakeholders make the right policy and

investment decisions. They have developed a multiplier model that allows the assessment of the economic impact of wine tourism. The results of Tafel and Szolnoki's research (2020) show that tourism in the German wine regions has an economic impact of EUR 26.4 billion, ensuring their primary income for 384,878 people. Proper investment in this profitable market could help balance regional economic disparities and achieve sustainable tourism development in the country (Tafel and Szolnoki, 2020).

3. The wine sector and its influence on tourism development

Wine tourism emerged at the crossroads between vine culture and tourism as a specialised form of travel, as a popular form of rest, which went on to become one of the most encouraging directions of global tourism expansion. Wine has become synonymous with the individual ambience of regional cultures worldwide. Wine is one of the best expressions of specific characteristics of a region, of the civilisation layering, of its culture and environment. The regions with a viticulture tradition have understood that wine is far more than an alcoholic beverage: it is a story, a history, and a civilisation, and it embodies rural tradition and urban charm (Santos et al., 2022). By developing local-based leisure activities, vineyards can contribute to the sustainable development of the local community (Tănase et al., 2022).

The traditionally long connexion between the culture of wine, vines, and humans has provided every coming generation with the pleasure of observing and highlighting its significance. Based on this connexion, tourism emerged concerning viticulture, wine tourism and rural tourism (Soare, 2007, p. 52).

Wine tourism has been defined by Hall and Macionis (1998) as comprising visits to vineyards, wine factories, wine festivals, and wine tasting shows, all accompanied by the exploitation of the advantages featured by a wine-production region. All of the above are the primary motivating factors for visitors. This definition relies on studies of the information obtained from tourists and visitors to wine festivals (Hall et al., 2004, p. 3).

Wine, food products, tourism, and arts comprise the fundamental elements of the wine tourist product, usually provided along with the lifestyle desired by tourists, precisely to experience it. This product-based approach is featured in the definition provided by Australia Grape and Wine Incorporated (1998): visits to wine factories and wine regions to experience the unique qualities of the lifestyle associated with wine pleasure and cultural activities, gastronomy, and landscapes. Precisely this definition and approach generated a series of studies focusing on the products and destinations specific to wine tourism (Sharma, 2005, p. 48).

The most significant particularity of wine tourism concerns wine production and exploration of regional traditions at the same time. Wine tourism intensifies in areas with a rich culture and history. In 1953, the first wine road was inaugurated in Alsace, France (Morrison, 2013, p. 488).

Wine tourism development is in close connexion not only with the field of winemaking in a certain region, but also with the rich history of the places visited by

tourists, and with the interest in vine culture (i.e., increase in vineyards, wine production and consumption) (Popov, 2009, p. 82).

Due to historical reasons and geographical, climatic, environmental, cultural, and political conditions, the European continent is the largest high-quality alcoholic products manufacturer and exporter. It is also one of the most frequented regions in the world because it comprises the highest number of cultural and historical monuments, and the level of services provided is high.

The greatest wine producers in the world are Italy, Spain, France, and the United States of America by production volume. US wine has a 300-year-old tradition. In recent years, the wine production dynamic in the US has followed an ascending trend. A tendency has been noted to reduce vine-cultivated surfaces, but the number of wine producers has remained almost constant.

Table 1: Wine production volume in 2016-2021

| | Country | Production volume mln. hectolitres | | | | | | Variation | Variation |
|----|--------------------|------------------------------------|------------|------------|------------|------------|------------|-------------------------|-------------------|
| | | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2021/2020 In mln. hl | 2021/2020 in % |
| 1 | Italy | 50.9 | 42.5 | 54.8 | 47.5 | 49.1 | 44.5 | -4.5 | -9.0% |
| 2 | Spain | 39.7 | 32.5 | 44.9 | 33.7 | 40.7 | 35.0 | -5.7 | -14.0% |
| 3 | France | 45.4 | 36.4 | 49.2 | 42.2 | 46.7 | 34.2 | -12.4 | -27.0% |
| 4 | USA | 24.9 | 24.5 | 26.1 | 25.6 | 22.8 | 24.1 | 1.3 | 6.0% |
| 5 | Australia | 13.1 | 13.7 | 12.7 | 12.0 | 10.9 | 14.2 | 3.3 | 30.0% |
| 6 | Chile | 10.1 | 9.5 | 12.9 | 11.9 | 10.3 | 13.4 | 3.1 | 30.0% |
| 7 | Argentina | 9.4 | 11.8 | 14.5 | 13.0 | 10.8 | 12.5 | 1.7 | 16.0% |
| 8 | South Africa | 10.5 | 10.8 | 9.5 | 9.7 | 10.4 | 10.6 | 0.2 | 2.0% |
| 9 | Germany | 9.0 | 7.5 | 10.3 | 8.2 | 8.4 | 8.8 | 0.4 | 4.0% |
| 10 | China | 13.2 | 11.6 | 9.3 | 7.8 | 6.6 | 6.8 | 0.2 | 3.0% |
| 11 | Portugal | 6.0 | 6.7 | 6.1 | 6.5 | 6.4 | 6.5 | 0.1 | 1.0% |
| 12 | Romania | 3.3 | 4.3 | 5.1 | 3.8 | 3.8 | 5.3 | 1.4 | 37.0% |
| 13 | Russia | 5.2 | 4.5 | 4.3 | 4.6 | 4.4 | 4.5 | 0.1 | 2.0% |
| 14 | Brazil | 1.3 | 3.6 | 3.1 | 2.2 | 2.3 | 3.6 | 1.3 | 60.0% |
| 15 | Hungary | 2.8 | 2.9 | 3.6 | 2.7 | 2.9 | 3.1 | 0.2 | 6.0% |
| 16 | New Zealand | 3.1 | 2.9 | 3.0 | 3.0 | 3.3 | 2.7 | -0.6 | -19.0% |
| 17 | Austria | 2.0 | 2.5 | 2.8 | 2.5 | 2.4 | 2.3 | -0.1 | -4.0% |
| 18 | Georgia | 0.9 | 1.0 | 1.7 | 1.8 | 1.8 | 2.2 | 0.4 | 22.0% |
| 19 | Greece | 2.5 | 2.6 | 2.2 | 2.4 | 2.3 | 1.7 | -0.6 | -26.0% |
| 20 | Moldova | 1.5 | 1.8 | 1.9 | 1.5 | 0.9 | 1.1 | 0.2 | 20.0% |
| 21 | Bulgaria | 1.2 | 1.2 | 1.1 | 0.9 | 0.8 | 0.9 | 0.1 | 7.0% |
| 22 | Switzerland | 1.1 | 0.8 | 1.1 | 1.0 | 0.8 | 0.8 | -0.1 | -10.0% |
| | Other countries | 12.9 | 12.4 | 13.8 | 13.5 | 13.2 | 14.2 | 1.0 | 7.6% |
| | Total | 270 | 248 | 294 | 258 | 262 | 253 | -9.0 | -3.4% |

Source: Elaborated by the authors based on the data provided by the International Organisation of Vine and Wine

According to preliminary data from the International Organisation of Vine and Wine, the global wine production in 2021 decreased by 4% compared to the previous

year, due to the unfavourable climate conditions. significant decreases in wine production have been recorded all over the world, except for South-Eastern Europe, where Romania has recorded an increase of around 37%, while the Republic of Moldova has recorded an increase of 20% concerning the volume of 2021 production.

The wine production volume of the great producers such as Italy, Spain, and France has been affected by detrimental weather conditions; however, increases in countries like the United States of America, Australia, Chile, Argentina, Romania, and Brazil compensate for some of the reductions.

Between 2019 and 2021, the weighting of wine production volume specific to European Union countries has accounted for 59, 63, and 57%, respectively, of the total wine volume, with Italy, Spain, and France ranking among the top wine producers. In the same period, overseas producers contributed with 25, 23, and 27%, respectively: The United States of America and Australia ranked the 4th and the 5th, while Chile, Argentina, and South Africa ranked the 6th the 7th and the 8th. Despite the trend of looking for wines from the new world, the European region still dominates world production, accounting for a higher percentage. The wine-making region of the new world, on the other hand, has recorded a slight decrease in the volume of production in 2019 and 2020, which is due primarily to the significant reduction in wine production in the United States, Australia, Chile, and Argentina. However, the weighting within the global production volume hides other substantial changes in wine production. Relevantly, the wine producers from the new world, namely Australia, California, New Zealand, Argentina, Chile, and South Africa have improved considerably the quality of wine, insofar as they replaced not only the sales of cheaper European wines on their domestic market but also on the premium export market, especially to the United Kingdom and Scandinavia.

4. The international experience of wine tourism development

Table 2: Travel and tourism competitiveness index in the countries specialising in wine tourism (in 2019)

| Rank | Country | Score | Ranking change compared to 2017 |
|------|-------------|-------|---------------------------------|
| 1 | Spain | 5.4 | 0 |
| 2 | France | 5.4 | 0 |
| 3 | Germany | 5.4 | 0 |
| 5 | USA | 5.3 | 1 |
| 7 | Australia | 5.1 | 0 |
| 8 | Italy | 5.1 | 0 |
| 10 | Switzerland | 5.0 | 0 |
| 11 | Austria | 5.0 | 1 |
| 12 | Portugal | 4.9 | 2 |
| 13 | China | 4.9 | 2 |
| 18 | New Zealand | 4.7 | -2 |
| 25 | Greece | 4.5 | -1 |

| | | | |
|-----|--------------|-----|----|
| 32 | Brazil | 4.5 | -5 |
| 39 | Russia | 4.3 | 4 |
| 45 | Bulgaria | 4.2 | 0 |
| 50 | Argentina | 4.2 | 0 |
| 52 | Chile | 4.1 | -4 |
| 56 | Romania | 4.0 | 8 |
| 61 | South Africa | 4.0 | -8 |
| 68 | Georgia | 3.9 | 2 |
| 74 | Hungary | 3.8 | 3 |
| 103 | Moldova | 3.3 | 14 |

Source: Elaborated by the authors based on The Travel & Tourism Competitiveness Report 2019

Every two years, an index is published called the travel and tourism competitiveness index. The most recent travel in tourism competitiveness index dates from 2019. The purpose of this report is to carry out a comprehensive analysis of the economies of 136 countries worldwide enter determine the factors and policies influencing tourism development in various countries. For the countries with a significant wine production sector, we feature the travel and tourism competitiveness index in Table 2.

This index includes four groups of factors analysed such as the regulatory framework of travel and tourism, the business community in the field of travel and tourism, the structure in the field of travel and tourism, and the human, cultural, and natural resources in travel and tourism. In its turn, each group contains a series of indicators.

The three first places are occupied by European countries with a well-developed wine production industry, specialising in wine tourism, such as Spain, France, and Germany, but the greatest wine producer (Italy) ranks only eighth in tourist competitiveness. Italy has a lower score than the leaders concerning factors such as business community, security, and human resources.

Table 3: International tourist arrivals (in 2019)

| Country | International tourist arrivals (million) | International tourism inbound receipts (million US\$) | T&T industry GDP (million US\$) | T&T industry employment (thousand) |
|-------------|--|---|---------------------------------|------------------------------------|
| Spain | 81.8 | 68,114.1 | 78,464.0 | 958.1 |
| France | 86.9 | 60,680.7 | 109,404.9 | 1,296.0 |
| Germany | 37.5 | 39,823.4 | 138,987.8 | 3,065.3 |
| USA | 76.9 | 210,747.0 | 554,872.9 | 5,793.4 |
| Australia | 8.8 | 41,731.9 | 42,562.4 | 567.9 |
| Italy | 58.3 | 44,233.2 | 117,336.8 | 1,543.1 |
| Switzerland | 11.1 | 16,273.8 | 19,079.1 | 173.0 |
| Austria | 29.5 | 20,460.0 | 35,298.8 | 392.7 |
| Portugal | 21.2 | 17,118.7 | 16,905.0 | 389.2 |
| China | 60.7 | 32,617.3 | 382,287.3 | 28,660.2 |

| | | | | |
|--------------|------|----------|----------|---------|
| New Zealand | 3.6 | 10,593.2 | 11,798.9 | 224.5 |
| Greece | 27.2 | 16,527.7 | 18,309.9 | 485.5 |
| Brazil | 6.6 | 5,809.2 | 55,845.5 | 2,442.8 |
| Russia | 24.4 | 8,944.6 | 19,400.0 | 839.3 |
| Bulgaria | 8.9 | 4,045.0 | 2,026.9 | 93.0 |
| Argentina | 6.7 | 5,374.6 | 19,130.9 | 628.9 |
| Chile | 6.5 | 3,634.3 | 9,401.3 | 272.4 |
| Romania | 2.8 | 2,527.1 | 3,687.7 | 222.5 |
| South Africa | 10.3 | 8,817.7 | 10,499.1 | 687.3 |
| Georgia | 4.0 | 2,704.3 | 1,703.5 | 151.3 |
| Hungary | 15.8 | 6,170.4 | 4,021.2 | 221.0 |
| Moldova | 0.15 | 319.4 | 103.2 | 10.3 |

Source: Elaborated by the authors based on The Travel & Tourism Competitiveness Report 2019

Germany ranks 9th by wine production volume and the third in the world by the travel and tourism competitiveness index.

The success it enjoys may be ascribed to the unique offer of cultural resources and business trips, combined with a strong labour market and a well-developed tourist services infrastructure.

The presence of the wine sector in Romania is not sufficient for wine tourism to exist and develop. It is necessary to improve the infrastructure for elaborating and promoting an efficient policy in the country. At the same time, the products must benefit from world recognition. The earnings from such sales represent a significant source of revenue for tourism and wine industry activity.

The top 4 wine producers in the world Italy, Spain, France, USA are also among the top 4 countries with the largest International tourism inbound receipts. At the same time, China, which ranks only tenth in the world among wine producers, with an annual production of 6.8 million hectoliters, has T&T industry GDP that exceeds 3 times T&T industry GDP in Italy. Italy having the largest volume of wine production in the world (Table 3). According to International tourist arrivals, the same countries are among the top 5 in the world. Italy is on the 5th place, being surpassed by China, which ranks 4th in this indicator.

5. In conclusion

Wine tourism is a form of marketing for wine and grape promotion and trade; it may be combined with all sorts of activities accompanying grape cultivation and wine product promotion, from agricultural producers and cellars to customers. In addition, wine tourism increases the effectiveness of marketing communication among economic units in the domestic and foreign markets of wine products and wine regions.

The countries with the highest volume of wine production record the highest International tourism inbound receipts. The world leaders in wine production such

as Italy, Spain, France, USA are also in the top 5 countries with the largest International tourist arrivals.

The specialised development of services due to tourism allows an increase in the number of accommodation options in the region, a multiplication of sightseeing spots, an improvement and dissemination of tourist products for wine tours, festivals, trips, tastings and presentations.

Wine tourism management should pay particular attention to wine intake, and the improvement of tourists' cultural relations with the local population and the grape and wine producers by elaborating on tourist products and by creating wine festivals and celebrations. Tourists should have the possibility to enjoy not only wine tastings but also meetings with representatives of producers within the wine sector and to promote the activities focusing on participation in the wine-production process. By developing local-based leisure activities, vineyards can contribute to the sustainable development of the local community.

Wine tourism management should not be limited to wine culture education issues, though it is significant. It should not be self-sufficient, but it should be combined with the use of the leisure potential of vineyards in the natural environment, the final purpose being to provide the possibility of recovering one's physical and spiritual forces.

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THE INFLUENCE OF INTERNET ACCESS ON THE EMPLOYMENT RATE IN THE EUROPEAN UNION AND IN THE E.F.T.A.

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Abstract: *In the context of the acceleration of the digital development in the current society, we can state that access to information is one of the most important factors in forming the work force. In the present paper, we will present a way of quantifying the influence of the internet access on the employment rate for the second level of the Nomenclature of Territorial Units for Statistics (N.U.T.S. 2) of several countries that are members of the European Union (E.U.) and the European Free Trade Association (E.F.T.A.), by using a G.M.M. vector autoregressive model with panel data. This study is important due to the way it connects the employment rate with the internet access rate for the several countries of the E.U. and E.F.T.A. because it offers an overview of how improving the internet access can lead to an increase in the employment rate of the general population. The countries used in the present study are: Austria, Belgium, Cyprus, Czech Republic, Estonia, Spain, Croatia, Italy, Netherlands, Norway, Portugal, Romania and Sweden for the time period between 2010 and 2020. The study leads to the conclusion that increasing the percentage of internet users in the total population has a significant influence on the employment rate for the analysed countries, when taking into account N.U.T.S. 2 regions.*

Keywords: *digital development; employment rate; vector autoregressive model.*

JEL Classification: *E24; E10.*

1. Introduction

In the present one of the most important subjects of the scientific literature is that of the digital development and the way in which this progress has a significant influence on the economic development. In the scientific literature there have been many papers treating the subject of the influence of technology on the economic evolution of the society, but the present paper presents a comparative approach of the influence of the access to technology on the main economic indicators (in this case represented by the employment rate) at a national level.

The present paper will investigate the relation between the percentage of households that have internet access and the percentage of population that is employed in the economy. This will be done by using a panel data vector autoregressive model, for the N.U.T.S. 2 regions of the E.U. and the E.F.T.A. for: Romania, Italy and Spain as particular cases and for Austria, Belgium, Cyprus, Czech Republic, Estonia, Spain, Croatia, Italy, Netherlands, Norway, Portugal, Romania and Sweden as a

general model. In this way, we will conduct an analysis that will lead to conclusions regarding the way in which the labour market is influenced by the increase in the percent of people using the internet.

2. Literature review

In the scientific literature the subject of the relation between the rate of internet access and the employment rate of the population is an important research subject. One of the articles that had an influence in choosing the way in which the present research hypothesis was approached is the one written by Hjort and Poulsen (2017). In this article, the authors develop an understanding of the way in which access to high speed internet has an influence on the employment rate for a data series composed of 12 countries from Africa. The authors observe positive effects for all the groups of employees, the employment rate noticing a raise even in the case of those with elementary studies. Also the internet had an influence on the productivity level and the exports for the analysed countries (Benin, D.R. Congo, Ghana, Kenya, Namibia, Nigeria, Togo, Tanzania, Madagascar, Mozambique, Senegal, South Africa), leading to the creation of new jobs. Other approaches of measuring the influence of technology access on the economic development are the one written by Magruder (2012) which uses the medium wage as a proxy for economic development and the paper written by Hardy and McCasland (2016) which adopts similar methodologies. The decision to focus on the employment rate allows us to make a comparison between countries, because the analysed countries are in the same economic area, and the purchasing power parity is different. It seems that access to technology leads to the increase in the demand for the jobs with high qualification, this aspect being suggested by several papers (Autor et al (1998), Autor et al (2003), Autor et al (2008), Katz and Margo (2014) and Akerman et al (2015)).

Another article that had a significant influence for elaborating the present paper is that written by Koutrompis (2009). In this article, the author analyses the effect of the percentage of internet users for 22 countries that are members of the O.E.C.D. and its effect on the economic development. The study concludes that the raise in the internet usage rate will determine an increase with 0.25% of the Gross Domestic Product.

In the present paper we decided to use the employment rate because, we considered that it is a more significant indicator in measuring the direct effects of the increase in the internet usage rate on the welfare and the life of the population. In the case of the direct correlation between the employment rate and the internet subscriptions there is a series of papers, from which a notable one is written by Huongbonon and Liang (2018), for the case of the French economy. The article concludes that the increase in the number of internet subscriptions is negatively correlated with the number of jobs in the economy, but has no influence on the unemployment rate. Another paper that deals with the relation between the employment rate and the percentage of internet users is the one written by Czernich (2014). In this paper the

author demonstrates that at the level of the German municipalities there is a negative correlation between unemployment and the number of internet subscriptions. The importance of internet in the general economic development of a country is treated also in the article written by Lehr et al (2006), this article concludes that for the period between 1998 and 2002 U.S. communities that had internet access experienced a more significant economic growth, an increase in the employment rates and in the number of new businesses. These positive effects are not limited at only the urban area as stated in Whitacre et al (2014), in which the impact of internet use is presented for the rural area. Another topic connected to the present article is the one described in “The Effects of Broadband Internet Expansion on Labour Market Outcomes” by Atasoy (2013). In this paper the effects of the extension of internet access on the United States of America’s economy is analysed for the period between 1999 and 2007. The federal programs have allocated in the analysed time period 18 billion dollars for subsidizing the installation of new technologies, these programs being mainly focused on improving internet access in the rural areas. The article also studies the correlations between technological development and the way in which companies are governed and manage their finances, in order to evaluate in which way the government can improve the information technology infrastructure and its possible effects on the business sector. It concludes that the improvement of internet access in an area is associated with a raise of 1.8 percentage points in the rate of employment in the rural and isolated areas. The majority of the gains generated by the increase in the employment rate is generated by the increase in the labour demand from the existing companies. Other conclusions of the paper written by Atasoy (2013) that are also suggested by other articles such as that of Hardy and McCasland (2016), state that the internet access represents an advantage for the qualified work force, the positive effect of the adoption of internet being more significant in case of the industries that use more personnel with tertiary studies. Another study which studies the relation between the digital development and the economy is the one written by Jung (2016). This article examines the way in which the investments in the I.T. (information technology) business sector have an influence on the employment rate of 76 small and medium businesses from the Republic of Korea from 2009 to 2013. The effect in the case of the data sample has been proved to be significant, this meaning that an increase in the I.T. investments lead to an increase in the occupation rate. An article that studies a similar subject using 23 E.U. countries (the relation between the internet access and the unemployment rate), is written by Salem (2020). In this study the author uses a cross-section analysis in order to measure the effect of the percentage of internet users on the unemployment rate for 2016 and 2018, the conclusions lead to the idea that the increase in the internet access leads to the reduction of the unemployment rate. In the analysis of the data we used the methodology of panel data vector autoregressive models, to analyse the influence between the percentage of households that have internet access and the employment rate. The methodology of vector autoregressive models has been at first developed by Sims (1980) and has

been in time adapted for the use of panel data. Other papers that have developed the methodology are the following Kiviet (1995), Bond (2002) and Anderson and Hsiao (1982). In the present paper a significant influence was the methodology described by Dahlberg and Johansson (2000), which is the use of a G.M.M. (generalized moments method) vector autoregressive model for panel data for quantifying the influence of social spending in the provinces of Sweden.

In the following sections of this paper we will describe the methodology and the used data in detail, the results and the conclusions of the study.

3. Methodology and data

In order to research the connection between the internet access and the employment rate of the population, we used a database containing the N.U.T.S. 2 regions of the E.U. and the E.F.T.A. from Eurostat. We opted to use N.U.T.S. 2 regions due to their comparability in terms of the number of inhabitants, in this way the results of the models are comparable. In this paper we will analyse the relation using a G.M.M. vector autoregressive model with panel data with a lag, by making four models one for Romania, Italy and Spain and one that contains: Austria, Belgium, Cyprus, Czech Republic, Estonia, Spain, Croatia, Italy, Netherlands, Norway, Portugal, Romania and Sweden. The data used is for the period between 2010 and 2020, the scope of the model being determining the influence of the percentage of internet users on the employment rate of the population.

The percentage of internet users was measured by using the „Households that have internet access at home by NUTS 2 regions” data series made available by Eurostat for the period between 2010 and 2020. The used data series contained 1254 observations for the percentage of households with internet access in the N.U.T.S. 2 regions of the selected countries. In Figure 1 we can see the histogram of the values of the data series, the country which had the biggest values for the households with internet access is Norway with several values of 100%. From the countries that presented regions with a low percentage of households with internet access in the data sample are Romania, Portugal and Spain.

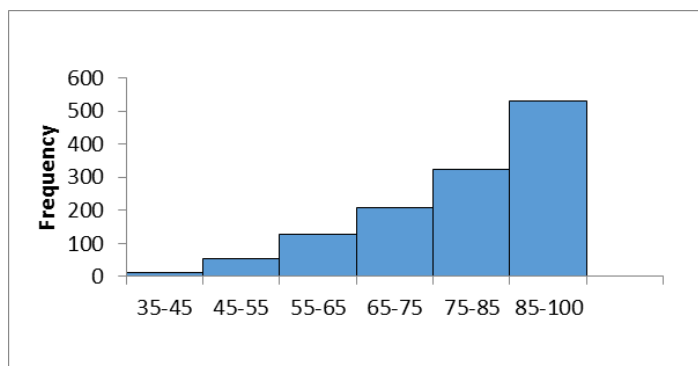


Figure 1: Histogram of the values of the percentage of households with internet access.

Source: Author's calculations

By analysing the histogram we can state that the majority of values is distributed at the end of the data sample with the percentage of households using the internet being in the 85 to 100 percent bin. The smallest values of the indicator regarding the percentage of households with internet access was registered for three regions in Romania in 2010: Sud-Vest Oltenia, Nord-Est and Sud-Muntenia, other regions with small percentages of internet use are in 2011 Alentejo region in Portugal, and Extremadura from Spain in 2010. The greatest percent of internet use has been observed in Gronigen and Flevoland in the Netherlands in 2016 and 2017 and the Hedmark og Oppland region in Norway in 2019.

For measuring the employment rate of the population, we used the „Employment rate of the age group 15-64 by NUTS 2 regions” between 2010 and 2020 from Eurostat. The histogram of the data series is presented in Figure 2. We can observe by analysing the histogram that the majority of regions are in the 65 to 75 percent employment rate bin. The lowest values of the employment rate have been registered in the Calabria region of Italy in 2015 and 2013 and Sicily in 2014. Other low rates of employment were registered in Melilla, Spain for 2015. The highest percent of employment has been observed in Utrecht for 2019 and 2020 and in Nord Brabant for 2019 in the Netherlands. From the countries that were members of the Eastern Bloc the largest value of employment percent has been observed in Prague region of the Czech Republic in 2018.

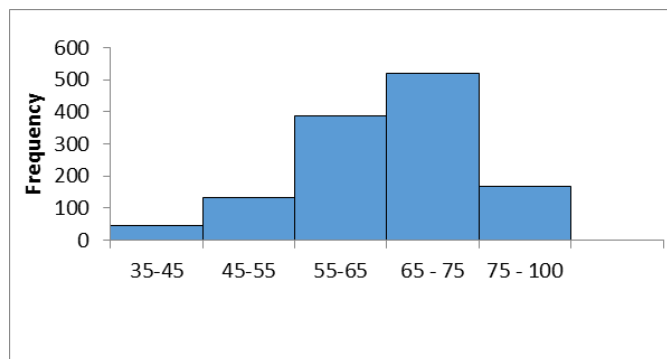


Figure 2: Histogram of the values of the employment rate.

Source: Author's calculations

In Table 1 we present the results of several descriptive statistics for the analysed data sets, we can see that the skewness, kurtosis and standard deviation are similar.

Table 1: Descriptive statistics for the data series

| Descriptive statistic | Internet users | Employment rate |
|------------------------------|-----------------------|------------------------|
| Average | 80.25 | 65.34 |
| Median | 82.00 | 66.00 |
| Standard Deviation | 13.16 | 9.13 |
| Kurtosis | -0.11 | 0.07 |
| Skewness | -0.69 | -0.74 |
| Maximum value | 100.00 | 80.70 |
| Minimum value | 35.00 | 38.90 |

Source: Author's calculation

4. Results

In order to study the relation between the two variables, we decided to implement a G.M.M. vector autoregressive model with panel data with one lag by using the panelvar software package for R. For all the presented models we calculated the AIC and BIC information criterion and the number of lags has been chosen according to their values. Also the inverse roots of the polynomial equation have been calculated to be in the unit circle in order to conclude that the presented models are significant from a statistical standpoint.

The first model was calculated for the case of Italy, the results of the estimation of the parameters are presented in Figure 3. We can see that the employment rate is influenced by a unit increase in the internet users with 5%. We also conclude that the parameters for the employment rate (named Employment_rate in Figure 3) and for the percentage of households with access to internet (named Internet_users in Figure 3) are significant except of the lag one parameter of the employment rate in the equation for the internet users. In other words the percentage of internet users is an influence on the employment rate but the employment rate has no influence on the internet users.

```

-----
Dynamic Panel VAR estimation, two-step GMM
-----
Transformation: Forward orthogonal deviations
Group variable: Zone
Time variable: Year
Number of observations = 189
Number of groups = 21
Obs per group: min = 9
                avg = 9
                max = 9
Number of instruments = 36

=====
                    Employment_rate  Internet_users
-----
lag1_Employment_rate  0.5532 ***      -0.2289
                    (0.0483)         (0.1435)
lag1_Internet_users   0.0547 ***      0.9639 ***
                    (0.0062)         (0.0226)
=====
*** p < 0.001; ** p < 0.01; * p < 0.05
    
```

Figure 3: Output for the VAR model in the case of Italy.

Source: Author’s calculations

The value of the parameters of the employment rate is 0.5532 and the parameter for the percentage of internet users is 0.0547 in the equation that estimates the current employment rate. In Figure 4, we present the impulse to response function for the case of the Italy. We can see that the impact of the internet users on the employment rate is positive and significant.

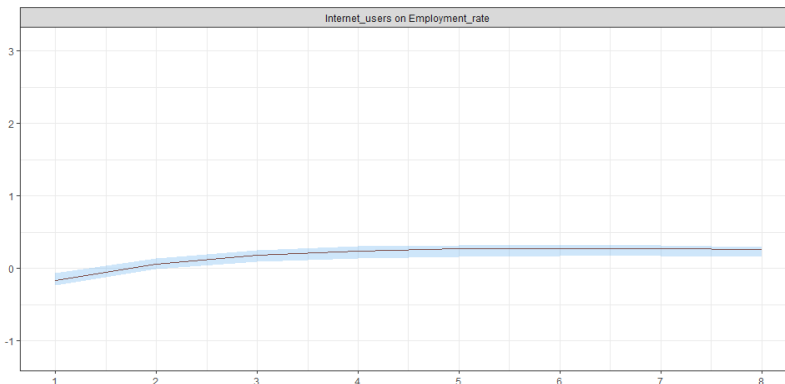


Figure 4: IRF for the internet user rate effect on the employment rate, Italy.

Source: Author’s calculations

In the case of Spain the values of the parameter for the internet users with one lag is greater than in the case of Italy (0.1099 compared to 0.0547). In Figure 5 we present the results of the model estimation.

```

Dynamic Panel VAR estimation, two-step GMM
-----
Transformation: Forward orthogonal deviations
Group variable: Zone
Time variable: Year
Number of observations = 171
Number of groups = 19
Obs per group: min = 9
                avg = 9
                max = 9
Number of instruments = 36

=====
                    Employment_rate  Internet_users
-----
lag1_Employment_rate  0.5564 ***      0.0964
                    (0.0596)        (0.0704)
lag1_Internet_users  0.1099 ***      0.9528 ***
                    (0.0126)        (0.0221)
=====
*** p < 0.001; ** p < 0.01; * p < 0.05
    
```

Figure 5: Output for the VAR model in the case of Spain.
 Source: Author’s calculations

As observed in the case of Italy, in the equation for estimating the value of the percentage of internet users, the parameter for the employment rate is not significant. In the equation for estimating the employment rate the value of the parameter of the percentage of internet users with one lag is significant for Spain as was in the case of Italy. In Figure 6 we can observe the impulse response function for the VAR model in the case of Spain.

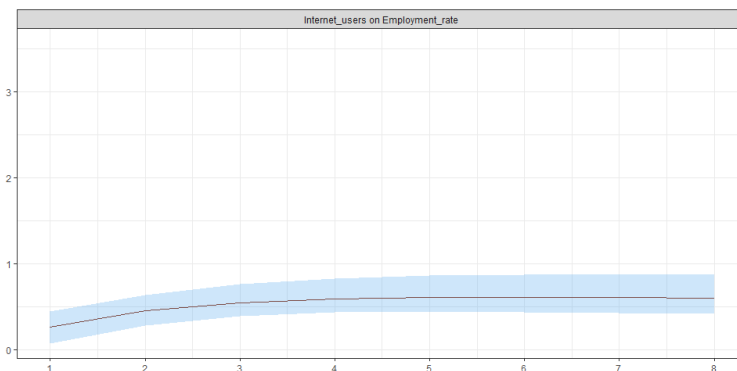


Figure 6: IRF for the internet user rate effect on the employment rate, Spain.
 Source: Author’s calculations

In the case of Romania, the model obtained has statistically insignificant parameters, this might be due to the fact that the internet access generates a demand for higher qualification jobs (Hardy and McCasland, 2016) and several regions of Romania have seen a migration of the work force to other countries. In this case even if the

internet access for the population increases we do not see an increase in the employment rate, because the workforce is not present in the region. In Figure 7 we can see the results of the VAR model for Romania.

```

-----
Dynamic Panel VAR estimation, two-step GMM
-----
Transformation: Forward orthogonal deviations
Group variable: Zone
Time variable: Year
Number of observations = 72
Number of groups = 8
Obs per group: min = 9
                avg = 9
                max = 9
Number of instruments = 36

=====
                    Employment_rate  Internet_users
-----
lag1_Employment_rate  -0.8702          -0.8947
                      (1.5986)          (0.9706)
lag1_Internet_users   0.2824           1.0880 ***
                      (0.2355)          (0.1491)
=====
*** p < 0.001; ** p < 0.01; * p < 0.05
    
```

Figure 7: Output for the VAR model in the case of Romania.
 Source: Author's calculations

For the panel data of the European Union and E.F.T.A. countries the model contains the following countries: Austria, Belgium, Cyprus, Czech Republic, Estonia, Spain, Croatia, Italy, Netherlands, Norway, Portugal, Romania and Sweden. The results of the model are presented in Figure 8, we can see that in the equation that estimates the employment rate the parameter of the percentage of internet users is positive and the value of the coefficient is 0.0863, which is between the values registered for Italy and Spain.

```

-----
Dynamic Panel VAR estimation, two-step GMM
-----
Transformation: Forward orthogonal deviations
Group variable: Zone
Time variable: Year
Number of observations = 1026
Number of groups = 114
Obs per group: min = 9
                avg = 9
                max = 9
Number of instruments = 36

=====
                    Employment_rate  Internet_users
-----
lag1_Employment_rate  0.6505 ***      0.0742
                    (0.0529)      (0.1070)
lag1_Internet_users   0.0863 ***      0.8993 ***
                    (0.0131)      (0.0251)
=====
*** p < 0.001; ** p < 0.01; * p < 0.05
    
```

Figure 7: Output for the VAR model in the case of the E.U. and E.F.T.A.
 Source: Author’s calculations

In Figure 8 we can see the impulse response function for the VAR model with the data for the selecte E.U. and E.F.T.A. countries.

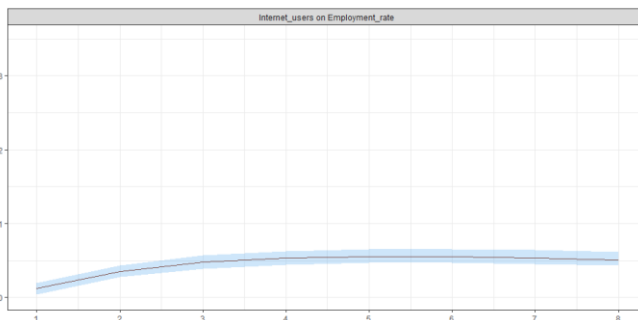


Figure 8: IRF for the internet user rate effect on the employment rate, E.U. and E.F.T.A.
 Source: Author’s calculations

In this case we can state that, for the selected E.U. and E.F.T.A. countries: Austria, Belgium, Cyprus, Czech Republic, Estonia, Spain, Croatia, Italy, Netherlands, Norway, Portugal, Romania and Sweden the percentage of internet users has a significant and positive influence on the employment rate, these findings confirm the ideas from the paper written by Lehr et al (2006).

5. In conclusion

In conclusion we can state that an increase in the percentage of households with internet access leads to an increase in the employment rate at the N.U.T.S. 2 region

level for the analysed E.U. and E.F.T.A. countries (Austria, Belgium, Cyprus, Czech Republic, Estonia, Spain, Croatia, Italy, Netherlands, Norway, Portugal, Romania and Sweden). We conclude, that a way to increase the employment rate in the analysed countries could be to raise the level of internet access for the population.

Additionally the observed effects of the percentage of households with internet access on the employment rate has been different for the analysed countries, an interesting fact is that Romania, a country considered as being from Emerging Europe, had a statistically insignificant relation between the variables. This could be due to the emigration phenomenon which happened in the last decades. The emigration leads to the lack of available work force and especially of skilled labour force. The lack of statistical significance could be also because according to the scientific literature (Hardy and McCasland, 2016) the access to internet leads to an increase in demand for skilled labour, which could be in short supply in some regions.

From the analysed data an interesting example is the case of Italy in which the influence of the percentage of internet users on the employment rate is approximately 0.05, even if we saw that Italy had a period of low employment rates in the South in the beginning of the analysed time series, fact that is interesting because it leads to the conclusion that increasing the percentage of internet users is effective even in the case of low employment. Also this idea is confirmed by the case of Spain which had the influence of internet usage on employment around 0.10, even though it had both zones with low internet usage (Extremadura) and low employment (Melilla). Both of these cases lead to the conclusion that the effect of an increase in internet usage has a probable effect on employment regardless of the level of the rates of the variables.

The limits of the present paper are represented by the incomplete sample due to the lack of information for some countries of the European Union at the N.U.T.S. 2 level. Further study directions could be represented by trying to measure the impact of the household access to internet on the employment rate for different generations. A possible supposition is that young people (under the age of 25) could benefit more from the access to internet when finding a job. Also an interesting direction of study is the relation between internet access and university enrolment.

We thus conclude, that the results of this paper confirm the hypothesis of the majority of the literature review cited papers in that the increase of the percentage of internet users lead to the increase in the employment rate in the case of the analysed countries from the E.U. and E.F.T.A.. An interesting case could be made for Emerging Europe countries (in the studied case, Romania) for which the analysed relation is insignificant from a statistical standpoint. We consider that the present study offers an interesting overview regarding the real relation between the internet use and employment at the E.U and E.F.T.A. level by using the G.M.M. vector autoregressive model with panel data for the period between 2010 and 2020.

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EMPLOYMENT IN ACCOMODATION AND FOOD SERVICE ACTIVITIES. COMPARISON BETWEEN ROMANIA, BULGARIA AND HUNGARY

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Abstract: *The aim of this article is to analyze the evolution of some relevant indicators regarding the labor force over the past 10 years that correspond to the accommodation and food service sector. Also, to underpin the impact of the COVID-19 pandemic on the employment part of this area. It would be a comparative study of the countries mentioned that could shed some light on which countries managed to maintain better control regarding the pandemic impact in accommodation and food service activities. So, a first objective is to obtain a measurement of the impact of pandemic in this area in 2020. Some other objectives are to find out which country has a better annual productivity per employee. Another one, related to in which country are the most employees in this area and what are the percentages of employees from this sector in the whole economy of these 3 cases. Last but not least what could be in terms of the perspective over the next few years. In terms of the methodology used, the Google Scholar platform would be used as the main source for the literature research, while the websites of the national institutions on statistical data for each country would be used for the empirical study.*

Keywords employment, economy, accommodation, food service, Romania, Bulgaria, Hungary.

JEL Classification: A10, E24, J21, L83, Z30.

Introduction

The resource that people possess and how they are organized is increasingly recognized as critical to strategic success and competitive advantage. The company's focus on human resources has become one of the core tasks of strategic management and human resources plays an important role in all strategic decisions (Gabčanová, 2011). Yet in this study it will extrapolated the above mentioned not to a firm from accommodation and food service sector but for the whole industry in the 3 countries subjected to analysis.

Indicators regarding employment in Romania, Bulgaria and Hungary

A series of indicators will be analyzed in order to offer a clearer image of the employment situation and productivity in the accommodation and food sector. Only

with the help of this indicators will not be extremely sufficient for defining an entire industry but it could be a useful starting point for a more complex future analysis.

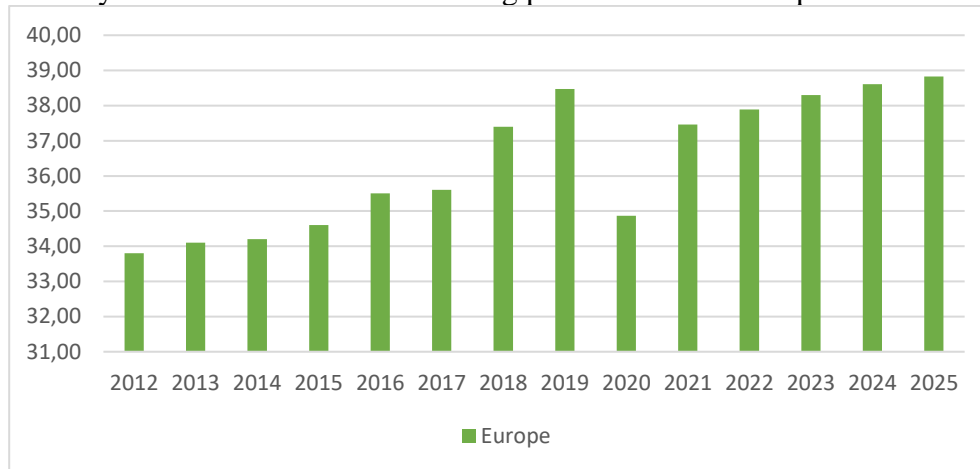


Figure 1. Total contribution of travel and tourism to employment in Europe (in million jobs).

Source: <https://www.statista.com/statistics/617583/travel-and-tourism-employment-contribution-europe/> accessed on 30.11.2021

Values from 2021-2025 were forecasted with Forecast.linear function in Excel

The importance of travel & tourism as a driver of jobs was for the first time recognized by the G20 world leaders in the Declaration from the annual meeting of the G20 world leaders, held in Los Cabos, Mexico in 2021. They agreed to work “towards developing travel facilitation initiatives in support of job creation, quality work, poverty reduction and global growth”. (Jucan, 2013)

Employment of travel and tourism sector, directly and indirectly, has a significant impact in the total of Europe’s employment, with no less than 33,5 mil. employees for each of the analyzed years. Constantly increasing number from 2012 to 2019 shows the major role that travel and tourism is having in the labor market in Europe. Hitting a peak of 38.47 mil. employees in 2019 is followed by a massive decrease in 2020, mainly due to COVID-19 pandemic of which can be stated that with the interdictions and restrictions put back the employment in this sector to the 2015 level. It’s the biggest year to year difference from 2012 to 2020, in the last year of the analyzed period being less with 3.6 mil. employees in travel and tourism sector. Accommodation and food service activities is a part of this area, so it has a certain relevancy to follow the trends in the mother-sector. Regarding the forecast for 2021-2025 it can be brought up that there may be some limitation regarding the Excel function used, the most impregnating one being that there is no ability of including the major event that can change an economic activity and area like economic crisis, sanitary crises, wars etc. Further a due the data entries used in this research were relatively few (only 9 entries from 2012- 2020). Based solely on this forecast the number of employees should reach a same as before pandemic in 2023 and to a maximum of around 38,8 mil. employees in 2025.

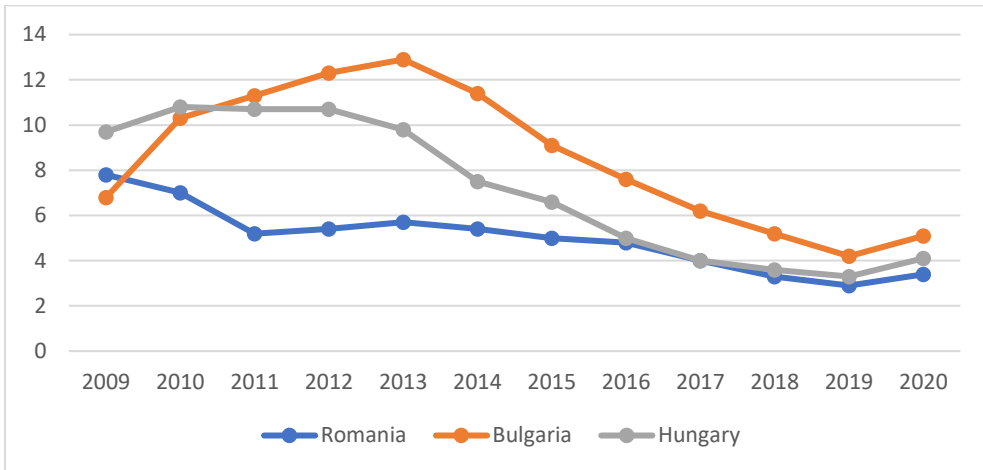


Figure 2. Unemployment rate

Source: graphic processed by authors, accessed on 29.11.2021

<http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>

https://infostat.nsi.bg/infostat/pages/reports/query.jsf?x_2=831

https://www.ksh.hu/stadat_files/mun/en/mun0033.html

The unemployment rate is another indicator that can highlight the trends in an economy as a whole and also the level of labor market in the 3 analyzed countries. In the majority of the years 2010-2020 Bulgaria has the highest rate of unemployment (as of all sector in economy) more than double than Romania's from 2011 to 2014. Hungary is somehow situated in between, with a highest rate of 10.8% in 2010 and a lowest of 3.3 in 2019. In the last 3 years the discrepancy is not that visible, the rate having a relatively close and constant level.

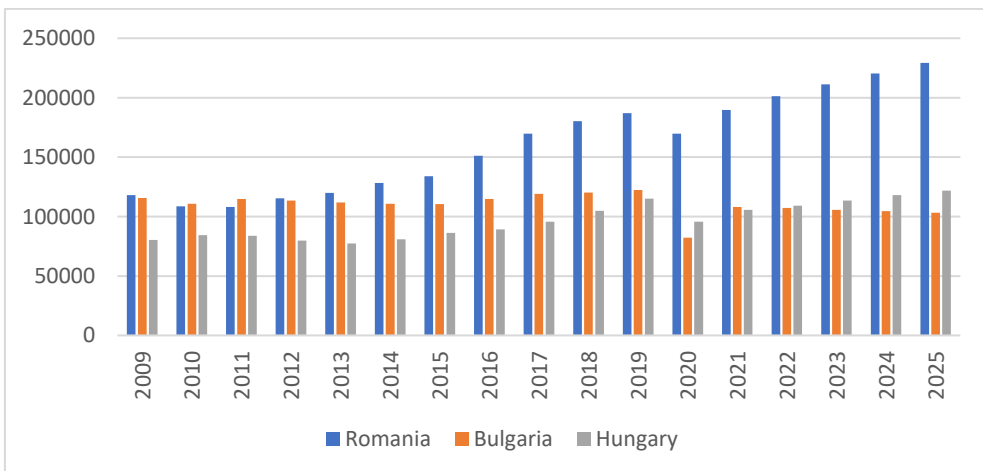


Figure 3. Number of employees in accommodation and food service activities (absolute values).

Source: graphic processed by author (data available on the following links) accessed on 29.11.2021

<http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>

https://infostat.nsi.bg/infostat/pages/reports/query.jsf?x_2=382

https://www.ksh.hu/stadat_files/mun/en/mun0052.html

For 2020 in Bulgaria's case the data is preliminary and can be found on <https://nsi.bg/en/content/3953/total>

Values from 2021-2025 were forecasted with Forecast.linear function in Excel

It can be observed that Romania and Bulgaria are relatively on the same position in 2009, regarding the number of employees in accommodation and food service activities while Hungary has the lowest number in the majority of the analyzed period. In Romania's case the numbers are constantly increasing from 2009 to 2019, registering a peak of 187.057, more than 67 thousand than 2019. Having a drop in 2020 where it only reached the same number as in 2017, 169 thousand employees. In Bulgaria's case it can be seen a relatively consistency regarding this indicator varying from 2009 to 2019 to a difference of around 10 thousand employees. In 2020 the numbers plummeted in Bulgaria's case to a minimum of around 82 thousand employees. Hungary only passed the barrier of 100 thousand employees in 2018 and 2019 while the lowest values were for 2009, around 77 thousand.

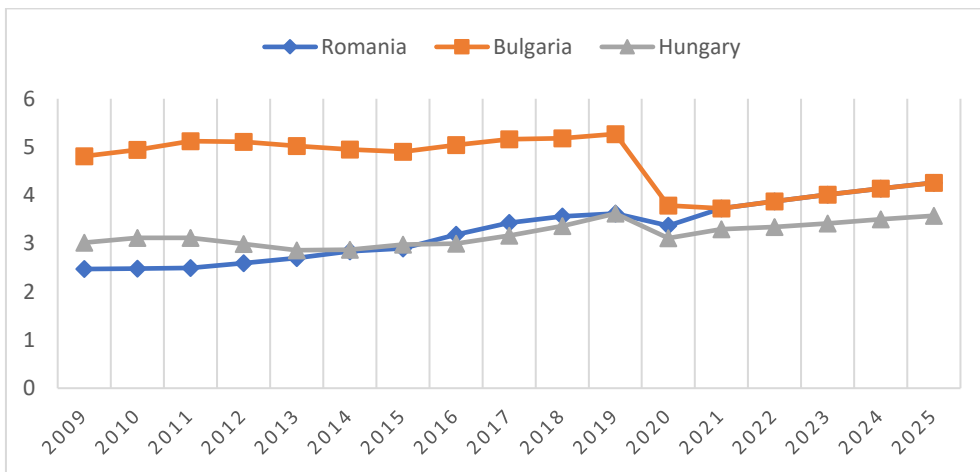


Figure 4. Percentage of employees in accommodation and food service activities in total number of employees.

Source: graphic processed by authors (data available on the following links) accessed on 29.11.2021

<http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>

https://infostat.nsi.bg/infostat/pages/reports/query.jsf?x_2=382

https://www.ksh.hu/stadat_files/mun/en/mun0052.html

For 2020 in Bulgaria's case the data is preliminary and can be found on <https://nsi.bg/en/content/3953/total>

Values from 2021-2025 were forecasted with Forecast.linear function in Excel

Bulgaria has the biggest rate regarding the percentage of employees in accommodation and food service activities, around 5%, in other word it has the most impact in the labor market between the 3 countries mentioned. This rate is situated around 3% in Hungary's case while in Romania varies from 2.5% in 2009 to around 3.5. The pandemic 2020 brought a decrease in Bulgaria's rate of 1.5 percentage points (the highest in the 3 cases analyzed), in Hungary the decrease was around 0.5 percentage points while in Romania, 0.25 (all compared to the previous year 2019).

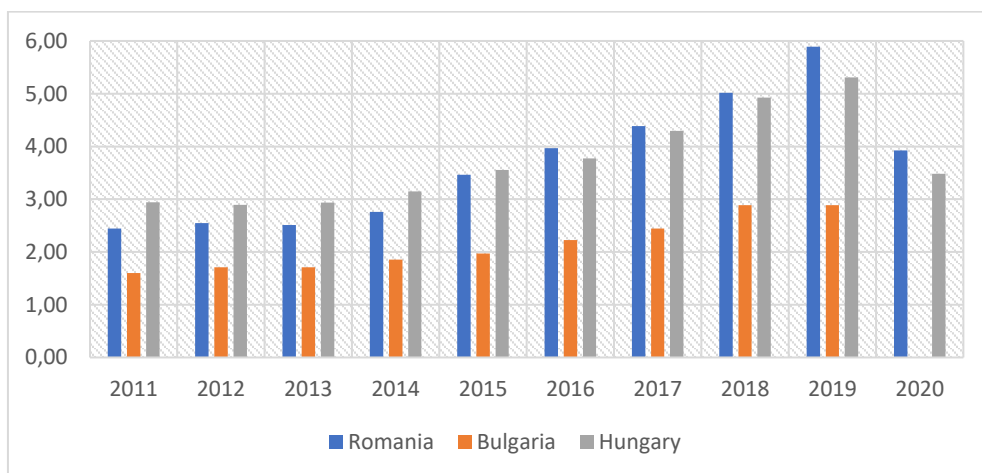


Figure 5. Turnover accommodation (billion euros)

Source: <https://www.statista.com/statistics/382809/turnover-accommodation-food-service-activities-romania/>

https://infostat.nsi.bg/infostat/pages/reports/result.jsf?x_2=250

<https://nsi.bg/en/content/7699/turnover>

<https://www.statista.com/statistics/382763/turnover-accommodation-food-service-activities-hungary/>

For Bulgaria the data was transformed from BGN to Euros at Average exchange rate in each of the analyzed period.

It can be observed that 2011-2013 things are quite still regarding the turnover with some relatively low ups and downs in Romania and Hungary's case while Bulgaria is on an ascended trend to 2019. There is yet no data about the turnover in Bulgaria for 2020. In 2011, in Romania the turnover was situated around 2.44 billion euros while in 2019 it reached almost 5.9 billion euros which is a growth in absolute values more than 3.45 billion or an over 141 percent in 2019 compared to 2011. In Hungary's case the turnover in 2019 grew compared to 2011 by over 80 percent. Bulgaria is in the same situation as Hungary, with a growth just over 80 percent. Such a growth rate over 8-9 year could imply that in each from the analyzed country was some potential that wasn't revealed yet. It can be stated that this growth was also possible by the investments made throughout this period in the quality of services

offered and in expanding the capabilities and the areas deserved. Up until 2020, the situation seemed to be relatively ideal. Then, the pandemic struck and affected in a single year the turnover with more than 33 percent compared to the previous year in Romania while Hungary recorded a decrease with about 34.5 percent. These percentages are relatively close to each other so it can be affirmed that the impact of the pandemic was give or take the same in these 2 countries. From far distance it can be observed that the lower the unemployment rate in these 3 countries the higher the turnover is in this area. It could be a starting point for further research regarding the correlation of these indicators but for specific firm and not just the whole industry because in the total industry may be some actors that perform better than the others.

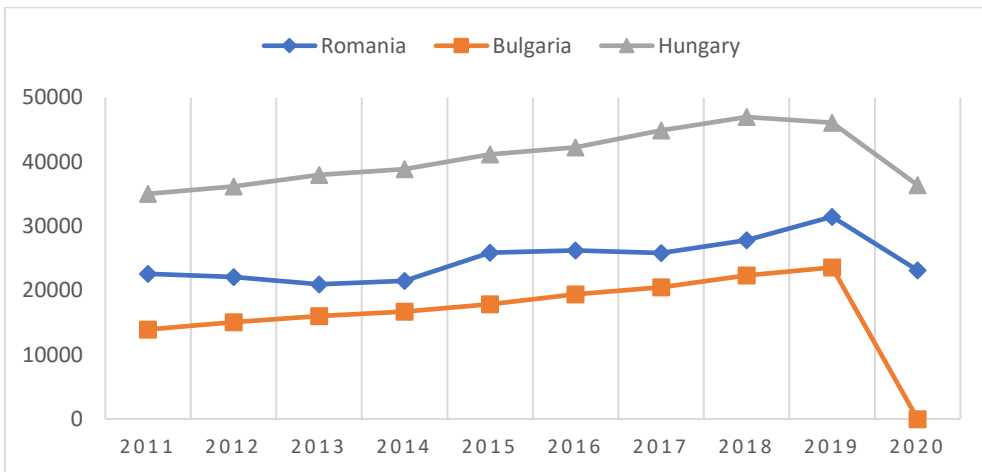


Figure 6. Annual productivity per employee in accommodation and food service sector (euros/employee).

Source: Determined as Turnover divided by the number of employees

Romania is situated in between Bulgaria and Hungary regarding the annual productivity of employees in this sector. In Romania's case there are some fluctuations regarding this indicator. Registering a decrease from 2011 to 2014 then relatively being stabilized in 2015-2017 with another increase in 2018 and 2019. Again, the effects of the pandemic are visible in 2020, when the productivity only reaches just over 23 thousand euros/employee. Meanwhile, Bulgaria shows a constant increase throughout the analyzed period (up until 2019 in this case, because of lack of data regarding the turnover, the productivity couldn't be calculated, being noted with the value 0), reaching a maximum of around 23500 euros. Hungary on the other hand registered the highest values of this indicator from a minimum of 35 thousand euros in 2011 to almost 47 thousand in 2018. In that year, productivity in Hungary was more than double compared to Bulgaria's and around 1.5 times higher than Romania.

CONCLUSION

In terms of labor force, Bulgaria is the one that is the most involved in this area of accommodation and food service activities, relying on this sector more than the other countries. Romania is up front regarding the number of the employees in this area (in absolute terms) registering the highest increase in the analyzed period, up until 2020. Romania also has the biggest increase in terms of turnover (absolute values) in the analyzed period. Yet Hungary is the best positioned country regarding the productivity of employees in this sector. Generally speaking, the pandemic 2020 put back Romania and Hungary to a 2017 level regarding the number and the percentage of employees. In Europe, the peak for the number of employees in travel and tourism sector was in 2019, with 38.47 mil, followed by the pandemic 2020 with a decrease that led to a total number of only 34.87 mil the same, similar level with the numbers from 2015. The forecasted values are merely based on the calculations made with forecast linear function from Excel and cannot be held account for accuracy especially because of the limitation provided by the extraordinary factors that may appear from time to time in economy generally or in specific sectors. The official numbers from 2021 are expected with great interest in order to sketch a big picture regarding the impact of Covid-19 pandemic regarding employment indicators in these countries, if it has deepened its effects compared to 2020 or things somehow stabilized.

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SOCIAL RESPONSIBILITY PRACTICES AND ORIENTATIONS OF ROMANIAN SMES – CASE STUDY IN BIHOR COUNTY

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Abstract: *This paper investigates the forms, areas and orientations of social responsibility (SR) within small and medium enterprises (SMEs) in Bihor County, Romania. Acknowledging the particularities of SMEs involvement in social and environmental actions, we investigate both the practices and orientations of these firms from our region in SR. Our study, based on the responses of 52 owner-managers of SMEs, reveals interest towards SR practices, yet a limited visibility of such actions. The orientations towards SR can be grouped, based on strategic orientation scale, on three distinct directions: one related to primary stakeholders (law included), one to sustainability issues and one regarding to society. The impact of these orientations on practices still need to be investigated on larger samples.*

Key words: *social responsibility, small and medium enterprises*

JEL Classification: M14

Introduction

Most studies in the area of social responsibility (SR) focus on large companies, however growing attention is given to the social activities as well as the social orientations of small and medium enterprises (SMEs) around the globe. More, given the large number of SMEs in the economy, their aggregated impact on society and the environment is very high (Jamali et al. 2017). Another aspect that reveals the importance of SR carried out by SMEs is given by their closeness to their communities (employees, clients and other groups). Consequently, they both understand the problems better and they may respond in a direct manner to the pressures of these stakeholders (Saveanu et al., 2021).

In our study we focus on describing the actions and orientations of Romanian SMEs towards social responsibility. The first part presents the general theoretical frame for the study of SR in SMEs, and the second presents the methodological frame of our study. The third section presents the analysis on several aspects of SR in SME in Oradea. The last section sums-up the main results, and presents limits and future prospects.

1. Theoretical outline

There are intrinsic differences between small and medium enterprises compared to large companies, that affect also their social responsibility engagement. Some of these differences were systematized by Jenkins (2006) in a review of publications with a special focus on how these differences affect the social and environmental responsibilities of firms. The conclusion of such a systematization of studies brought forwards the following characteristics: while smaller and with fewer resources for SR, SMEs are more flexible and apt to respond to community problems which are also closer to. More, the sector heterogenous and is harder to make all forms fit the same frame. The impact of owner-manager is very strong both regarding the level of involvement as well as the forms and fields of SR. This latter aspect was highlighted also by Spence (2016) from a four- dimensional approach on power and communication and the effect on SR in SMEs. The higher impact of owner-managers in daily operations impacts also its SR involvement.

Comparisons between large and small firms when it comes to social responsibility were carried out by several authors (Baumann-Pauly et al., 2013; Mousiolis et al., 2015; Spence, 2016; Jamali et al., 2017; Harness et al., 2018; as well as Morsing and Perrini, 2009). Essentially these studies emphasize that SMEs are less strategic when it comes to SR, and more reactive in organizing such actions as a response to stakeholder pressures (Morsing and Perrini. 2009; Mousiolis et al., 2015). More, an important stakeholder that can pressure SMEs to adhere to CSR (corporate social responsibility) principles and undertake specific actions, are multinational companies. These can be powerful promoters of SR for their smaller partners (Harness et al., 2018). Even when looking at the strategic level, SMEs will be more flexible and directly connected with the community but will lack the financial and human resources to strategically engage in solving community problems (Mousiolis et al., 2015). While multinational companies (MNCs) are externally oriented and their communication of CSR is often explicit, SMEs are oriented on internal implementation practices (Baumann-Pauly et al., 2013). The influence of CSR on financial performance in the case of SMEs is not clearly supported (Bahta et al., 2020), evidence show rather a bidirectional connection between business performance and CSR. Especially in the case of SMEs this relationship is mediated by reputation (Bahta et al., 2020), innovation (Akzadiali, 2020 apud Bahta et al., 2020) and ethnic diversity (Bocquet, et al., 2019 and 2013).

The formalization and legitimation of CSR communication is a phenomenon that takes place also in SMEs. Companies present, in formal communications towards stakeholders and on their websites, the CSR related actions. Doing this they are legitimizing different forms: legal compliance, philanthropy, employees related programs etc. Through this communication these actions are legitimized in each sector, as the case of petroleum studied by O'Connor et al. 2017. This formalization and legitimation can be seen also as a shift from implicit to explicit forms of CSR (Morsing and Spence, 2019). In this regard, there is evidence that in SMEs, CSR

communication is more often implicit, while in large multinational companies the use of formal CSR reporting are characteristics to explicit CSR communication (Baden et al., 2011 apud Morsing and Spence, 2019: pp 1922). The challenges raised by managers for employing formal SR reporting include the loss (commercialization) of authenticity, control over values and identity disruption. These aspects may hinder socially responsible behavior or the display of such behavior by small businesses, and imposing of explicit reporting may reduce the support for such actions.

There are several factors analyzed as promoters of CSR in SMEs: size, internalization, innovation, commitment to the community, branding, as well as social and environmental concerns of firms' managers (Morsing and Perrini, 2009). The predominant role of entrepreneurs' values and attitudes towards CSR is attested also through a qualitative study conducted on CSR active SMEs by Morillo and Lozano (2006). This source of CSR commitment is supported also by external motivations such as maintaining a good reputation in the community and responding to stakeholder requests.

2. Methodological aspects

This study is based on quantitative data gathered using a questionnaire focused on several aspects of SR in SMEs: actions, domains, formalization of SR, understandings of SR and perceived benefits, strategic organizational SR scale. In total it was composed by 12 questions related to social activities and strategic orientation, 7 questions about the firm and 4 about the respondent. The questionnaire was administered online and on-paper in June-July 2021. We send the questionnaire to partners of the Faculty of Economic Sciences – University of Oradea and through the Association of Bihor' Firms however the response rate was very small. There are 51 valid responses from managers of SMEs.

The sample was composed by small and medium enterprises active in Bihor County, Romania. Most of the responses came from firms located in Oradea (46). From the other 5 firms, 4 are located in the Oradea Metropolitan area (villages around the city) and only one is from another village from Bihor County. There is a high diversity of domains of activity of these firms: from shoe factories to showbiz, consultancy, medical care, and transportation

Regarding the sizes of the enterprises and their age, also a wide range was captured in our sample. This information is presented in the following table. Given the effects of the Covid 19 crises, and its impact on the activity of SMEs, in order to assess the size, we asked both the current number of employees, but also the maximum number of employees during the whole activity of the firm. It can be seen than in most cases the number of employees at the date of the study is smaller than its maximum, indicating downsizing. One of the firms was previously a large company with over 250 employees. Details regarding the sample is presented in Table no. 1. below.

Table no. 1. Firm sizes and ages in the sample

| | No. of employees currently | Max. no. of employees | Turnovers in lei | year of establishment |
|----------------|----------------------------|-----------------------|------------------|-----------------------|
| Mean | 16.76 | 30.43 | 2837874.71 | 2007.37 |
| Median | 4.00 | 5.00 | 366433.00 | 2007.00 |
| Std. Deviation | 35.242 | 69.765 | 11387962.514 | 7.609 |
| Minimum | 0 | 0 | 0 | 1991 |
| Maximum | 176 | 330 | 79000000 | 2019 |

Source: authors' own processing

3. Results

3.1. SR reality

We first asked our respondents if they organized actions that they consider as social responsibility, the results being presented in Figure no. 1. The responses indicate a small propensity of such actions, smaller than in similar studies. In the last three years 51% of the firms in our samples organized such actions, while in last year this percentage dropped to 47%. This might be due to the economic situation imposed by the COVID 19 pandemic, as many SMEs needed to reduce their activity.

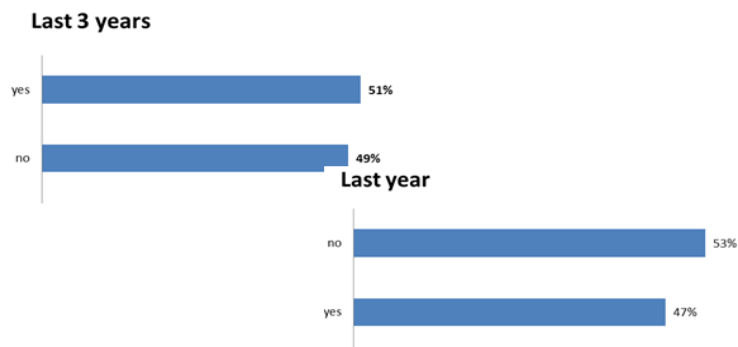


Figure no. 1. SR activities carried out in the last year and the last three years.

Source: authors' own processing

The main domains of interest are charity (19 firms) and community development (19 firms), followed by education (17 firms). Culture was supported by 16 firms, while environmental protection by 13. In the last year sport was a domain that received the smallest support (12 firms). This may be due to the pandemic context that limited such actions, so the opportunities for these activities were fewer.

Regarding the preferred actions, respondents were asked to choose from a list the activities that were carried out in the last year, in the last three years or not at all. The most frequent type of activity is offering financial support – 24 out of the 51 firms in our sample got involved in this type of activity. The second form is represented by the involvement in social-community projects: 20 firms got involved in this in the last year, and other 8 were involved in this type in the last three years. Promoting

social causes comes next as these types of actions were more and more visible in the public space in the region. The detailed results are presented in Figure no. 2.

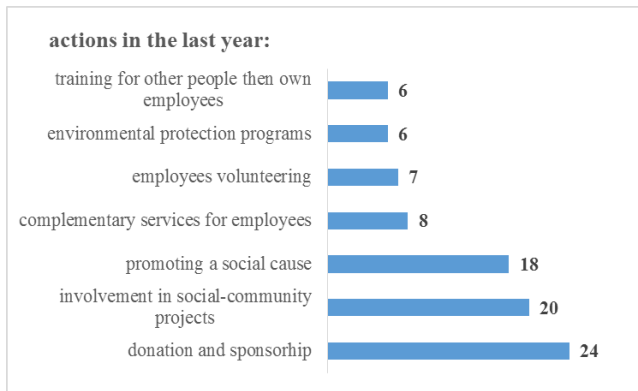


Figure no. 2. Number of SMEs undertaking different types of SR actions in the last year

Source: authors' own processing

Also, a measure of the propensity of SR involvement is analyzing how much money firms spend on such activities, as presented in Figure no. 3. In this regard we asked the respondents to choose the category of amount spent in the last year. The results, as presented in the next figure show that most spend below 1000 lei/last 12 months (including the ones that responded to the open "other" choice with "0"). 26 of the firms in our sample spent sums above 1000 lei on SR actions.

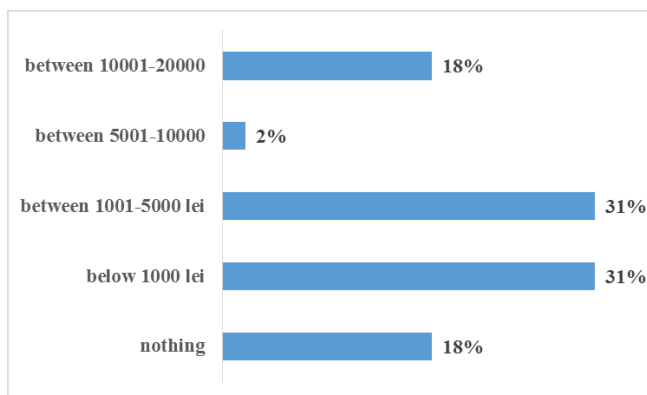


Figure no. 3. Amounts spent on social responsibility

Source: authors' own processing

3.2. Meanings, benefits and opportunities

The main interest was to understand the adherence to different definitions by entrepreneurs. Consequently, the question asked was: *What is social responsibility of firms for you?* Respondents needed to state their agreement with each of the

statements listed. The average agreement to each question is presented in the Figure no. 4. below.

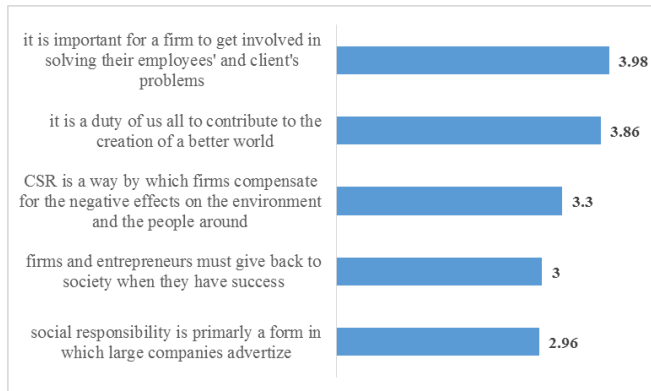


Figure no. 4. Understandings of SR by owner-managers in the sample.
Source: authors' own processing

As shown in figure no. 4, most respondents agree with a stakeholder perspective on SR, as the average response on the 5 steps Likert scale (where 1 was *I do not agree*, and 5 – *totally agree*) scale is 3.98, followed by the ethical perspective: it is a duty to contribute to a better world. Less agreement is given to the critical view on SR, considered as *façade* for large companies' behavior. The average response on the same 5-point scale is only 2.96. Though this statement resulted from our interviews, has less support among managers of SMEs.

Looking at the understating of the role of businesses in providing social welfare, it was interesting to notice that on this sample, the average response is only a bit over the mean. On the 10 points scale, were 1 meant that *the collective welfare is solely the responsibility of governments*, and 10 - *collective welfare should be a priority of the business sector*, the mean was 5.31 and the median 5 (std. dev. 1.892).

The perceived benefits of SR are considered one of the sources of such involvement. Consequently, the respondents were asked about their agreement regarding different benefits, as resulted in the literature. For an easier presentation of this data, we recoded the answers in just two categories: rather agree and rather disagree. The first category is presented in the following Figure no. 5.



Figure no. 5. Perceived benefits of SR involvement by the owner-managers in the sample (number of responses for very high and high agreement)

Source: authors' own processing

As resulted from previous studies on this topic (Saveanu et al. 2021), one of the factors that promote social involvement is being part of groups that promote such involvement. It was the case of the Oradea Community Foundation in the interviews. In this study, few questions were asked about membership in professional associations, and whether that association facilitate SR activities. The results are presented in Figure no. 6.

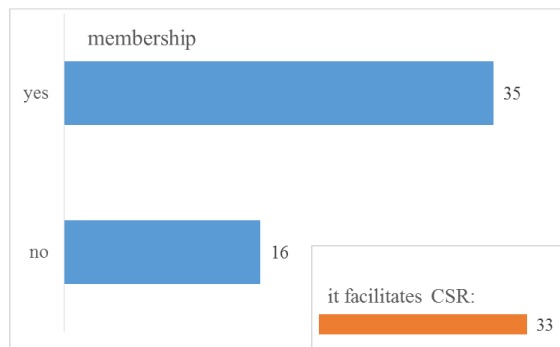


Figure no. 6. Membership in professional associations (number of responses) and facilitation of SR involvement by these associations (number of responses for yes)

Source: authors' own processing

Most of the firms in our sample (26) are members of the Association of Bihor' Firms (Asociatia Firmelor Bihorene), as they facilitated the administration of the questionnaire. Other two are members of another large association that promotes businesses in the region – Bihor County Employers Federation (Federatia Patronilor Bihor). Other six firms are members of more specific associations linked to their domain of activity (accounting, transport, tourism etc). The fact that 33 out of 35 firms that are members of different associations, consider that these facilitate the social involvement is an important result. These associations may act as promoters of SR but also as mediators in the organization of actual social actions. This is particularly important for SMEs, as they rarely have their own personnel dealing with social responsibility aspects. A closer look to the actual activities of these

associations, with a focus on their SR engagement may reveal important insights regarding the reality of SR in our region.

3.3. *Visibility and formalization of SR*

Most of the firms in our sample do not promote their social activities at all. Filtering out the firms with some social actions, one can see that the preferred mechanism for promoting SR is social media and website, as shown in the following Figure 6

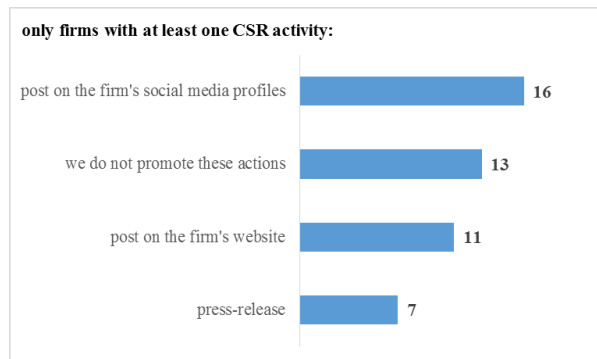


Figure no. 6. *Visibility of SR action from firms that declared such activities*

Source: authors' own processing

We can note that there is sometimes reluctance to promote such activities to the large public – 13 firms do not promote these actions. It is considered that the information disseminated by the beneficiaries is sufficient.

3.4. *Strategic organizational SR scale*

The strategic approach and understanding of SR were addressed through a scale for measuring SR, translated and adapted from Turker (2009). A similar set of items were validated as SR scale on European countries by Maigan and Ferrel (1999, 2000 and 2011). Similar scales were also tested by Lindgreen et al. (2009) and Acar et al. (2001). This scale was previously tested and validated on Romanian sample (Badulescu et al. 2018; Saveanu et al. 2019) The 18 dichotomous items are presented in Table no. 2.

Table no. 2. Description of responses on the strategic organizational SR scale

| | not at all | to a little extent | to a high extent | totally |
|---|------------|--------------------|------------------|---------|
| Our company participates in activities which aim to protect and improve the quality of the natural environment. | 16 | 20 | 10 | 5 |
| Our company makes investment to create a better life for future generations. | 9 | 21 | 18 | 3 |
| Our company implements special programs to minimize its negative impact on the natural environment. | 14 | 22 | 10 | 5 |
| Our company targets sustainable growth which considers future generations. | 6 | 14 | 27 | 4 |
| Our company supports nongovernmental organizations working in problematic areas. | 8 | 11 | 24 | 8 |
| Our company contributes to campaigns and projects that promote the well-being of the society. | 9 | 14 | 20 | 8 |
| Our company encourages its employees to participate in voluntarily activities. | 5 | 11 | 22 | 12 |
| Our company emphasizes the importance of its social responsibilities to the society. | 5 | 12 | 21 | 13 |
| Our company policies encourage the employees to develop their skills and careers. | 3 | 4 | 25 | 18 |
| The management of our company is primarily concerned with employees' needs and wants. | 2 | 9 | 20 | 20 |
| Our company implements flexible policies that allow a good work-life balance. | 2 | 13 | 15 | 21 |
| The managerial decisions related with the employees are usually fair. | 2 | 2 | 26 | 21 |
| Our company supports employees who want to acquire additional education. | 1 | 3 | 20 | 27 |
| Our company respects consumer rights beyond the legal requirements. | 1 | 6 | 16 | 27 |
| Our company provides full and accurate information about its products to its customers. | 1 | 0 | 15 | 35 |
| Customer satisfaction is highly important for our company. | 1 | 1 | 10 | 39 |
| Our company always pays its taxes on a regular and continuing basis. | 2 | 1 | 10 | 38 |
| Our company complies with legal regulations completely and promptly. | 1 | 2 | 10 | 38 |

Source: authors' own processing

Based on the theoretical insights, the intention was to explore the dimensionality of the scale. Both Turker (2009) and Maigan and Ferrell (2011) along with other authors emphasized that SR is not a linear, unidimensional concept. The many facets, approached and type of stakeholders that shape the concept of SR, affect also the concrete actions, orientations or policies of the firms. Consequently, on our scale there were highlighted different dimensions of strategic organizational SR scale using factor analysis, principal component matrix. The results are presented in table no. 3 below, showing that SR is constructed on three components.

Table no. 3. Results of the Factor analysis for the dimensionality of SR strategic organizational scale.

| | Component | | |
|---|-------------|-------------|-------------|
| | 1 | 2 | 3 |
| Our company participates in activities which aim to protect and improve the quality of the natural environment. (1) | .105 | .849 | .099 |
| Our company makes investment to create a better life for future generations. (2) | .093 | .807 | .359 |
| Our company implements special programs to minimize its negative impact on the natural environment. (3) | .119 | .879 | .204 |
| Our company targets sustainable growth which considers future generations. (4) | .117 | .810 | .185 |
| Our company supports nongovernmental organizations working in problematic areas. (5) | .335 | .317 | .755 |
| Our company contributes to campaigns and projects that promote the well-being of the society. (6) | .059 | .581 | .657 |
| Our company encourages its employees to participate in voluntarily activities. (7) | .264 | .266 | .814 |
| Our company emphasizes the importance of its social responsibilities to the society. (8) | .325 | .396 | .670 |
| Our company policies encourage the employees to develop their skills and careers. (9) | .763 | .025 | .456 |
| The management of our company is primarily concerned with employees' needs and wants. (10) | .684 | .162 | .482 |
| Our company implements flexible policies that allow a good work-life balance. (11) | .677 | .179 | .445 |
| The managerial decisions related with the employees are usually fair. (12) | .762 | .146 | .308 |
| Our company supports employees who want to acquire additional education. (13) | .593 | .135 | .470 |
| Our company respects consumer rights beyond the legal requirements. (14) | .743 | .115 | .343 |
| Our company provides full and accurate information about its products to its customers. (15) | .908 | .112 | .156 |
| Customer satisfaction is highly important for our company. (16) | .934 | .111 | .012 |
| Our company always pays its taxes on a regular and continuing basis. (17) | .876 | .038 | .097 |
| Our company complies with legal regulations completely and promptly. (18) | .922 | .125 | .080 |
| Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. | | | |
| a. Rotation converged in 6 iterations. | | | |

Source: authors' own processing

Based on the items comprised by each component we will define them as follows:

- The first component (constructed on items 9-18) is based on statements related to interest towards employees, customers/clients, as well as compliance with the law. It explains the highest proportion of the variability in the data – 36%. We will call this the dimension on SR towards primary stakeholders.

- The second component (first four items) reflects the interest towards sustainability, focus in the environment and on a better life for future generations. It explains 20% of the variability of responses. We will consider this the *sustainability dimension*.
- The last component (items 5 to 8) is constructed on statements related to people and society, including the volunteering of employees. It explains 19% of the variance of the data. We could define this as the *society dimension of SR*.

4. Discussion of results

The data regarding social responsibility actions and orientation of small and medium enterprises from Bihor County collected in 2021 was limited in number of answers. Nonetheless it allowed us to present insight regarding this type of activity in the region.

The data supports previous findings regarding the forms and domain of actions, perceived benefits and attitude of managers regarding the role of the business sector in providing collective welfare. There is increasing involvement in social and environmental related actions by SMEs. These firms are mostly interested in donating money in areas such as charity and community development. The main motivation is contribution to solving community problems along with client and employee retention.

Regarding the orientation of businesses towards SR aspects, the Turker SR scale was applied to SMEs and was validated also on this data. The dimensionality of this scale of strategic organizational SR, highlighted the existence of three factors: one related to primary stakeholders (law included), one to sustainability issues and one regarding to society. However, in order to develop more this scale and conduct more analyses on the dimensionality of this scale, more responses are needed.

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THE EXPANSION OF OTA's: BENEFITS AND RISKS

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Abstract: *The aim of this paper is to analyze the advantages and disadvantages of OTA's (Online Tourism Agencies). Many travelers today prefer OTA's to look for advantageous tour packages and especially to make their reservations. They can make these reservations not only for accommodation but also for flights, excursions and why not, for other trips. OTA's is an important component for a successful strategy, for all tour operators skilled in business. This way it helps them to reach more passengers and implicitly to make more reservations. But let's not forget that paying a commission for each booking, it should balance the pros and cons. Due to intense competition, OTA is trying to remain financially sustainable. For this, however, it needs to involve its customers more, of course offering them superior value propositions. For this, however, a thorough understanding of consumption values is needed. The role of OTA's is becoming more and more important due to the ease of customers to compose a trip from the comfort of their home where they can also compare hotel prices and booking the choice on the Internet. An OTA's agency organizes and sells accommodation, excursions and transportation to customers. It also organizes trips on an online platform for travelers. These OTAs are third parties that sell services on behalf of other companies. As a rule, these OTA's offer many benefits. They have more comfort and a more self-serving approach. They also include a built-in booking system with which you can make instant bookings. OTA's works in two models: Merchant model and Agency model. Merchant model is the model in which hotels sell rooms to OTA's at a reduced or wholesale price. OTA's then sells them to customers at a markup price. Agency model is the commission-based model in which OTA's acts as a distribution partner. OTA's receives full commission after the stay, and the hotel receives payment directly from the last customer and does not wait for the transfer of payment from third parties.*

Keywords: Online travel agency, OTA, tourism, consumption values;

JEL classification: L83, L86, O33, Z19, Z30, Z32.

1. Introduction

The OTA's are travel aggregators that interface between travelers and potential travelers through the Internet, to sell different products, as flights, hotel rooms and cruises. (Rezgo. 2019).

At the moment, OTA's agencies are changing their business from web-based to smartphone applications because they are easy to download and operate (Dwikesumasari and Ervianty 2017).

Due to the growing popularity of OTA's and of course the competition it is intensifying in relation to consumer behavior, the studies highlighted issues such as:

- satisfaction (Jedin and Ranjini 2017, Kustiwi 2018)
- customer loyalty (Dwikesumasari and Ervianty 2017)

- innovation (Lee et al. 2017)

Purchasing intent is representative of consumer behavior. Also very important is the influence of socio-demographic factors, the attitude and intentions to book travel online (eg Amaro and Duarte 2013, 2015)

Another point of purchase is the value that consumers perceive after using a service or product (Carlson et al. 2015; Lu and Hsiao 2010). Instead, buyers are more critical when it comes to booking travel (Mohd - Any et. Al 2014).

Moreover, it is suggested that the price-quality-efficiency and comfort advantage should be offered to attract customers. (Ozturk et al. 2016; Jeden and Ranjini 2017). It is further argued that value represents the needs, desires and expectations of consumers (Sweeney and Soutar, 2001) that can be met more effectively through a better understanding of the consumer values that consumers derive from using OTA's.

2. OTA's

Barthel and Perret (2015) stated that the OTA segment is becoming a strong competitor to the individual booking sector and distribution channels; it has already taken a substantial share from traditional contracted booking channels, who are mainly wholesalers and tour operators.

Chubchuwong (2018) found that bookings from online travel agencies (OTAs) have a strong impact on hotel sales revenues.

Gazzoli et al. (2008) stated that one of the main reasons for the success of OTAs was their ability to offer cheaper rates than those offered by hotels and their reservation reservation offices.

In the 1990s, online travel intermediaries were established (Barthel & Perret, 2015; Gazzoli et al., 2008) and have later become the main global e-intermediaries. Microsoft launched the Expedia Travel Service in 1996 in the USA, followed by its European counterpart, Priceline, in 1997 (Barthel & Perret, 2015; Gazzoli et al., 2008).

Both platforms allowed customers to book their holidays online. Based on Barthel and Perret (2015), the two most important OTA players are Expedia and Priceline. Expedia gained first position in terms of worldwide gross bookings, whereas Priceline was the largest OTA by revenue.

Here are some of the main reasons why OTA's are preferred: reward programs offered by some OTAs for the next trip, special rates you won't find anywhere else, generous cancellation policies at some *OTA's*, at *OTA's* you can compare different rates.

The best online travel agents:

1) *Booking.com* one of the largest hosting sites, now extended to smaller markets such as: family-run guesthouses, holiday rentals, self-catering apartments.

Interesting statistics: 1.550.000 nights are reserved every day, 68% of booking nights came from families and couples, 42% of the booking nights came from houses and

apartments, 38% of reviews provided by guests, 75% of the guests came more than 5 times.

2) *Expediahotels.com* it is a popular brand, has a global audience and attracts many travelers. He gained more power by acquiring travelocity.

Interesting statistics: receives 675 million monthly site visits, operates in over 70 countries and over 40 languages, attracts 75 million customers per month for flights.

3) *Airbnb* introduces - the shared home - by revolutionizing the hosting industry.

The website gives you the opportunity to know the identity of the guests, thus creating a sense of security for travelers.

Interesting statistics: 2.9 million Airbnb hosts, about 800,000 stays every night, 14,000 new hosts join each month.

In addition to these major OTA's, there are many other smaller OTAs. We mention One Travel, Tripsta, Travelmerry, Fareboom and the examples are flowing. We conclude that these accommodation companies will not give up OTA's even if there is a cost involved, their market will continue to grow.

3. The benefits of online travel agencies (OTA's)

a) Accessible 24/7. This means that the system works autonomously, customers can access the system by simply pressing a button, thus reserving their activities in their own program.

b) Reduce workload. Manually processing all reservations means a lot of work and you can make mistakes that cost you money. A good online booking system will take care of all your booking in any way.

This system shows you if:

- Availability (so no overbooking)
- It automatically sends you the guarantee of obtaining the services
- You have everything in one place (promotions, reservations, customer information, payments and analysis.
- Invoices, fees, terms and loyalty programs are easily managed from a central position.

All the above statements lead to an increase in productivity.

c) Allows you to provide supplements. This is a must-have feature for online booking systems. Adding these additional benefits makes it easy to increase your business revenue.

d) It gives you important analysis and perspectives.

An online booking system with automatic analysis helps you find out what works and what doesn't work for your travel business.

- the most requested time intervals are determined
- the most popular tours
- which partnerships bring you more profit

Following the analysis dashboard is the best way to grow your business. You will also save time and money with offers that are not profitable enough.

e) Do not pay abusive commissions.

- no commission means moving reservations from OTA to your own sales channel.
 - there are OTAs that charge commissions of up to 30% per booking!
 - by implementing an online booking system, you get rid of the intermediary
- f) Receive online payments. In this case, guests can pay in advance for your tours or activities. That way, the money comes straight to your account without delay. The risk of credit card fraud or scams is extremely low.

1. Risks of OTA's

- 1) We need a lot of internet access.
- 2) You do not have direct contact with your customers
 - You can't get valuable feedback to improve the quality of your products
 - You can't build trust or answer some customer questions.
 - some customers prefer direct, real to virtual contact in the online booking process.
- 3) You may experience technical issues
- 4) Rapid growth can be a challenge.
It can happen when you have a small avarice, few employees or few resources and then too many new customers could be a problem.
But this is a challenge you are willing to face.
- 5) Not every online booking software could be the right one.
You need to find out which online booking system works best for your business. It is frustrating not to have a reservation service that does not meet your needs.

2. My point of view

In my opinion, in recent years, tourism has undergone major changes, in terms of the reservation system and the distribution of the tourist product. We find that Romania is also in line with international trends, in terms of increasing online bookings. If 15 years ago, most of them turned to specialized travel agencies, now the vast majority of tourists make reservations online. Online bookings can have both advantages and disadvantages. A major advantage of online booking is that you have quick access to the information we are provided with in terms of location, rate or availability.

Another major benefit that online bookings offer is that payment can be made on the spot, instantly receiving the voucher, tax invoice, plane ticket, etc. If we talk about all these advantages, it is very important not to neglect the risks we face using the online system. Unfortunately, there are situations where the information on the internet is not real or incorrect, which can lead to sad experiences for tourists. Another risk we face when using the online system may be the confusion that arises between destinations or hotels with similar names.

Regarding the booking in the travel agency, we also face advantages and disadvantages. Customers who come face to face with travel agents can benefit from valuable advice on the tourist destinations they choose, advice on behavior in certain states, information on access to tourist attractions or information on public transport.

The agency concludes a contract with the tourist, a contract which specifies both the services purchased and the clauses that must be observed by both the client and the travel agency. Regarding the disadvantages of booking in the travel agency, an important factor is the time which is higher than the time of online booking.

We can conclude that there are advantages and disadvantages to both agency booking and online booking depending on each individual tourist, which option he wants to choose.

3. Conclusions

We can conclude that due to progress and continuous development, the world is constantly evolving and we must adapt to this evolution that is taking place in all areas. Any online booking tool has advantages and disadvantages. But we can overcome all obstacles by planning and establishing a good business strategy. If not having direct contact with customers may seem like a disadvantage, it can be overcome by setting up a chatbot to respond to your customers. Knowing the advantages and disadvantages of online booking is not enough to make a decision sometimes. For this reason we can clarify some uncertainties by consulting the statistics. The numbers are the ones that don't lie and can give us a clear picture, so we can see that 90% of customers do research online to plan a vacation, while only 80% of them book online. In recent years there has been an increase in the use of mobile devices. For the tourism industry and for the suppliers in the field, there is an increasing need for mobile websites and the possibility to take online reservations with the help of mobile devices.

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ANALYSIS OF THE RELATIONSHIP BETWEEN GROSS DOMESTIC PRODUCT, FOREIGN DIRECT INVESTMENTS AND INCOME INEQUALITY IN ROMANIA OVER THE PERIOD 1990-2020

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Abstract: *The present study aims to confirm the existence of a non-linear association between economic growth, foreign direct investment (FDI) and income inequality in Romania, over the period of 1990 to 2020. Romania's macroeconomic output expressed through the Gross Domestic Product per capita has registered a continuous growth trend in the analysed period of time. Income distribution expressed through the GINI index registered also an ascending trend dynamic, while foreign direct investment showed an oscillating evolution. Using the Ordinary Least Square (OLS) method to estimate the impact of FDI and economic growth on income inequality we revealed that the relationship between FDI and income inequality is non-linear, namely quadratic. In the estimated regression equation the sign of FDI squared coefficient is negative, confirming the existence of a U-inverted curve. This suggests that the income gap grows in a first stage, until a threshold in economy is achieved. After this maximum, the income gap could follow a decreasing trend with increasing values of FDI. We found also that economic growth expressed by the dynamics of GDP per capita contributed to the extension of income inequality in Romania for 1990 to 2020. The non-linear model is statistically validated; tests for heteroskedasticity, autocorrelation and normal distribution of errors are performed. Policy implications in the specific case of the Romanian economy are also included, as follows: fiscal measures for supporting FDI inflows, effective channels enabling FDI to have effects on reducing income inequality, increase of FDI absorptive capacity and directing FDI to specific economic sectors.*

Keywords: *income inequality, economic growth, foreign direct investment, GDP per capita*

JEL CODES: *O15, O47, F20, E01, B23*

1. Introduction

Economic growth and foreign direct investment have gained momentum both academically and worldwide, being intensively studied and debated in the economic literature in recent years, following the conclusions of various studies showing that the phenomenon of economic growth is influenced by investment. More specifically, favourable investment outcomes are becoming the key driver of

economic development strategy, but also they contributed to the increase of income gap, mainly in developing economies. Scientists have shown a strong interest in analyzing the relationship between foreign direct investment (FDI), economic growth (GDP) and income inequality.

The present paper aims to analyze the relationship between economic growth, foreign direct investment and income distribution in the Romanian economy over the period 1990-2020, based on data series extracted from the World Bank Database and Standardized World Income Inequality Database. In this study we aim to test the hypothesis that the dependence between foreign direct investment and income inequality is non-linear.

The rest of the paper is organised as follows: Section 2 presents theoretical background, which motivates our empirical analysis. Section 3 exposes the dynamic of GDP per capita, Foreign Direct investment (FDI) and Gini Index in Romania over the period 1990 to 2020, Section 4 introduces the methodology, describes the data and presents the main results, while Section 5 summarises the findings and concludes.

2. Theoretical background

According to recent literature, the effect of economic growth on inequality varies; it could be positive as some authors argue (i.e., Lundberg and Squire, 2003; Rubin and Segal, 2015; Wahiba and El Weriemmi, 2014), or negative (i.e., Nissim, 2007), or mixed (Chambers, 2010; Huang, Fang, Miller, and Yeh, 2015) due to different model specifications, different data sets, and different estimation methods. Long-term effects may differ from short-term effects. By adopting the semi-parametric method, it has been found that economic growth increases income inequality for all countries in the short and medium term. In terms of long-run effect, economic growth reduces inequalities in developing countries, but has the opposite effect in developed countries.

On the other hand, the impact of economic growth on income inequality is inconsistent, as various determinants are included in the model. Thus, taking the trade openness and human capital as determinants of inequality, Wahiba and El Weriemmi (2014) showed that in Tunisia, economic growth is positively associated with inequality. Moreover, trade openness has a rising effect on income inequality while human capital a positive one. On the contrary, considering growth volatility and human capital as determinants of inequality, Binatli, (2012) found that growth has a negative impact on income inequality. At the same time, he found that higher growth volatility could decrease income inequality all the time, but the magnitude of the effect of growth diminishes over time.

In his work, Kuznets (1955) expressed his interest on the relationship between the level of economic development (i.e. the economic growth rate) and the measures of inequality. Kuznets argued that the relationship between a country's level of development and its income inequality could be described by a U-inverted curve.

He explained this relationship in terms of the "dynamics of the dual economy", associated with the structural transformation in the economy, from an agricultural to an industrial one. Kuznets' proposal stimulated an extensive literature examining the relationship between income inequality and growth and / or economic development. Many of these studies used regressions models of growth rates in terms of inequality measures and other control variables, the results being generally inconclusive. For example, Anand and Kanbur (1993), Persson and Tabellini (1994), Perotti (1996), and others believe that inequality has a negative effect on growth. Various explanations have been given for this, including: the consequences of political economy inequality, the negative impact of inequality on education but also the imperfections of the capital market and credit constraints.

FDI is found in several studies as an important capital inflow in developing countries. A distinct group of studies investigates the impact of FDI on income inequality. The results are mixed. A group of them reports a positive effect on income inequality. For example, in the case of Chinese economy, FDI had a beneficial effect on regional income inequality (Zhang and Zhang, 2003). Similar findings are revealed by Pan-Long (1995) for Eastern and South Asian countries and by Lee (2006) for 14 European countries for the period of 1951-1992, as well as by Herzer et al. (2014) in 23 Latin America countries.

The other group of studies show a negative effect on income distribution, meaning the reduction of income inequality with FDI. In the case of Mexican economy it was reported that FDI increased the income gap due to the higher demand for skilled labour (Feenstra and Hanson, 1997). Wu and Hsu (2012) revealed that FDI is harmful for income distribution of the host countries with low absorptive capacity. Song et al. (2021) also found that FDI inflow raises income inequality in a sample of 20 developing economies over 1980 to 2016.

Herzer et al. (2014) reported a positive effect of FDI inward stock on income inequality among households in Latin American economies.

In the case of sub-Saharan African economies, Xu et al. (2021) found that FDI and income have a negative, statistically significant relationship with income inequality over the period of 2000 to 2015.

Chintrakarn et al. (2011) reported a similar robust and negative effect of FDI on income inequality in the United States.

As a result of a meta-analysis on the effect of FDI on inequality using 543 empirical studies from 1995 to 2019, Huang et al. (2020) revealed that FDI is associated with higher inequality in low-income countries and higher income inequality in developed economies.

3. Dynamics of GDP, FDI and income distribution in Romania in the period 1990-2020

In this chapter we will analyze the evolution of economic growth, income distribution and foreign direct investment in Romania over the period 1990 to 2020.

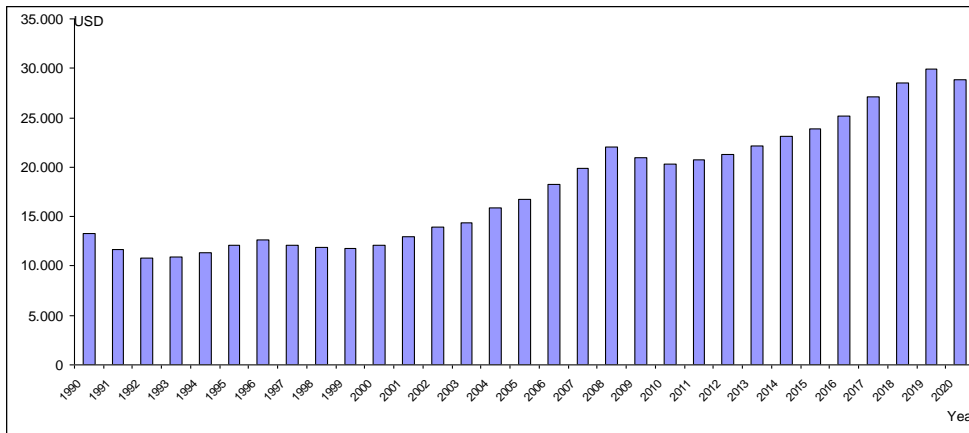


Figure 1: Evolution of GDP per capita in Romania (1990-2020) (PPP, 2007 international constant USD)

Source: World Bank Data, 2022

GDP per capita registered an increasing trend in the considered period (1990-2022) from USD 13.302,463 USD in 1990 to 28.828,112 USD in 2020. The revolution of 1989 brought many changes in the Romanian society. As a result, after the fall of the communist regime, there is a decrease of GDP per capita until 1992 to 10.757,384 USD, followed by an increase until 1996 to 12.627,194 USD. Another decline is registered in 1999 to 11.803,368 USD. After a period of massive legislative framework and institutional changes, in 2000 the economic situation became more stable, the FDI inflows were stimulated (Dragoescu, 2015). After 1999, GDP per capita increases to 22.044,292 USD in 2008, followed by a downward trend in 2009-2010 under the effect of the global financial and economic crisis. In the period of 2009-2020, GDP per capita has an ascending trend, the highest value is reached in 2019 (29.875,063 USD) (Figure 1).

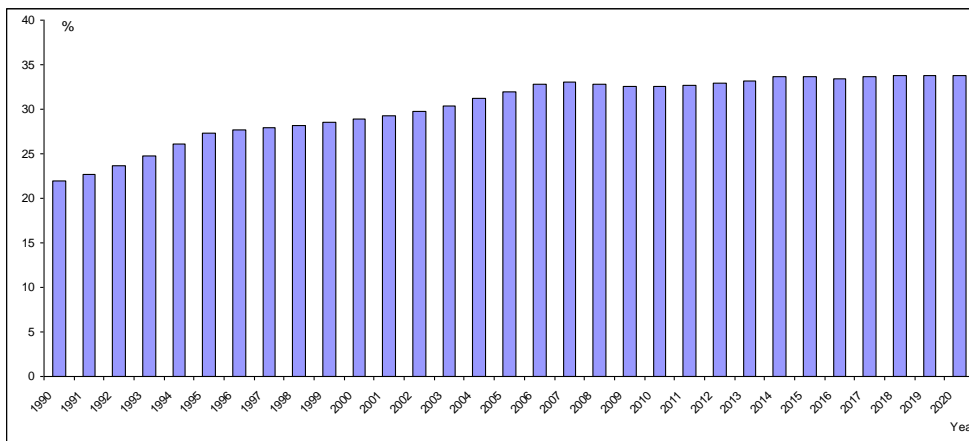


Figure 2: Gini Coefficient of income distribution in Romania (1990- 2020)

Source: Standardized World Income Inequality Database, 2022

The Romanian population is extremely vulnerable to income inequality and Romania is placed on the top positions within the European Union in this regard. This is a serious concern, given both the negative developments of recent years and the close relationship between income inequality and relative poverty (Militaru and Stanila, 2015). Unfortunately, in Romania, poverty remained a pressing social and economic problem, despite the positive economic development over the examined period of time. The Gini Coefficient shows an upward trend for the period under analysis, from 22 in 1990 to 33.8 in 2020. A considerable increase is recorded over the period of 1990 to 2007, when reaches the value of 33 (Figure 2). In terms of the poverty risk in Romania, the most vulnerable are children, young people, families with dependent children (especially those with 3 or more children), single people with and without dependent children, the unemployed, employed in agriculture and low-skilled workers. In addition, the poorest people live in a fairly large proportion in rural areas (Precupețu, 2013).

As regards to the equivalent average income, in 2010 Romania was on the last position among the EU countries, the median income being 10 times lower than in developed countries. At the same time, the risk-of-poverty rate by poverty line shows the same upward trend. Also, data on employment (as a percentage change compared to the previous period) recorded negative values. From 2007 to 2020, the Gini coefficient has many fluctuations. From 33 in 2007, it increases until 2015 reaching the value of 33.6 and the year 2016 indicates a slight decrease to 33.4 and will increase again until 2020 when it registers the value of 33.8 (Figure 2). This situation is influenced by the gradual decrease in the participation rate in education and training from 1.6 percent in 2011 to 0.9 percent in 2018. In fact, the unemployment rate in 2020 is increasing due to the impact of the emergence of the new Coronavirus which has created insecurity and economic crisis.

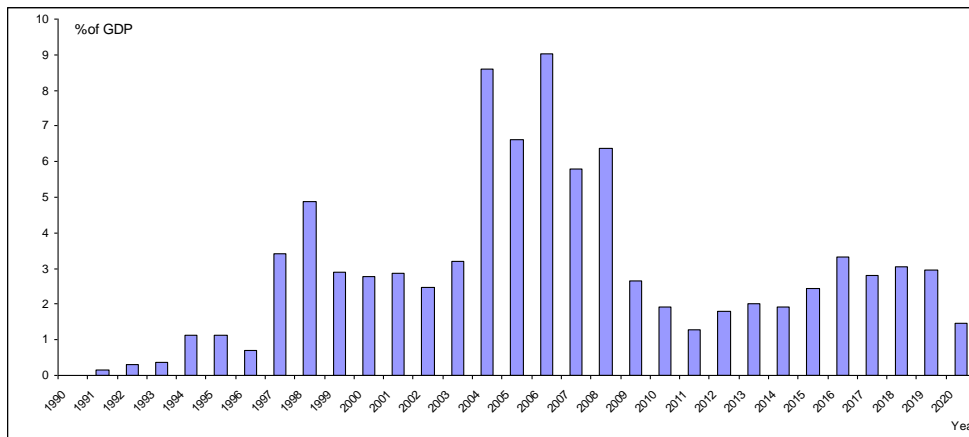


Figure 3: Evolution of Foreign Direct Investment (% of GDP) in Romania (1990-2020)

Source: World Bank Data, 2022

Over the examined period of time, FDI shows an oscillating evolution. Since 1991, it has risen from 0.138% of GDP in 1998 to 4.871% of GDP. Romania's opening for FDI begins in the 2000s - the years of major privatizations, so that later foreign investments will be encouraged by a good course of the Romanian economy and a favourable external environment, outlined by the EU accession forecasts and the beginning of a period of global expansion. The highest shares are recorded in 2004 at 8.594% of GDP and 2006 at 9.02% of GDP. The period 2003-2008 is the period of expansion of FDI in Romania. After Romania became member of the European Union in 2007, borders could no longer be considered a barrier and thus, workers, companies and capital could enter and leave freely. Considering some of the characteristics of the Romanian development regions, the accession to the EU could be considered a factor with a significant impact on the process of locating the Foreign Direct Investments in Romania. However, after 2008 from 6.377% of GDP, however, Romania loses its attractiveness for foreign investors, as a result of the effects of the global financial crisis, reaching 1.293% of GDP in 2011. FDI flows are falling sharply and are almost three times lower in 2008 than a year ago. This situation is exacerbated by a series of national economic and political turmoil, so that FDI flows in 2015 fail to exceed the 2004 volume. This is reflected in the level of FDI stocks: Romania has the lowest volume of FDI stocks per capita and in relation to GDP at the end of 2015 compared to the countries in the region (Bulgaria, Czech Republic, Poland and Hungary). Simply put, we have the lowest performance in attracting FDI, although we have a consistent set of attractive factors for FDI (such as a strategic geographic position, a large market, and low labour costs) that should have helped us. From 2018, there will be another decrease from 3.041% of GDP to 1.448% of GDP in 2020, because foreign investors withdrew money from the Romanian investment market. The impact of the emergence of the new Coronavirus worldwide had an impact on the entire world economy, and this was also reflected in foreign direct investment, so foreign investors withdrew from the Romanian investment market -1412.32 million Euros, this being the highest investment value withdrawn from the market from 2013 to 2020, because the insecurity and economic crisis created by the Coronavirus created uncertainty and uncertainty worldwide because any prediction was no longer valid.

4. The impact of FDI and GDP per capita on income inequality in Romania

In order to examine the impact of Foreign Direct Investment (FDI) and income (GDP per capita) on income distribution (expressed by GINI), the following regression equation will be used:

$$GINI_i = \alpha + \beta_1 \cdot FDI_i + \beta_2 \cdot FDI_i^2 + \beta_3 \cdot \ln GDPpc_i + \varepsilon \quad (1)$$

where: i denotes time, $GINI_i$ represents the GINI coefficient for income distribution in the year i , FDI_i express the net inflow of foreign direct investment in the year i and FDI_i^2 denotes its square, $GDPpc_i$ express the Gross Domestic Product per capita in the year i , α is a constant, β_1 β_2 β_3 are regression coefficients and ε is the

error. We use \ln of GDP per capita in order to make interpretation in terms of elasticities, due to the fact that other variables are expressed in as percentages.

The use of this model is based on the findings of Figini and Görg (20011). In their study for a panel of 100 countries for the period 1980 to 2002 they found a nonlinear effect of foreign direct investment on wages inequality in developing countries: wages inequality increases with FDI inward flows and this effect is reduced with further increases of FDI.

In our estimation, using the Ordinary Least Squared method, we expect the sign of β_2 to be negative.

Time series of FDI, GDPper capita for 1990 to 2020 were extracted from the World Bank database while the values of GINI index are sourced from Standardized World Income Inequality Database.

Table 1

| Descriptive statistics of considered variables | | | | | |
|---|--|---|---------|--------------------|--|
| Variable | Description | Source | Mean | Standard Deviation | |
| GINI | GINI Index of inequality in equivalized household disposable(post-tax, post-transfer) income | Standardized World Income Inequality Database (SWIID) | 30.2774 | 3.5878 | |
| FDI | Foreign Direct Investment net Inflow as % of GDP | World Bank | 2.9122 | 2.2933 | |
| \ln GDP per capita | Gross Domestic Product per capita based on purchasing power parity (PPP) (constant 2017 international dollars) | World Bank | 9.7467 | 0.3247 | |

The results of estimation of equation 1 are exposed in Table 2.

Table 2

Estimation results

Dependent variable: GINI

Method: Least Squares

Sample: 1990 2020

| Variable | Coefficient | Std.Error | t-statistic | Prob. |
|---------------------------|-------------|------------------------------|-------------|----------|
| FDI | 1.840078 | 0.350863 | 5.244433 | 0.0000 |
| FDIsquared | -0.153753 | 0.038865 | -3.956107 | 0.0005 |
| \ln GDPpc | 7.825963 | 0.767514 | 10.19651 | 0.0000 |
| C | -49.27245 | 7.320594 | -6.730662 | 0.0000 |
| R-squared | 0.884583 | Mean dependent var | | 30.27742 |
| Adjusted R-squared | 0.8711759 | SD dependent var | | 3.587823 |
| S.E.of regression | 1.284827 | Akaike info Criterion | | 3.459040 |

| | | | |
|--------------------------|-----------|--------------------------------|----------|
| Sum squared resid | 44.57109 | Schwarz Criterion | 3.644071 |
| Log likelihood | -49.61512 | Hannan-Quinn criterion | 3.519355 |
| F-statistic | 68.97806 | Durbin-Watson statistic | 0.733881 |
| Prob(F-Statistic) | 0.0000 | | |

Source: authors' own computation using E-views 12 software

The model is statistically validated for 1% significance, due to the value of Prob (F-statistic) that is 0.000. We notice the value of R-squared of 0.88 indicating that in a proportion of 88% the variation of GINI can be explained by FDI and lnGDPper capita. All coefficients of regressors as well as the intercept (C) are statistically validated for 1% significance. GDP per capita is correlated with the inequality growth: when GDP per capita increase with one percentage point the income inequality will increase with 7.8 units. Our assumption that the dependence between GINI and FDI is non-linear is confirmed due to the negative sign of FDI squared. It means that inequality increase with FDI growth until a threshold, after it inequality tends to decrease even the FDI will continue to grow. This is a confirmation of the U-inverted curve known as Kuznets curve (for income). In our case, we used FDI instead of income. Our results are in line with the conclusions of Figini and Görg (2011).

| Table 3 a | | | | Table 3b | | | |
|-----------------------------------|---------|--------|-------|---|---------|--------|-------|
| Heteroskedasticity White Test | | | | Breusch-Godfrey Serial Correlation Test | | | |
| Null hypothesis: homoskedasticity | | | | Null Hypothesis: no serial correlation | | | |
| F-statistic | 4.17708 | Prob | 0.003 | F-statistic | 6.49052 | Prob | 0.005 |
| | 2 | F | 6 | | 9 | F | 4 |
| | | (8.22) | | | | (2.25) | |
| | |) | | | |) | |
| Obs*R-squared | 18.6932 | Prob | 0.016 | Obs*R-squared | 10.5950 | Prob | 0.005 |
| | 3 | Chis | 6 | | 9 | Chis | 0 |
| | | q | | | | q | |
| Scaled explained SS | 11.9095 | Prob | 0.155 | | | | |
| | 1 | Chis | 3 | | | | |
| | | q | | | | | |

Source: authors' computation based using E-views software

We further test the hypotheses of heteroskedasticity, autocorrelation and normality of errors. We use the White test in order to check heteroskedasticity of errors (Table 3a). The null hypothesis of homoskedasticity is confirmed due to the value of Obs*R-squared (18.69232) > $\chi^2_{0.01;3}$ (11.34).

The Breusch-Godfrey Serial correlation test (Table 3b) shows that Obs*R-squared (10.59509) < $\chi^2_{0.01;3}$ (11.34). This indicates that the null hypothesis is accepted, the errors being not autocorrelated.

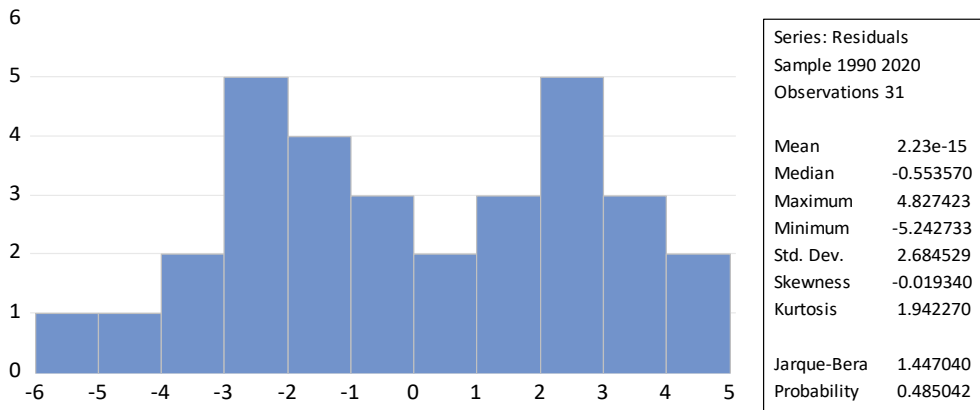


Figure 4: Jarque-Bera test

Source: authors' computation based using E-views software

The Jarque-Bera test (Figure 4) indicates the normality of errors, the null hypothesis is accepted due to the fact that the value of this test (1.400144) is lower than $\chi^2_{0,05;3}$ (7.81), suggesting a normal distribution of errors.

After performing all these tests, we can conclude that our model is statistically validated.

4. Conclusions

The aim of the paper was to explore the impact of foreign direct investment and economic growth on income inequality in Romania. In a first step, we analysed the dynamic of net inflows of FDI and GDP per capita over the period 1990 to 2020. Within the second step, we revealed that the relationship between FDI and income inequality is non-linear, namely quadratic. The income gap was growing in a first stage in the Romanian economy until a threshold was achieved. After this maximum, the income gap followed a decreasing trend with increasing values of FDI. We found also that GDP per capita contributed to the extension of income inequality for 1990 to 2020.

Developing countries, as Romania, have been faced with severe international competition, trying to attract foreign direct investment (FDI), which would provide considerable financing capital to generate positive externalities. For example, one of the most tangible effects of FDI flow can be seen in higher employment rates with higher wages. Lee (2013) argued that FDI positively affects domestic economic activities through various factors, including technology transfer, unique effects, productivity gains, the introduction of new processes and managerial skills. As policy recommendations we can suggest the following directions: (1) to further support the increase of net inflow of foreign investment through fiscal measures (incentives for large foreign investors which create jobs); (2) developing the financial sectors required to sustained the operation of foreign and transnational corporations in Romania; (3) policies regarding efficient channels for economic

resources needed to optimize financial development to enable FDI to have a significant effect on reducing income inequality; (4) policies regarding human capital development, due to the fact that human capital is an important contributor to the absorptive capacity of FDI and (5) a national strategy for FDI attracting, with effective instruments for supporting and directing them to the specific economic sectors.

As further directions of the research, we intend to perform a deeper analysis of the channels through which the impact of FDI is visible on the income gap, with more sophisticated econometric methods and other income distribution coefficients.

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THE COMPARATIVE ANALYSIS OF ROMANIAN AND FRENCH TAX SYSTEMS.

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Abstract: *The traditional and fundamental method for states to make revenues is collection of taxes and many countries still have challenges which make them struggle to implement the collection of taxes and fees. Political factors and administrative restrictions should be considered as examples for these challenges. The purpose of research is evaluation of selected European tax systems by statistical data such as tax revenues and unemployment rate due to find out which system is more effective and efficient in tax collection and define insufficiencies and the possible solutions that can increase tax burden and establish desired tax administrations. The performance of tax systems depends on several factors such as the reforms in taxation, structure and development of economy, social and political growth, extent of tax base. Tax revenue is one of important source for government revenue which directly affect the economy of state. The governments have to create the less complicated tax systems which can cause to make competitive location for launching new business and attraction of investments. Because more complicated systems increases the probability of tax evasions, tax avoidance and corruption which lead to lessen the interests for new investments. Modern states need an effective, efficient and optimal management for achieving maximum level in tax compliance because increase of tax revenues can affect and rise in a huge manner the strengthening and establishment of the legitimacy of country. Building the effective system takes time and problems in tax collections, tax avoidance and frauds cause the taxation as a topic to be actual in each decade. The research has both empirical and theoretical sections and the empirical part contains mostly the quantitative analysis.*

Key words: taxes, tax burden, tax revenue, business.

JEL classification: H2, H24, H25

1. Introduction

The global and national financial issues such as economic crisis, increase of state expenditures and pandemic influences generate modern challenges in order to seek new methods for increasing state revenue as well as the tax revenues which have the enormous correlation with it. The governments are obliged to support people with services such as education, medical services and police which means the creation of costs every year and for the payment of those services the imposition of taxes is required. To achieve the efficient and effective modern tax system which affects directly economy in a positive manner is an actual topic not only for the economic scientists, but only for government administrations and business.

In terms of comparison of tax systems, the evaluation of tax rates is traditional method, however the comparative analysis contains not only the tax rates, but also the other main indicators which define the performance of tax collection, efficiency of tax systems and effectiveness of tax administrations. The well-known global organizations such as World Bank, PwC and University of Paderborn composed some indexes for generation of ranking due to compare tax systems. The ranking of “Ease of doing business” which is authored by World Bank will also be used in the research for realization of comparative analysis comprehensively. Overall, the comparative analysis in research will be performed by some main indicators such as tax burden, revenues from VAT, corporate income tax, personal income tax(PIT) and property tax. Additionally, business ranking indicators will be explained due to find out effectiveness of tax collection from companies and incentives for business and investments in both countries.

2. Understanding of tax and taxation. Methodology for evaluation of tax systems.

Generally, taxes are defined as state origins. Taxes are observed together with states as they required money sources for maintenance of their institutions and performance of government functions (Stačiokas, Rimas, 2004). Taxation is a subject that can cause to controversial situations at any time and in any state or any society. When the governments imposes financial obligations on its people, companies, etc., the term of taxations appears.

The governments attempt to achieve optimal level of taxation. Maximum tax compliance occurs when every taxpayer is compliant and pays his fair share of tax liabilities. Franzoni (2000, p. 54) mentions 4 main rules a taxpayer should obey due to be fully compliant with the tax law: (1) First is reporting the real tax base to the tax authorities; (2) second is estimation of the tax liability correctly; (3) provision of the tax return on time; and (4) finally, payment of the tax amounts on time. The taxpayer has to be considered non-compliant in case one of the rules is broken. In terms of non-compliance, two types of behavior can emerge tax avoidance and tax evasion. There are some differences between tax evasions and avoidance. For

example, tax avoidance can be defined when showing some parts of profit as a charitable donation or medical expenses due to reduce taxable income while the tax evasion happens when concealing income or assets by giving incorrect information to tax authorities.(Tina Orem, 2022).

In terms of evaluation methods of tax systems, the important aspect is tax burden which can be defined as the ratio of the collected taxes in a particular period against the total product.(Ferdinand Celikay, 2020). In this research, relations between employment rates and revenues from income tax, tax burden and tax revenues will be defined for comparison of Romanian and French tax systems. These evaluations will be an asset to find out the performance of both tax systems.

In the final stage, business rankings of countries are analyzed which defines ease of doing business and contain also the indicators for tax payments.

3.Tax burden in Romania and France.

Tax burden is all collected taxes in all level of governments but as a percentage of gross domestic product. It can also be called tax-to-GDP ratio.

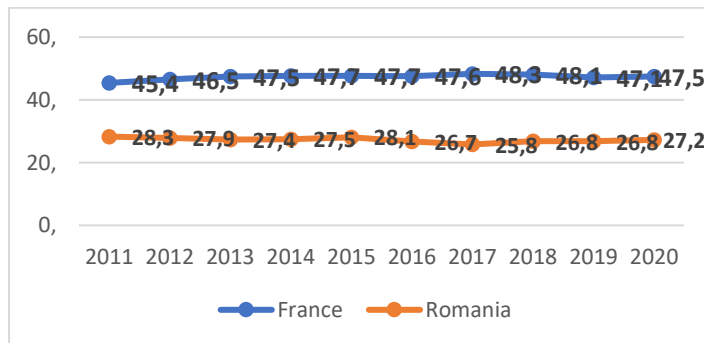


Figure 1. Tax burden as a percentage of gross domestic product in Romania and France between the years 2011 and 2020.

Source: Eurostat. <https://ec.europa.eu/eurostat>

The first line graph shows the tax burden or total tax revenue as a percentage of gross domestic product in Romania and France between the years 2011 and 2020. Tax revenues contain almost half of GDP in France each year and slow progress was observed in growth tendency of revenue in the given period. In contrast to France, Romanian tax burden slowly decreased. Clearly, it was 28.3% in 2011, however it fell down to 27.2% in 2020.

3.1. Employment rate and its influence on revenue from personal income tax.

The employed population generates the base for personal income tax and the following demographic tendencies show the tax bases for each country between the years 2009 and 2020. In this part of research, we will mainly define the correlation between revenues from personal income tax(PIT) and employment rate.

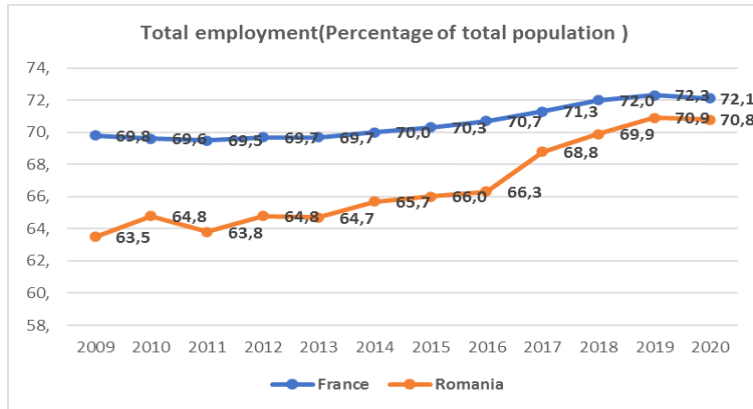


Figure 2. Total employment(percentage of total population)

Source: Eurostat. <https://ec.europa.eu/eurostat>

The growth rate of employment in Romania as a percentage of total population increases rapidly in the given period. The indicator was 63.5% in 2009 which growth to 64.8% in 2010, however the decline was observed in 2011. After the year 2011, the number of employed people had started to increase gradually till the year 2020 and the indicator was 70.8% which was close to the level of employment in France. In 2020, the rate was 72.1% in France. However, tendency of employment rate in France showed the more stable growth in that period.

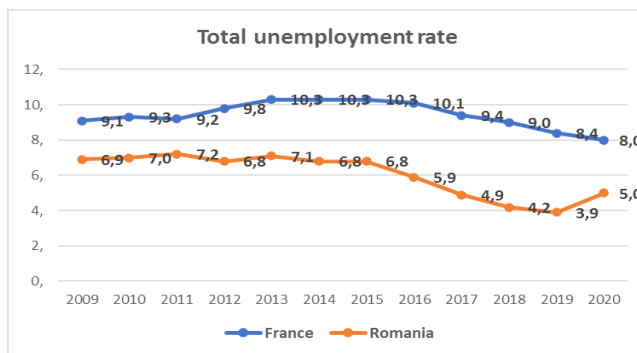


Figure 3. Total unemployment rate

Source: Eurostat. <https://ec.europa.eu/eurostat>

The figure above shows the unemployment rates of selected countries for comparative analysis. Surprisingly, the unemployment rate in Romania was smaller than France however in France the rate of employment was higher. The main reason can be administrative and management issues in the level of authorities such as the registration problems of unemployed people in Romania or in that case can also appear tax avoidance. In the year 2009, Romania and France had 6.9% and 9.1% unemployment rates,

respectively. The tendencies are almost stable till the year 2016. Romania went down of 6% in 2016, clearly, the rate was 5.9% and it was 10.1% in France at the same year. Generally, the number of unemployed people in both countries started to decrease in last few years however the rate in Romania had growth to the number 5% in 2020 in comparison with the year 2019(3.9%).

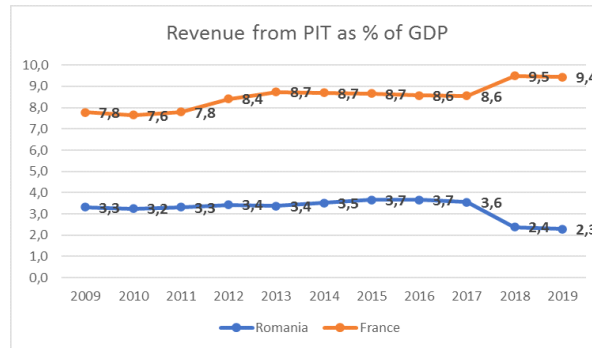


Figure 4. Revenue from PIT as % of GDP

Source: Eurostat. <https://ec.europa.eu/eurostat>

The main idea is to find out the correlation between employment rates and tax revenues from personal income taxes. Obviously, this will facilitate to define if tax collection was implemented in an effective way. The third line graph explains the revenues from PIT as the percentage of gross domestic product in Romania and France between the years 2009 and 2019. France has better performance than Romania in the whole period. The average revenue is 8.53% according to the data from eurostat, however in Romania it is 3.25%. The growth rates in each country were about stable, there was not a sharp increase or fall in income tax revenue till the year 2017. After 2017, revenue from PIT started to decline in Romania, although it increases firmly in France. The indicators was 2.3% in Romania and 9.4% in France in 2019.

Table 1. Regression Statistics. Correlation between the employment rate and revenue from personal income taxes.

| | <i>Romania</i> | <i>France</i> |
|-------------------|----------------|---------------|
| Multiple R | 0.69 | 0.83 |
| R Square | 0.48 | 0.69 |
| Adjusted R Square | 0.42 | 0.65 |
| Standard Error | 0.36 | 0.35 |
| Observations | 11 | 11 |

Source: Microsoft Excel.

Table 1 contains main indicators which measure correlation between the

employment rate and revenue from personal income taxes. If the multiple R which is the correlation rate is close to +1, it means there is strong positive relationship between indicators and the increase of employment rate positively affect the growth of revenues from income taxes. In Romania, multiple R which is the correlation rate is 0.69, however it is 0.83 in France.

3.2. Revenues from corporate income tax, property tax and VAT.

The corporate tax rate in France currently equals 26.5 which was 28% in 2020, but that rate is currently 16% in Romania. The following graph shows the countries' revenues collected from corporate income taxes.

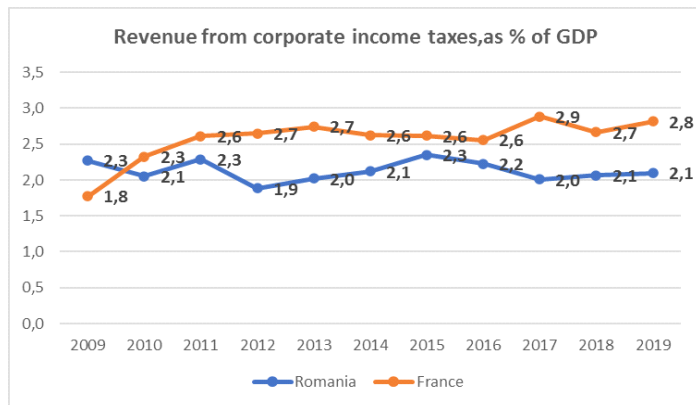


Figure 5. Revenue from corporate income taxes, as % of GDP

Source: Eurostat. <https://ec.europa.eu/eurostat>

According to line graph 4, Romania had more revenues as a percentage of GDP only in the year 2009 which was 1.8% in France and 2.3% in Romania. A sharp growth was observed in the tendency of France in the following years after 2009 and it reached to the highest point(2.9%) in 2012. The indicators were 2.8% and 2.1% in France and Romania, respectively.

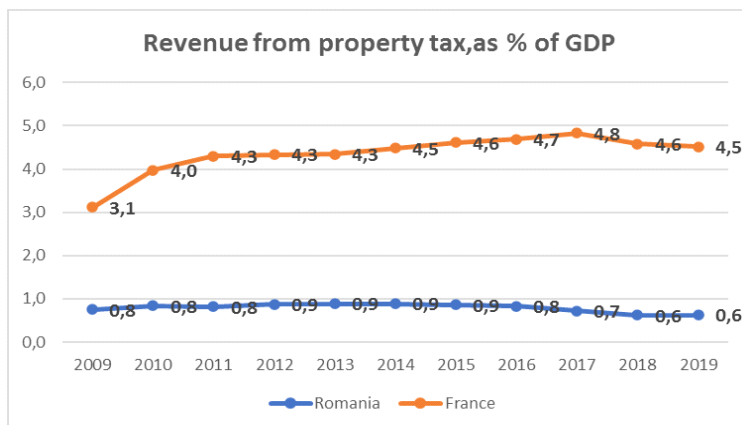


Figure 6. Revenue from property tax as % of GDP.

Source: Eurostat. <https://ec.europa.eu/eurostat>

The revenue from property tax in France is almost 5 times more than Romania according to graph 5. In 2010, it rose to 4,0% from 3.1% which registered in 2019 in France. Between the years 2010 and 2019, the revenue level increased slowly and showed more stable tendency. In Romania, the indicator changed between 0.6% and 0.9% at the same period.

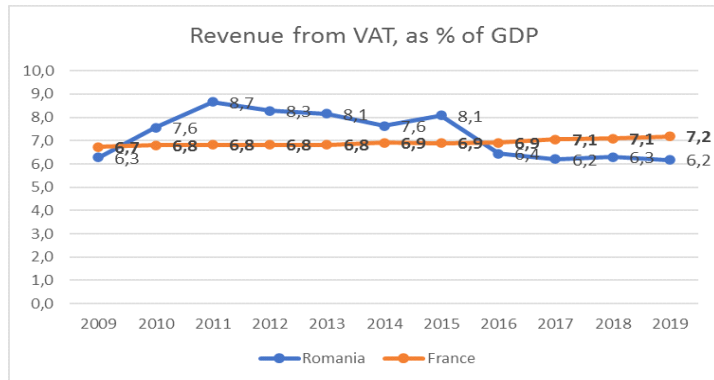


Figure 7. Revenue from VAT, as % of GDP

Source: Eurostat. <https://ec.europa.eu/eurostat>

The current VAT rate in France is 20% which is 19% in Romania. Till the year 2016, Romanian VAT rate was 24%, then it fell to 20% in 2016, however it stabilized as 19% from 2016 till the recent year which is 2021. The influence of rate can also be observed in the graph. Obviously, revenue from VAT as percentage of GDP was higher in between the years 2010 and 2015 than other years which mentioned in graph.

The VAT rate was 19.6% and 20% in that period therefore the tendency of revenue also shows stable and slow growth. The indicator was 6.7% in 2009 and 7.2% in 2019. The average revenue from VAT was 7.3% in France while it was 6.9% in Romania.

4. Business ranking and effectiveness of tax payments.

Generally, that section of research will define to what extent countries are easy to start business. The main data for comparison was collected from the website of doingbusiness.org. The following bar charts show the “ease of doing business rankings” in 2020. The indicator which is most related to the research is surely the “paying taxes” ranking.

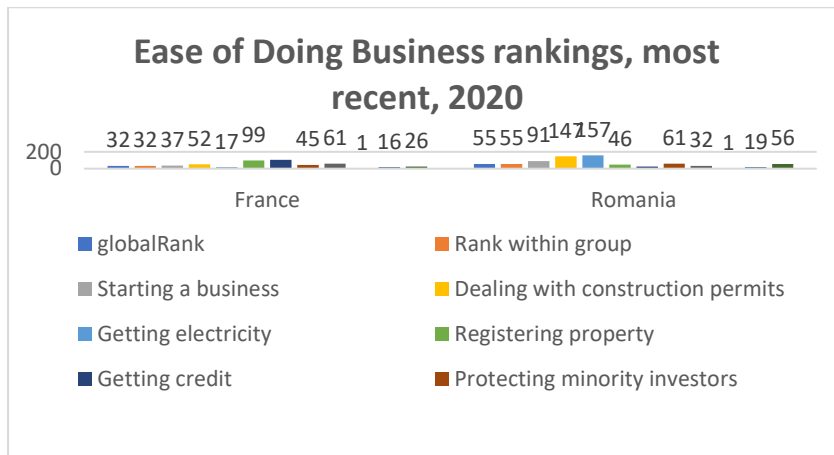


Figure 8. Ease of Doing Business rankings, most recent,2020.
Source: doingbusiness.org

Globally, France had an effective ranking in comparison with Romania. In 2020, the global rank of France was 32 while it was 55 for Romania. The performance of getting electricity was almost the lowest in Romania and business encountered difficulty while dealing with construction permits. However, those indicators in France had quite high rankings which were 17 and 52, respectively. Starting business rank of France was 37 while it was 91 for Romania. Another interesting fact is that getting credit was easier in Romania(25) than France(104) according to 2020 ranking.

In terms of tax payments, the ranking was realized by taking some main indicators into consideration. Examples for those indicators can be: method and frequency of filling and payment, time required to comply with major taxes, total tax and contribution rate as a percentage of commercial profit(Doing Business, 2020). The rank of paying taxes was 61 in France while it was 32 for Romania.

Table 2. Paying Taxes – France and Romania, 2020.

| Indicator | France | Romania |
|--|--------|---------|
| Payments | 9 | 14 |
| Time(hours per year) | 139 | 163 |
| Total tax and contribution rate(% of profit) | 60.7 | 20 |
| Post-filing index(0-100) | 92.4 | 76.8 |

Source: www.doingbusiness.org

The payments in table refer to the total number of taxes and contributions paid in a year. In Romania, companies paid more types of taxes than France, although the total tax and contribution rate was smaller than France. The time used for payment

is 163 hours per year in Romania while it was 139 hours in France in 2020. Generally, time was needed for collecting information, computing tax payable, preparing separate tax accounting books, completing tax return, filing with agencies, arranging payment or withholding (Doing Business, 2020). Post-filing index was defined by time factor which used for complying VAT refunds and corporate income tax corrections. (World Bank, PwC, 2018). 0 score means the least efficiency, but 100 score means maximum efficiency. France had better post-filing index with the score of 92.4 in 2020.

Conclusion

The taxation plays an important role for generation of government revenues and for implementation of relevant activities of states. The research defines the understanding of taxation and tax collection as well as the importance of time management and efficiency in administrative level in tax collection and finally, the influence of employment rate on tax revenues.

The quantitative analysis allows to mention France showed better performance in terms of tax burden, the indicator increased in the given period despite Romania had decrease. It means the amount and importance of tax revenues in GDP of France grew up while the situation is controversial for Romania.

For the identification of performance of tax collection from employed people, the employment rate and revenues from personal income tax were observed for the given period (2009-2020). The employment rate in Romania was less than in France, however in 2020, it almost reached to the performance of France with the indicator of 70.8%. Because of low level of employment rate the tax collection from income in Romania is about 3 times less than in France. Another interesting point was that despite the level of employment rose in Romania in final years, but the income tax revenue minimized. The correlation rate between employment rate and tax collection was higher in France than in Romania. Obviously, the increase of employed people had bigger influence on growth of income tax revenues in France. Business ranking indicators also shows that France is more relevant location for launching new business in comparison with Romania. Not only because of global and group ranks, but also tax payment indicators allow to point out that conclusion. Additionally, France was more efficient in time management for implementation of tax collection.

In conclusion, most of indicators which explained for implementation of comparative analysis defines the France has the more effective tax collection and according to “paying taxes” score of World Bank, Romania shows the weak efficiency in time management of tax collection as well as post-filing index determines Romania lost a lot of time in complying of VAT and in corrections of CIT.

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IMPLEMENTATION AND APPLICATION OF GDPR IN ROMANIAN EDUCATIONAL INSTITUTIONS

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Abstract: *Today, in Europe, more than 250 million people use the internet every day, both to visit social networking sites or platforms and to make purchases, bank transactions or tax returns in electronic format. The multitude of online activities carried out imposed a regulation of the circulation of personal data. According to Eurostat data, 85% of Romanians offer their personal data online, without thinking about the consequences, as opposed to 20%, which is the European average. We are therefore a vulnerable people, despite the fact that personal data trafficking has become a common practice in recent years. However, data security does not only target the virtual environment, but also the physical one. Thus, many public or private institutions and companies that take over and process personal data have to comply with the new Regulation. Of all the personal data processing institutions, we will direct our research to the educational units in Romania, as the situation is much more sensitive, considering the data subject - the minor. The purpose of this paper is to investigate the consequences of applying the GDPR one year after implementation, in pre-university education units in the country.*

Keywords: GDPR; educational institutions; personal data; protection.

Classification JEL: A12, O30, I21

1. Introduction

In a world governed by change, which is becoming more and more complex and connected, people are constantly looking to adapt and evolve. However, their basic needs remain the same. Analyzing the pyramid of human needs (figure 1), we can see the important place occupied by the need for security, material and mental protection. Starting from this primary need, people look for solutions to protect themselves from any external threats.

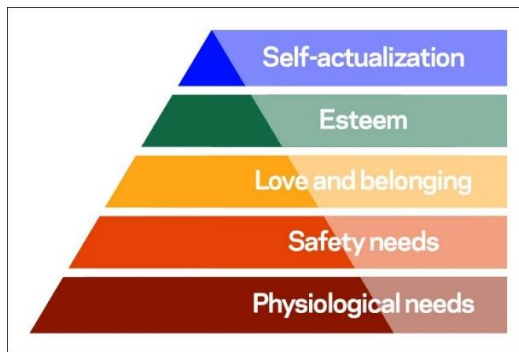


Figure 1: The pyramid of human needs

Source: www.simplypsychology.org

A recent concern for the security of individuals is related to the protection of personal data. Since two decades ago, the European Parliament has shown its involvement in the protection of such data by Directive 95/46 / EC, subsequently repealed by Regulation (EU) 2016/679 on the protection of individuals with regard to the processing of personal data and on the free movement of data. of these data (GDPR), applicable in Romania from May 25, 2018.

We will analyze, in the following, how schools have adapted to GDPR, the situations they face, the responsibilities of a data protection officer in a school and the impact that this Regulation has on all educational factors.

The first step taken by educational institutions in Romania after the application of GDPR was the appointment of a data protection officer, also called a data protection officer (DPO - data protection officer). Of course, choosing this person could not be a coincidence. In addition to personal qualities (integrity and ethics), it is ideal for a DPO to have some professional qualities, such as experience in data protection legislation and practices, knowledge of the organization and operation of the school, proper understanding of GDPR and knowledge of technology. computer science. Thus, from the first step, many schools also faced the first problem. Being a field with which they do not intersect every day, the teaching and non-teaching staff received this invitation with skepticism, not knowing if they will be able to adapt to the new legislative changes.

The work of a DPO in a school is voluntary, unpaid and involves a great responsibility, given the multitude of personal data processed. Its role is to advise and inform the director and employees of the educational institution about their obligations regarding the protection of personal data; to monitor compliance with the provisions of the GDPR in the institution and to continuously train employees, in order to adapt to legislative changes; to assume the role of contact person for situations involving the protection of personal data; to communicate with the National Authority for the Supervision of Personal Data Processing; to be involved in school activities properly and in a timely manner.

After the election and appointment of the DPO by the Board of Directors, by a decision, follows a training stage, by participating in training courses. The in-depth study of the Regulation and the Guide issued by the European Commission allows

the data protection officer to apply GDPR at school level, following three fundamental steps: ANALYSIS, IMPLEMENTATION, PRACTICE. Next, we will analyze each step and the impact on the school environment.

1. ANALYSIS

1.1. Personal data

The analysis first involves establishing the personal data that the school collects and processes: name and surname, citizenship / nationality, home / residence address, personal numerical code, date and place of birth, series and no. identity card, photo / video of the person, handwritten signature, e-mail address, telephone number, profession and job, marital status, education and training, school results.

1.2. Categories of people

The following are the categories of persons whose data are processed: students, parents, their legal representatives, other family members, candidates for national tests or exams, future students, teachers, auxiliary teachers and non-teaching staff in contractual relations with the school, candidates for competitions for positions in the education system, any natural or legal person who has commercial or contractual relations with the school.

1.3. Legal basis

As institutions of the MEN, schools "process personal data in accordance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, respectively of art. 6 para. (1) lit. b), c), d), e)", having the obligation to manage the data in secure conditions and only for the specified purposes.

1.4. Purpose of processing

The main purpose for which a school processes personal data is the provision of services in order to achieve the object of activity, namely, education and culture. At the same time, the data can be used for statistical analysis or processing, for substantiating educational management decisions or for archiving, according to the legislation in force. In cases where students benefit from school scholarships, the "Second Chance" program, the "Milk and Horn" program or other programs similarly, the purpose of processing is social protection. If the school is equipped with audio-video surveillance systems, the purpose of image processing is the security of people and monitoring access to public or private spaces. If the data subject has a service or commercial contract with the educational institution, the purpose is the financial-accounting records.

1.5. Motivation for processing

The motivation for which a school collects personal data is related to the need to have information on the basis of which some educational management decisions can be made. Although education in Romania is free, it is necessary for individuals to voluntarily provide some personal data and agree to their storage and processing. Otherwise, schools do not can initiate legal relationships, as they are unable to comply with certain regulations of the education system, and in the case of school employees, labor law and employment law fiscal. At the same time, for better communication with students and their representatives, some schools also collect data that is not mandatory, such as phone number or e-mail address. It can even be considered a security measure for school employees to have access to the phone number of parents / guardians in case of urgent situations involving the student. Schools can also carry out some statistical surveys, by applying online or telephone questionnaires, in order to improve the educational act. Parents who have given their consent to the processing of this optional data may at any time request the modification or deletion of the data. In the event of a refusal to provide, the school may only transmit information about its services directly.

In cases where persons are included in social protection programs, the provision of data is necessary for access to those categories of programs. For example, in order to receive free supplies, parents of students must prove by a certificate of salary / unemployment / social assistance that they do not exceed a certain income depending on the number of family members. Otherwise, they cannot benefit from that program. If the school concludes a contract with a natural person, and not a legal person (the data of legal persons are not considered personal data), data are processed in order to comply with the provisions on financial-accounting operations. The refusal of the person in question leads to the impossibility of the school unit to start legal relations.

1.6. Authorized persons and institutions

At the same stage, of analysis, it is necessary to identify the persons within the educational unit who have access to personal data and who process this data, but also the persons or institutions to whom the school can provide data. In a school, the physical security of documents containing personal data is very important, as not every employee should have access to any kind of data. The DPO, the secretary, the accountant, the institution and the management team generally have access to all personal data held by the school, both in physical and electronic format. The administrator and the computer scientist also have access to a certain category of data. Teachers have access to data regarding students and their parents / guardians, data that can be found in the catalog or in the electronic catalog (if applicable). Each school employee must sign a data confidentiality statement.

Schools have the obligation to provide personal data when requested by competent institutions, such as the Ministry of National Education, the County School

Inspectorate, the Teaching Staff House, I.T.M., A.N.A.F., A.J.O.F.M., Police, criminal investigation bodies, other school institutions, respecting legislative provisions.

In cases where personal data is requested by individuals or non-disabled institutions, the DPO will analyze the situation to see if the provisions of the GDPR are violated or not, will fill in the register a request form, will inform the head of the institution, the decision belonging to the latter.

1.7. The rights of data subjects

Educational establishments must take into account the rights of the persons whose personal data are processed and inform about these rights. The school undertakes to offer, first of all, the right of access to the data held, both to the students and to their parents / legal guardians.

Another right that must be taken into account is the right to rectify personal data. Individuals whose data is collected may request a change at any time, both to update information (for example: change of address, telephone number, marital status, family name) and to correct mistakes.

The right to data portability implies the possibility for the data subject to receive in a structured, electronic format all stored data, in order to be transmitted to another personal data controller (usually another school).

The right of deletion or the right to "be forgotten" implies that, in situations specifically regulated by law, the data subject may request the deletion of all data held by the school, which also means the withdrawal of consent to data processing. It should also be borne in mind that certain data are archived in accordance with the law and cannot be deleted. For example, school catalogs are archived for long periods of time, in order to be able to provide information about the school situation of a certain student, in a certain period, if the transcript cannot be accessed. Therefore, in such situations, the right of cancellation cannot be exercised. The regulation provides for several cases in which personal data cannot be deleted: they are necessary for the exercise of the right to freedom of expression; there are legal obligations that require data retention; there are reasons of public interest (purposes of scientific, statistical or historical research). Schools have the obligation to delete illegally collected data without the person's consent. In cases where a specific person requests the deletion of data, anonymization can be used. If the anonymized, encrypted or pseudonymized data may lead to the re-identification of the person, it remains personal data and is still covered by the GDPR. If personal data has been made anonymous so that the individual can no longer be identified, then it is no longer considered personal data. Other rights of data subjects are the right to lodge a complaint (if the provisions of the GDPR have not been complied with by the school), the right to object to the processing of data, the right to withdraw their consent to the processing of data or the right to anonymization of personal data by encryption or encryption.

1.8. Personal data processed in the computer system

GDPR protects both manually and automatically processed data with the help of computer systems. Regardless of the technique used: in an ICT system, by video surveillance or on literal media, the data processed by a school must be secured. In the age of technology it is almost impossible for personal data not to exist in the computer system of an educational institution. All student data are compulsorily entered in the Integrated Information System of Education in Romania (SIIIR). At the same time, employee data are entered in the payroll system (REVISAL). The data protection officer must ensure that this data is secure and cannot be accessed by anyone in the institution.

In many schools in Romania, electronic catalogs have been implemented, which allow parents / guardians to check the learning situation of students and their absences in real time, based on user and password. For example, if a student is absent from a course, the parent can be notified on the mobile phone, by text message or e-mail, in a very short time. This situation is valid only in the case of one's own child, and the situation of other students cannot be verified by the parent. Students' representatives must agree to the use of students' personal data on the electronic platform. In case of contract, they cannot benefit from the service described. At the same time, the operators that offer to the school, by contract, this electronic platform must declare that they will not use the database for direct marketing purposes or for other purposes. The DPO must ensure that there are data protection and confidentiality clauses with all third parties with whom the school enters into contracts, in order to assume their responsibility for remote access.

Both a school's website and employees' e-mail addresses must operate on their own domain, owned by the school. Very few schools have complied with these regulations, although the risk of information leakage would be much lower. Employees should not use their personal telephone number or e-mail address in the course of their duties. At the conclusion of the employment / management contract, the telephone and e-mail of the service, non-personal data, must be transferred to the new job holder.

Employees must use the computers provided by the school, holding a dedicated administrator account, as well as a password consisting of at least 8 characters (numbers, letters, symbols and at least one capital letter). These measures do not allow information to leak into the internal or external environment. It is ideal that the Internet access is wired, and if it is wireless, there is a password. It is recommended to uninstall personal software, such as Yahoo Messenger, Orange, etc., which are not related to the activity carried out in the school. The operating systems, antivirus and other programs used must be licensed and require daily up-to-date data. The printers do not have to be in a place of access for the general public, being ideal to be in the same office / same classroom as the terminal.

The person in charge of data protection, together with the institution's computer scientist, must ensure the mapping of the computer systems. If there is a server, the information that is sent to it must be encrypted. All computers in the institution must be networked to the server managed by an external provider. It is recommended to

perform daily backups on the institution's server. The establishment of the degree of information security, the data circuit in the institution and the period of storage of personal data in the computer system must be taken into account.

2. IMPLEMENTATIONS

2.1. Elaboration of the internal regulation on data protection

In order to properly implement the GDPR in the school, the DPO will process an internal regulation on the protection of personal data. This regulation must be known by all employees of the institution, but also by its beneficiaries, being displayed both in the school and on the official website of the school. The regulation should contain some important aspects that refer to the application of the GDPR, namely: general information about personal data; categories of people; the purpose of collection and processing; motivation for collection and processing; parties who have access to personal information; the rights of persons whose personal data are collected and / or processed; special data processing; the use of electronic means of communication in the course of work; breach of personal data security. The regulation must be presented to the Teachers' Council and approved by the Board of Directors.

2.2. Obtaining data processing agreement from employees

At the implementation stage, the data protection officer must draw up an agreement for the processing of employees' personal data by the institution. This agreement must be signed in duplicate by the person concerned. One of the copies will remain with the employee, the other being submitted in a dedicated GDPR file of the DPO. Employees must declare that they have taken note of the provisions of Regulation (EU) 2016/679 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and that they agree as an educational institution, as an employer, to store and process the personal data referred to in that agreement (in general, these are first and last name, nationality, domicile / residence address, personal numerical code, date and place of birth, series and number of identity document, photograph / filming, handwritten signature, e-mail address, telephone number, profession and job, marital status, education and training). In the same statement, employees must specify whether or not they want the name, image and footage to be published on the school's website or website. The educational institution has the obligation to inform the employees about the purpose of data processing and the period of their storage. Usually, the period corresponds to the duration of the employment contract that the employee has with the school, subsequently being stored only the data required by the legislation in force. Employees should also be informed about their personal data protection rights (point 2.1.7.), As well as the institutions or persons who may have access to the data.

2.3. Training of school staff

The Data Protection Officer is responsible for instructing all school staff, including the management team, on Regulation (EU) 2016/679 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. The training is done periodically, both in the implementation phase and in the implementation phase. The DPO must be constantly connected to the new legislation in order to inform the leaders of the school and its employees. The first training involves the presentation of the Regulation and the specific situations of the school to be followed, in order to apply the legislation. Employees need to know what personal data is, what kind of data is processed by the school, what sensitive data is, who has access to this data, what is the legal basis for processing, for what purposes the data is processed, what institutions or persons are empowered to obtain data stored by the school, which involves a violation of the Regulation, how a deviation from it can be notified, what are the risks of data protection in a school and what measures should be taken to prevent information leakage. In turn, teachers have the obligation to disseminate this information to students and their representatives.

2.4. Preparation of employee privacy statements

After completing the first training, the DPO must draw up a confidentiality statement for the institution's employees, in which they assume the assurance of data security, in accordance with the GDPR. As teachers and non-teaching staff have access to personal data of students and parents, they must disclose personal data only to the persons concerned and process them only in relation to the requirements of the job description or the employer. Employees are required to notify the Data Protection Officer in the event of any breach of the Regulation or security incidents.

2.5. Obtaining the data processing agreement from the beneficiaries of the institution

Since enrolling the student in school, some mandatory documents are required that constitute the enrollment file, such as a copy of the identity card of the legal representative or the birth certificate of the student. Thus, if the beneficiaries do not agree to make these documents available, they cannot conclude an educational contract with the respective school.

Next, the DPO will develop the agreement for the processing of personal data for the beneficiaries of the school institution - students and parents. If students are over 16 years old, they can sign the declaration for data processing. In the case of a contract, when the students are still minors, the agreement must be signed by their legal representatives.

The agreement implies the acknowledgment of the provisions of the GDPR and the consent for the processing of the specified personal data, by the institution. In general, the data of students and parents processed in a school are name and surname, citizenship / nationality, home / residence address, personal numerical code, date and

place of birth, series and no. identity card, photo / filming, handwritten signature, e-mail address, telephone number, profession and job, marital status, education and training, school results. The data subjects must express their agreement / disagreement regarding the publication of the name / image / filming on the social / web page of the school, as well as the agreement / disagreement for uploading the data in the electronic catalog.

The school has the obligation to inform the beneficiaries about the purpose of the processing, the duration of the processing (usually corresponding to the period of the educational contract), the persons and institutions that may have access to the stored data, as well as their data protection rights.

2.6. Posting the rules and statements on the school website

Schools that have a website can publish the internal regulations on personal data protection and the specific declarations / agreements, for a better transparency and a complete picture of how the GDPR is applied in the respective unit. It is necessary for all beneficiaries of the educational institution, direct and indirect, to know that the institution collects and processes personal data in accordance with the GDPR.



Figure 2: Steps to applying GDPR in schools
Source: own editing

3. PRACTICE

3.1. Responsibilities of the DPO

The commissioning in practice phase is the most complex as the protection of personal data requires attention every day, not just periodically. The school is an institution that processes personal data daily, so the DPO and the employees of the institution must know very well and apply the provisions of the GDPR to avoid security incidents. At the implementation stage, the data protection officer must periodically train school staff on any new legislation or changes to the rules of procedure. The DPO must keep a register for all external requests to take over data collected by the school. His responsibilities include involvement in all aspects of personal data protection; keeping all access codes and passwords confidential; advising and guiding the director of the institution; responsibility for the guidance

and information provided; permanent monitoring of compliance with the Regulation; cooperation with the National Authority for the Supervision of Personal Data Processing; elaboration of an annual activity report; any other activity deriving from the application of the Regulation.

In order to minimize the risks of security incidents, the DPO may develop certain operational procedures or internal policies, which must be disseminated both in the training of staff and in the online environment, on the school's website.

3.2. Personal data management policy

The educational institution has the obligation to make every effort to ensure the correct management of all personal data collected, regardless of the storage method (catalog, enrollment register, online catalog, SIIIR, etc.). Both the head of the institution and the DPO and employees must process personal data securely, limiting the access of unauthorized persons. Any security incident can have negative consequences for the rights of data subjects, as well as damage to the image of the school. Anyone with access to personal data processed by the school must know, understand and apply the GDPR principles.

There are certain principles of personal data processing, clearly set out in the Regulation: they must be processed transparently, fairly and legally; their processing must be determined by an explicit and legitimate purpose, and may not be further processed for purposes other than those mentioned; the data must be limited to what is necessary in relation to the purpose of the processing, without being processed and unnecessary data, which do not serve the purpose; the data must be real / accurate, and can be updated when necessary; not to be kept longer than necessary or provided by law; be insured against illegal loss / destruction / damage / processing, by taking appropriate organizational or technical measures; be processed in accordance with the human rights of the GDPR; not be transmitted outside the European Economic Area.

Regarding the storage and access to personal data, the school will ensure that the computer system used is secure. Each employee will receive a username and password that will be changed periodically. The computer system will hang if not used for a few minutes. In exceptional cases, personal data may be encrypted or pseudonymized. All storage media will be secured to prevent data theft / degradation / loss. If the data is stored on portable devices, these devices will be password secured, and after the end of the storage period, the data will be permanently deleted. It is recommended to use systems with two identification factors (token, sms, etc.). The data will be transmitted to third parties (individuals or institutions) only if this is in accordance with the law and the rights of students / parents.

Failure to comply with these procedures regarding the management of personal data may lead to disciplinary sanctions or termination of the employment contract for employees, termination of contracts for employees, taking legal action to recover the image damage caused to the school.

In conclusion

The application of Regulation (EU) 2016/679 on the protection of individuals with regard to the processing of personal data and on the free movement of such data has proven to be a challenge for pre-university education institutions in Romania.

The multitude of personal data collected and processed in a school, the development of information systems and the extent that life in the online environment has gained, lead to a number of difficulties that schools face in implementing GDPR.

Unfortunately, more than a year after the application of the Regulation in Romania, many schools are foreign to its provisions, not yet implementing procedures or policies in this regard. Specialists consider schools to be "safe areas", from which personal information "does not come out". Although, until now, the National Authority for the Supervision of Personal Data Processing has not imposed fines for school institutions, this should not become a general rule for schools to get used to. In fact, the school must train students as future independent citizens and adaptable to present and future social requirements. The importance of privacy and the protection of personal data are topics that need to be discussed with students from school age, in order to allow them later to make decisions about the personal information to be disclosed, under what conditions and to whom.

As education is based on data, all schools should comply with the GDPR, creating a uniform European legal framework for the protection of data confidentiality of all EU citizens.

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PERFORMANCE APPROACH OF EUROPEAN UNION FUNDED WORKS CONTRACTS IN ROMANIA, A CASE STUDY

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Abstract: *Wasting money in public contracts is a problem that can be addressed by encouraging dialogue, changes of experience and improving stakeholders' knowledge. This case study objectives are to observe, interpret and disseminate how performance interrelates with beneficiaries of EU financed works contracts decisions and activities, in all three aspects of performance, from selecting, prioritizing and approving a future investment, until adjusting works contract values as effect of actual overlapped crisis. This exploratory case study is based on researchers' observation of a public authority behavior patterns in the context of multiple works EU financed contracts implementation in the period 2019 – 2022, so that answers could be formulated at four research questions, as for seizing weaknesses of decision process related activities that could impact performance. Conclusions are based on identified weaknesses description, and are aimed to support future public investments related research in focusing on new detailed aspects of this area, and also the public beneficiaries designated staff, financial managers and accountants, in accurately future planning activities that support decisions on selecting, prioritizing, and assessing feasibility to improve performance of the locally EU financed works contracts.*

Keywords: *performance; feasibility; work contracts; value adjustment; COVID 19 crisis.*

JEL Classification: *D73; H72; H83.*

1. INTRODUCTION

The problem of wasting money in EU financed public works contracts, related procedures and events is real and a constant subject in media, various examples such as: inappropriate financed investment projects, inappropriate external conditions, inappropriate or very expensive investments or investment components, increasing prices of works contracts during implementation be adding new works or changing solutions and materials, inappropriate implementation procedures, etc.

Wasting money in public contracts is often a subject of in deep verifications performed by designated institutions. As number of demonstrated fraud cases is practically null compared to all population, it may be concluded that in most of the cases there is not a criminal intention, but errors, irregularities. As observed, errors are due to lack of experience, unprepared or hesitating personnel facing realities of investments implementation stages, or overloaded personnel. Errors may occur along all project cycle, starting from initial stages of conceiving the investment idea until the final payment of the works, after investment completion. Identifying implementation errors by strict observation of investment implementation is

equivalent, in this case study purposes, with identifying implementation system weaknesses.

The case study objectives are to observe, interpret and disseminate how investments are implemented, with regard to economy, efficiency and effectiveness all along their project cycle. Conclusions are drawn on identified weaknesses for each step of the observed project cycle: selecting, prioritizing and analyzing feasibility. Connecting by interpretation investment activities with the principles of economy, efficiency and effectiveness, drawn conclusions are relevant to the identified problem and may also become relevant through dissemination to involved parties as well, including authority personnel.

To ensure the usefulness of this study case in the present conditions of EU financed contracts implementation (COVID 19, increased prices for materials, inflation, war), in the final part is analyzed and presented from performance (economy) perspective the alternative of applying the newest legislation in force for a works contract in two scenarios: updating the contract value by using the actual legal provisions or terminating the contract followed by organizing a new procurement procedure for the remaining unfinished works.

2. LITERATURE REVIEW

Performance in public investments is a constant of developed societies, belonging to the part of the world that is conducted by democratic rules. Clear set of performance related rules are set in place by governments and professionals as well. Performance is linking through the principle of sound financial management the economy, efficiency and effectiveness with objectives, results and indicators all project cycle and all existing national and European rules agree to that. According these rules, performance is described by the means of the three principles of economy, efficiency and effectiveness, while appropriations should focus on performance, and be used only for programs with ex-ante established objectives, whose achievement should be monitored with the use of performance indicators. Objectives should be SMART and the correspondent indicators should be relevant, accepted, credible, easy and robust. A number of published research are studying the relations that should exist between projects and performance, in a theoretically or more practically manner. For instance, in (Stoica, 2011), is theoretically describing the way that performance should track all investment implementation stages, and other researchers such as (Dumitrescu A, 2012) are outlying the needed strengthen between performance audit and accounting in collecting audit data. Some articles were also published reflecting performance related concerns of EU funded contracts, investigating qualitative aspects and concluding about: projects internal control environment for performance (Dănescu and Dogar, 2012), management accounting instruments for performance (Dogar, 2012), internal control under the perspective of COSO's convergences with the projects internal controls in some cases of European Social Fund financed projects in Romania (Dănescu et al., 2013). Some published articles presented quantitative methods to assist in assessing performance such as: allocation of public resources related to number of trainees (Dogar and Kelemen, 2010), use of quantitative

methods for sound financial management decisions in Romanian European Social Fund implementation (Dogar and Mare, 2014 a), and also a “what if” analysis for sound financial management decisions in Romanian European Social Fund grants evaluation (Dogar and Mare, 2014 b).

3. RESEARCH METHODOLOGY

This exploratory case study is based on researchers’ observation of multiple works EU financed contracts implementation, being focused on understanding how such contracts are locally planned and conducted, focusing on the Romanian local authorities’ behavior patterns in the context of both national and managing authority specific rules and regulations with the general aim of seizing weaknesses that should be further theoretically and practically addressed for an improved performance of EU works contracts implementation in Romania. In the described context, the author’s observations were oriented for answers to be formulated at the following research questions, each of them addressing a certain stage of investment cycle:

- Is performance taken into consideration when selecting among several public investment options?
- Is there a real connection among public investment components, values and indicators considered by local authority when taking the investment related decisions?
- Are there contingency reserves taken into consideration when approving public investments?
- How can a works contract value be fairly adjusted, in the present context of financial and COVID 19 crisis?

Being largely qualitative, and subjective by its own nature, this case study is based on observation and interpretation of facts and data generated in financial management of ten works contracts, all in implementation in the period of 2019 – 2022, with values between 0.4 and 7 million Euros, financially managed by a single local authority within the 2014 – 2020 Regional Operational Program. Most of the cycle of these contracts has been observed, starting from the early stages of conception notes creation, feasibility studies, to forecasting and budgeting, until some final payments, including also how new regulations on adjusting prices due to financial and COVID 19 crisis are to be applied. Public procurement procedures of these contracts, including contracting, were not included in this study because of their presumed low impact on implementation performance.

In a theoretically approach, these case study conclusions could build cases for possible new quantitative and qualitative researches, but in a practically one, conclusions should be used by stakeholders to improve financial management of EU financed works contract related activities. Even if observed facts and data used are coming from ten works contracts, generalizing conclusions to a larger population (contracts and local authorities) should not be considered by default, but only after an extended and detailed future research.

4. RESULTS AND DISCUSSIONS

A performance approach is presented below for each of the instances the four research questions are referring to, compared with related observed activities in the local authority, conclusions being presented in the dedicated section as answers to the four mentioned questions.

4.1. Performance approaches, from the concept note to the feasibility study.

Any local investment involving usage of public money must be justified by and correlated to the added value of the services the local authority is providing to its inhabitants. Because financial resources are always limited, the beneficiary must prioritize all potential investments, taking into consideration all possible sources of financing, including available European funding. For example, if there are four schools in the city that need rehabilitation, but clearly financial resources can be accessed only for two, a decision must be made by prioritizing the added value that each of the four investments will bring to the city, being selected, naturally, only the two schools that can bring the greatest future economic and social benefits to the local community, in the conditions of reasonable related costs. The added value should therefore be quantified as early as possible in the decision-making process, so that the requested funding meets the imposed performance criteria of the public money use, namely the economy, efficiency and effectiveness.

In order to optimize the use of public money, the local decider should frame the concept note or design theme, as appropriate, to the guidelines described in the local development strategy or in a document of similar value, approved by the Local Council. If there are investments likely to bring significant added value to the community, and they cannot be framed into the local strategic documents, it is clear that it is time to bring the strategy or similar document to current realities. In this way, both the locality, on behalf of its inhabitants, and the auditors of the Court of Accounts as well, are assured that the proposed investment was previously analyzed in terms of opportunity.

The decision makers should request an estimate of investment value to their own services, from the early stage of drawing the conceptual note, as a first action in the sense of future investment planning. Without such an estimate, based on the past experiences of their own competent staff, any evaluation of the cost / efficiency ratio to prioritize investments is extremely difficult. For example, in the case of the four schools that could be rehabilitated, the situation of the value of the works and the number of students who will benefit for each school are included in the following table (table no.1).

Table 1: Ranking investments by taking into consideration the cost/efficiency ratio

| School number | Estimate value of works | Number of students, future beneficiaries of the improved services in the modernized school | cost / efficiency ratio | Rank |
|---------------|-------------------------|--|-------------------------|---------|
| No. 1 | 10,000,000.00 | 400 | 25,000 | 3 |
| No. 2 | 8,000,000.00 | 350 | 22,857 | 2 |
| No. 3 | 11,000,000.00 | 300 | 36,666 | 4 |
| No. 4 | 4,000,000.00 | 200 | 20,000 | 1 |
| | 33,000,000.00 | 1250 | 26,400 | Average |

Source: implementation data

Although from a social perspective, in a strictly quantitative analysis, based only on the number of students in schools and without taking in consideration investment costs, in the example above schools no.1 and no.2 would be more entitled to benefit from rehabilitation and modernization measures as a result of the higher number of beneficiaries, but from the perspective of using public money, schools no.4 and no.2 would be the most justified, here less money will be spent for one beneficiary (student) to provide in the future educational public services of improved quality. Even if presented model can attract by simplicity, the decision regarding the prioritization of investments is always difficult, this being rarely justified strictly numerically. If the greater social impact of the rehabilitation of school no. 1 would be desired by the decision maker, considering that the inhabitants would appreciate more the rehabilitation of an appreciated school in the city center than one on the outskirts, he should either carefully analyze the formation of the estimated value of proposed rehabilitations, in purpose of reducing certain non-essential works, or to broaden the analysis horizon to a larger quality, addressing indicators of effectiveness, instead of efficiency. Considering this type of indicators ranking will change significantly in the favor of the most appreciate school in town, school no.1, as described in the table bellow (table no.2).

Table 2 Ranking investments by considering the cost/effectiveness ratio

| School number | Estimate value of works | Number of past 10 years students, continuing in University | cost/ effectiveness ratio | Rank |
|---------------|-------------------------|--|---------------------------|---------|
| No. 1 | 10,000,000.00 | 3,800 | 2,631 | 1 |
| No. 2 | 8,000,000.00 | 2,500 | 3,200 | 2 |
| No. 3 | 11,000,000.00 | 1,000 | 11,000 | 4 |
| No. 4 | 4,000,000.00 | 600 | 6,666 | 3 |
| | 33,000,000.00 | 7,900 | 4,177 | Average |

Source: implementation data

This shift from efficiency to effectiveness could introduce the issue of not ensuring equal opportunities for all students in the city, because those with better results will

be funded against of those with poorer results. The role of the decision maker will also be to explain to the students and parents of the two eliminated schools why the funding will be used only for the two schools in the city center, a possible answer being that limited resources were directed mainly to provide a competitive local educational service, and in the coming years the schools on the outskirts will be also modernized.

In fact, all decisions in the primary stage of selection of a project belongs to Mayor's office, a list of proposed investments is drafted and then subject of local inner or larger debates. The citizens' opinion is very important factor in discussions, each project investment being justified by previous discussions with possible affected citizens. Once financial sources are identified for these investments, based on expenditures eligibility criteria, some of the investments ideas are abandoned, and others are move in front of the list, the top investment structure becoming clearer.

4.2. Feasibility, a clear recommendation on the most financially and economically justified, technical solution

A substantiation of the investment value on quantities of works related to concrete scenarios is clearly necessary in order to motivate a decision on accepting or rejecting the investment. In the feasibility study, the designer explores different scenarios of achieving the investment's objective, starting from the purpose of the investment. There are analyzed, in the sense of optimization, various scenarios through which the investment will be able to produce the estimated effects. A minimum of two scenarios comparison must be formalized within the document, the conclusion of the study must offer to decider the investment's most advantageous technical solution, justified both financially and economically. For the recommended scenario, a general estimate of works value together with a draft of its execution stages should also be presented.

The financial analysis should show for each of the proposed scenarios what are the internal rate of return and the discounted net values, calculated for a reference period specific to each type of investment, using as input data income and expenses (sustainability costs) of a financial nature, the investment value, as well as the residual investment value at the end of the considered reference period. The economic analysis follows the financial analysis pattern but includes shadow income and expenditures monetizing so a large range of estimate future social and economic benefits of the local community. In order to properly justify the investment, the values resulting from the economic indicators are compared with those of the desired investment area, thus being able to achieve a new prioritization of investments, a much more substantiated one. To ensure the accuracy of the analysis, revenues and expenses should not be overestimated or underestimated. In purpose of a sound comparison between investments of the same type, unit rates of costs and income should not be different, and economic and social future benefits should be estimated in a homogeneous manner.

In fact, the feasibility study, a mandatory document for an investment to be implemented, is contracted by the Mayor's office first after a prioritizing decision

has been taken. Usually contracting this study is connected to the time financial opportunity became available, so the study's author has a short time for its completion. He receives the needed documents from the Mayor's office and also a list of eligible expenditures, in order to propose as less as possible of non eligible expenditures, and as more as possible of eligible ones, in order to support an investment Mayor's Office could be proud on. No discussions about investment sustainability are held in this phase, only those related to parts of investment that should be add or let down, related to maximum value of a financing project and expenditures eligibility criteria.

4.3. Works contracts contingencies and overestimations

Documents presented by the feasibility study's author are later approved by the Local Council and the general estimate provides the value used for budgeting and furthermore in all competitive procedures to be launched for acquiring works, goods and services for investment completion. According to relevant law, the feasibility study general estimate should include a contingency legal reserve of up to 10% for new investments and up to 15% for modernization works.

Competitive procurement procedures are used for works and goods contracts, and generally contracts are concluded at lower value compared to estimation, so an overestimation can be observed about values in the feasibility study. The average overestimation is calculated for six roads, author engineer 1 (table no.3) and three schools rehabilitation contracts, author engineer 2 (table no. 4), so two authors, explaining the difference between the two averages. Differences could be also observed in case of contingency reserves, an average of these is about 2% for designer 1 and about 5% in case of general estimates proposed by designer 2

Table 3 overestimation of costs in feasibility study, roads, studies author no.1

| Contract road no: | General estimate value (in feasibility study) | Contingency (% of total general estimate) | Works contract value | Overestimation (% of works gen. estimate) |
|--------------------------|--|--|-----------------------------|--|
| 1 | 22,481,514.21 | 2.19% | 22,414,068.88 | 0.30% |
| 2 | 20,016,806.00 | 1.46% | 18,941,526.85 | 5.37% |
| 3 | 32,498,696.34 | 0.86% | 32,433,698.71 | 0.20% |
| 4 | 18,994,134.43 | 2.81% | 18,994,134.42 | 0.00% |
| 5 | 11,657,939.49 | 7.67% | 11,590,604.57 | 0.58% |
| 6 | 11,174,747.38 | 1.69% | 10,940,672.93 | 2.09% |
| Total | 116,823,837.85 | 2.09% | 115,314,706.36 | 1.29% |

Source: implementation data

Table 4 overestimation of costs in feasibility study, schools, studies author no. 2

| Contract school no: | General estimate value (in feasibility study) | Contingency (% of total general estimate) | Works contract value | Overestimation (% of works gen. estimate) |
|---------------------|---|---|----------------------|---|
| 1 | 8,106,843.75 | 4.66% | 7,178,469.84 | 11.45% |
| 2 | 2,604,863.21 | 7.79% | 2,310,534.10 | 11.30% |
| 3 | 1,874,144.73 | 4.35% | 1,705,145.52 | 9.02% |
| Total | 12,585,851.69 | 5.16% | 11,194,149.46 | 11.06% |

Source: implementation data

Even if in terms of sound financial management overestimation and contingencies are to be avoided, in terms of risk management those those should be consider for future price updates due to external factors such as: inflation, construction materials market and labor costs significant fluctuations, as long as the financing contract is concluded at the feasibility study value, without a further correction corresponding to overestimations.

In fact, when receiving the feasibility study, the overestimation is not intended or checked, but neither the contingency reserve. The small amount of contingency, due sometimes on applicable maximum value of a grant, could induce financial risks in contract implementation such as the effects of the actual overlaying crisis.

4.4. Adjusting values, from supplementary works to the effect of legal environment change

In some cases, works contracts may support minor changes, due to on-site modifications approved by the engineer, referring to small additional works that couldn't been foreseen at the moment when the technical was elaborated. Economies realized in goods and services procurement can so be moved within the budget, to support an adjusted value of the works.

As effect of overlapped crisis, the State recognized those effects on works contracts values and issued a new legal framework for adjusting contract values. The new law provides also a path in adjusting contract value for not yet concluded contracts, being in acquisition procedure or less, in state of feasibility study – general estimate, even as an effect of old contract termination, case in which the rest of works will be subject of a new competitive procurement procedure.

Forecasting contracts value using updating formulas in the law is presented in the case of a road contract yet not started by various reasons. The options the local authority has are to continue in the existing contract or to terminate it and to organize a new procurement procedure, both valid options in the new law. For the first option of continuing contract the formula in the law returns an adjustment percentage of 9.75%, as calculated in the table below (table no.5). In the second option, (table no. 6) adjustment has to be applied to the general estimate of remaining works (in this case entire initial contract works).

Table 5 Adjustment calculus for a works contract not started, intended to continue

| EGO 64 art. 17 letter. a.1) continuing contract | Dates | Values |
|--|--------------|---------------|
| Total value of works contract | | 22,414,068.88 |
| Value of payment request | | 22,414,068.88 |
| From which are construction materials | | 7,998,855.53 |
| % of advance payments in works contract | | 30.00% |
| % of expected contractor profit (from financial offer) | | 1.00% |
| Works type – eng. constructions, capital repairs % | | 33.89% |
| Works total cost index, published | 24-Feb-22 | 166.00 |
| Works total cost index, forecast | 1-Jan-21 | 139.64 |
| Works tot. cost index for constr. mat. cost, realized | 24-Feb-22 | 158.90 |
| Works tot. C. i. for constr. mat. cost, at the ref. date | 1-Jan-21 | 135.70 |
| Updated value of the payment request | | 24,598,951.63 |
| Adjustment value (part of the implem. reserve) | | 2,184,882.75 |
| Adjustment percentage | | 9.75% |
| Maximum allowed adjustment percentage | | 50% |

Source: implementation data

Table 6 Adjustment on case of re-launching competitive procurement procedure

| EGO 64 chapter V art. 19 (2) re-launching competitive procurement procedure | Values |
|--|---------------|
| General estimate value | 22,414,068.88 |
| Index 2019 - 2022 | 122.12% |
| General estimate value adjusted to January 2022 | 27,372,060.92 |
| Index adjustment works until 2023 | 113.87% |
| Updated value of the payment request | 31,168,565.77 |
| Adjustment percentage | 39% |
| Maximum allowed adjustment percentage | 50% |

Source: implementation data

Law can be so implemented in two ways, in different economy approaches: the first in which the existing contractor continues the works and for this will be entitled to contract value adjustments of 9.75% (table no. 5), and the second in which this contract will be terminated and a new competitive procedure will be launched with an adjusted general estimate with 22.12% and an expected future adjustment of 13.87% until 2023 when the works would be finished (table no.6). The difference between 9.75% and 39% is enormous, and the decider should carefully justify a decision that could induce those supplementary costs legally, by terminating the existing contract.

In fact all small project modification are accepted within the average limit of 2% of the initial works contract value, so this is no significantly impacting on contracts sound financial management. The new laws introduce complementary alternatives on managing contracts that allows public authority in choosing what's best for investment's implementation, continuing with existing works contracts or even terminating them, in favor of new public procurement procedure. The public authority did not announce a decision for the above mentioned case.

5. IN CONCLUSION

Unfortunately, in practice, the Mayor's office is deciding about selecting and prioritizing investments in base of previous discussions with citizens, related to the financial source that could finance the investment, without organizing in this phase larger debates, so it can be concluded that performance is seldom considerate in selecting and prioritizing investments. In this respect, public authority should improve the quality of preparatory activities in decision making of selecting and prioritizing investments refining the analyses so those should shift from the actual estimation of social impact or efficiency to effectiveness (conclusion no.1).

More than a mandatory document, the feasibility study should be seen and used by the decider as an instrument in selecting the most appropriate technical and economic scenario for implementing investments. Unfortunately, in most of the cases the feasibility studies are simply seen more as documents responding to a mandatory formality, instead of detailed analysis and justifications of the most viable solution for future investments. It can be so concluded that even connection among public investment components, values and indicators could be shortly described in some feasibility studies, these are not taken into consideration on investment decision. In this respect, the public authority should develop competencies in verifying all content of the feasibility study, for a better justification of those parts of an investment that are really needed correlated with program indicators and expected investment results, or to actively contribute to a better justification of investments. Such competencies should allow the public authority to understand the implication of sustainability, in terms of new needed personnel to manage the investment and the future expenditures related to investment future operations (conclusion no.2).

The general estimates are not checked against the contingencies limits. In all observed cases contingencies are less than the legal limits of 15% (as averages of 2.09% in case of roads and 5.16% in schools, modernization projects). This induces difficulties in investments implementation and pressure on local budget. If there is no a maximum value limit rule, or a similar rule that could prevent high limits of contingencies, these should be at the higher limit, in order to allow public authority to face external risks. It can be so concluded that public authority fails in assuring appropriate contingency reserves, never taking into consideration to ask to the feasibility studies authors to include these into the general estimates values (conclusion no.3).

Contract value adjustments are to be decided according to law provisions, even if adjusted prices are not increasing until the market value level. In some of these cases termination of contracts becomes mandatory. The law states that increasing values can be done only if the contractor presents evidence of increased material prices for significant positions of the estimates. It can be concluded that if increasing price of the works, as effect of overlapped crisis could not be covered by the 9.75% and also with amounts contractor may accept to diminish his indirect costs or profit, the only fair way to continue investment is to accept a contract termination request. A new

procurement procedure may lead to a new contract value closer to the actual market realities, or to a situation of terminating the EU funded contract if none of the bidders are accepted, caused by the short period of time until payments may be reimbursed in this financial period (31st of December 2023), and the practical impossibility of reopening and conducting a second public procedure in the remain time, including works finalization (conclusion no.4).

As a summarizing conclusion of this case study, acknowledging that in just a small fraction of cases criminal intention has been retained, wasting money in public contracts is a major problem, due mainly to inexperienced and unprepared involved personnel conducting unprocured investment activities with low interest on performance. Actions should be undertaken by local authorities in renewing and training personnel, in creating dedicated procedures and also in improving controls by means of internal audit.

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INTELLECTUAL CAPITAL ACCOUNTING - A CHALLENGE OF MODERN ACCOUNTING

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Abstract: *In the context of the new global knowledge economy, hidden intangible assets (intellectual capital) have become the main generator of added economic value and the one that creates significant competitive advantages in the business world, but traditional valuation and accounting methods, in addition to referring only to past issues, they fail to provide concrete solutions regarding the valuation and accounting of all intangible assets generating value and competitive advantages of contemporary enterprises. This study aims to show the importance of hidden intangible assets (intellectual capital) in the knowledge economy, what are the modern methods of valuing and accounting for them and to what extent these methods manage to provide solutions to the reported valuation and accounting difficulties.*

Keywords: *hidden intangible assets, intellectual capital, accounting, valuation, market value*

JEL classification: *M41 - Accounting*

1. Introduction

Since the second half of the twentieth century, the world economy has evolved on the basis of new global events, or in other words, on the basis of objective circumstances and subjective factors, which have finally marked a new stage, which is clearly different from the previous Industrial Revolution. The main element that differentiates between the so-called Industrial Age and the Age of Knowledge is the predominant role and the growing relevance of intangible elements such as intellectual capital in the process of creating value in enterprises.

If until then the economy of the industrial era crowned tangible elements as the absolute source of value for enterprises, the current economy is based on the development of human skills, infrastructure to maintain, facilitate and develop these skills, communications, computer science, robotics, multimedia networks and new concepts such as: intellectual capital, human resources management, knowledge, strategic planning, etc., proposing the crowning of intellectual capital as the main source of value creation.

Intellectual capital is the golden resource of any economic entity. Financial analysts, firm appraisers, and intangible assets tried to determine the value of intellectual capital in an economic entity over time? Information and knowledge in the creative economy are the engine of the new economy. Knowledge is the most important raw material of modern production. The off-balance sheet value or “hidden value” represents the largest share of the market value of listed companies (Crețu, 2017).

2. Intellectual capital in accounting

Intellectual capital is a complex of intangible resources and capabilities, based on individual and collective knowledge that a company owns and controls at a certain time well defined in time, and can be a source of development and facilitation of competitive advantage. There are three strategic areas of business where intellectual capital needs to be found or generated, namely: people, structure and customers. Based on these three factors, intellectual capital is usually divided into: human capital, structural capital and relational capital. Human capital depends on the competence, intellectual ability and skills of the members of the organization concerned. Structural capital is the infrastructure of human capital, including organizational capabilities to adapt to market needs. Relational capital is represented by the company’s relations with all its collaborators.

Edvinsson and Malone (Edvinsson and Malone, 1999) define intellectual capital as the possession of knowledge, applied experience, organizational technology, customer relationships and professional skills that give a competitive advantage in the market. Nevado and López (Nevado and López, 2002) talk about intellectual capital as total assets of a firm, even if not reflected in traditional financial statements, generate or will generate value for the company in the future, and consequence of the issues related to human capital and the structural: the capacity of innovation, customer relations, quality of processes, products and services, cultural and communicational capital, which allows a company or organization to take better advantage of opportunities, giving birth to generation of future benefits.

Intellectual capital is not recognized in the current financial statements because the criteria for defining and recognizing assets currently established are quite restrictive and there are very few assets that can meet them, according to IAS 38-2021, intangible assets must meet the following conditions:

- 1) Controlled by the entity as a result of past events;
- 2) From which future benefits are expected to affect the entity;
- 3) Identifiable:
 - (i) Separable, i.e. they can be separated and divided by the entity and sold, transferred, authorized, leased or exchanged, either individually or together with a contract, a corresponding asset or liability; or
 - (ii) It arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or other rights and obligations.
 - 1) Future benefits attributable to the asset are likely to accrue to the entity; and
 - 2) The cost of an asset can be measured reliably.

Even the *Basis for Findings in IAS 38 - Intangible Assets (IAS 3, 2021)* recognizes

that there have been major investments in intangible assets in recent decades. There have been complaints that:

- i) The non-recognition of investments in intangible assets in the financial statements distorts the evaluation of the performance of an enterprise and does not allow a correct evaluation of the return on investments in intangible assets; and
- ii) If the companies do not follow better the return on investments in intangible assets, there is a risk of an excess or deficit of investments in important assets. An accounting system that encourages such behaviour will become an increasingly inadequate signal, both for internal control and external purposes.

The booking of the intellectual capital begins to be recognized as one of the biggest challenges of the modern accounting. The current accounting is based on the principles of the double match, guaranteeing equilibrium between active and passive. The accounting of the intellectual capital is not based on the system of the double match and does not guarantee the equilibrium between active and passive (Radu and Gîju, 2012). The traditional accounting system is based on historical perspective and uses only financial measures that allow accurate calculation of results. If we include in our financial statements the information on intellectual capital, we are in conflict with the international accounting standards in force.

Due to this fact, it is not possible to include in the current financial statements only if it is presented in the form of an annex to the current financial statements, the appendix that we will call “The situation of hidden intangible assets (intellectual capital)”.

The situation of hidden intangible assets (intellectual capital) should include information such as (Starovic and Marr, 2004):

- i. A brief description of the company
- ii. Challenges and actions of the company’s management
- iii. A set of financial and non-financial indicators

The brief description of the company gives organizations space to strategically explore their goals, the products they sell, and their approach to the customer. It also helps identify hidden intangible assets and describes how they lead to performance and provide value to all stakeholders.

The second part of the situation of hidden intangible assets (intellectual capital) includes information related to the challenges and actions of the company’s management, identifying which intangible assets must be consolidated or acquired in order to achieve strategic objectives. Allows the company to report on activities, initiatives and processes, either existing or planned for the future.

The third part of the report includes a set of financial and non-financial indicators, grouped on the components of intellectual capital (Peña and Ruiz, 2002):

- Human capital: investments in the salaries of qualified personnel; Investments in staff training and development; investments in employee recruitment and selection; temporary employees / permanent employees indicator; employee

satisfaction index, employee motivation index; promotion index; training-performance index.

- Structural capital: investments in quality, prevention and evaluation; suggestion index; administrative efficiency / revenue, customer satisfaction index; investment in research, development and innovation; investment in computer equipment; investments in the development and launch of new products; investment in process development; investments in computer equipment/fully active; technological index.
- Relational capital: investments in communication and marketing; investments in cultural support and solidarity projects; works performed by third parties (subcontracting); investments in after-sales services; customer satisfaction index; the image index of the enterprise.

Table 1. Situation of hidden intangible assets

| Intellectual capital indicators | N-1 | N |
|--|------------|----------|
| 1. HUMAN CAPITAL | | |
| Investments in the salaries of qualified personnel | | |
| Investments in staff training and development | | |
| Investments in employee recruitment and selection | | |
| <i>Temporary employees / permanent employees indicator</i> | | |
| <i>Employee satisfaction index</i> | | |
| <i>Employee motivation index</i> | | |
| <i>Promotion index</i> | | |
| <i>Social action index</i> | | |
| <i>Training-improvement index</i> | | |
| <i>Work environment index</i> | | |
| 2. STRUCTURAL CAPITAL | | |
| 2.1. Process Capital | | |
| Investments in quality, prevention and evaluation | | |
| <i>Index of suggestions</i> | | |
| <i>Training-improvement index</i> | | |
| <i>Customer satisfaction index</i> | | |
| 2.2. Research and development capital | | |
| Investments in research, development and innovation | | |
| Investments in computer equipment | | |
| Investments in the development and launch of new products | | |
| Investments in process development | | |
| <i>Investments in computer equipment / total assets</i> | | |
| <i>Technological index</i> | | |
| 3. RELATIONAL CAPITAL | | |
| Investments in communication and marketing | | |
| Investments in cultural support and solidarity projects | | |
| Works performed by third parties (subcontracting) | | |

| | | |
|-------------------------------------|--|--|
| Investments in after-sales services | | |
| <i>Customer satisfaction index</i> | | |
| <i>Enterprise image index</i> | | |

Source: *Integral Analysis Mode (Nevado and Lopez, 2006)*

Among the advantages of elaborating and publishing the report on the Situation of hidden intangible assets (intellectual capital) we can list (Radu and Gîju, 2012):

- Instead of recording intellectual capital as an investment, it is recorded as an expense, leading to a distorted pricing policy. This can lead to overestimated production costs due to the fact that these investments are not spread over several years and implicitly to two types of observable price behaviour: the company continues with higher costs during the investment periods and then loses part of it. price competitiveness or continues with lower costs during investment periods but suffers from insufficient margins, profitability problems, survival or jobs.
- In the case of mergers and acquisitions, where the real value of the acquired companies is much higher than those exposed in the financial statements, a report on intangible assets is required for all users. In most cases these are the ones that, along with the tangible and financial assets, determine the real value of the enterprise and they must be attributed the difference between the market value and the value in the financial statements.
- It allows its use as a marketing tool and ensures the long-term vision of the company;
- Improves transparency, resulting in lower capital costs and therefore higher stock prices (Backhuijs, 1999). This is also the case of the famous Swedish company Skandia, the first company to publish a statement of intellectual capital where the price of shares rose after publication by 40%, of which 25% due exclusively to intellectual capital.
- The publication of information on intellectual capital allows to improve the relations with the clients informing them about the efforts that the company makes to satisfy, attract and maintain them with new innovations, new products and services. Canibaño and Sanchez (Canibaño and Sanchez, 2004) also agree that “the publication of such information may help to improve - and not exclusively describe - the company’s relationship with its customers, employees and owners, and in general puts more emphasis on activities that allow knowledge to be shared with interested third parties, beyond the boundaries of the organization”.
- Balanced investments in intangible assets help increase competitiveness, efficiency and effectiveness;
- The presentation of information on intellectual capital is important primarily for large organizations, as the number of trademarks is high. In this regard, some of the major Japanese companies (Misui, Mitsubishi, Softbank, Toyota) have been forced to define and develop indicators on the prospect of obtaining benefits from all their brands, grouping them according to different Criteria. Thus, the simple grouping of all these calculated indicators provided managers with a mechanism for measuring the monetary impact on the benefits of each brand, which allowed the

implementation of a more efficient TCM (Target Cost Management) (Okano, 1999).

- If the objective is to increase the competitiveness of the company, by increasing efficiency and quality, investments in intangible assets involve two types of effects and results:

- In the short term, immediate results, recorded in the profit and loss accounts for the year, with the reduction of visible costs and / or the increase of visible revenues, and with the reduction of hidden costs;

- In the long run, due to the fact that the creation of the current human and economic potential is recorded in the profit and loss account of the following years, when it comes to research and development of new products, negotiation on new markets or improvement of qualifications, given that these strategic effects are misidentified in the accounting and financial information systems of enterprises.

- Last but not least, it helps to gain a psychological advantage by discouraging competition. Roos (Roos, 2001) also agrees that this would lead the competition to believe that the company dominates the market and will not be willing to enter the same market.

- Information can significantly influence most investment decisions of financial analysts.

One of the main reluctances to adopt such a report would be the strict application of the precautionary principle, a situation which, for the time being, seems difficult to overcome. Thus, among the main limitations are the following (Radu and Gîju, 2012):

1. Ownership of intangible investments. Many of them are not owned by the company, and especially those that refer to human potential.

2. These investments are difficult to define, in the regard that they are combined with material investments and, in addition, it is quite complex to determine the level of funds recorded and the related profitability.

3. The ability to generate future profits, i.e. the potential of the asset, must contribute directly or indirectly to the company's results.

4. Possibility of control for future use.

5. Possibility of evaluation, i.e. the expression of value in monetary terms. The opacity of most items in intangible capital is due, on the one hand, to the fact that there is no market reference for its estimation and, on the other hand, to the heterogeneity of these assets, which carry different functions and activities.

Conclusions

Intellectual capital (Ciprian and Valentin, 2012) is, as we saw, a term with many definitions but almost all it is defined as an intangible asset that is not reflected in current financial statements. It is knowledge, experience and intellectual force of employees, as resources and knowledge stored in the databases of the organization, in systems, in processes, in culture and philosophy, all managed and used to obtain services and products with the ultimate aim of obtaining benefits. Intellectual capital includes intangible assets and resources that can be used by the organization to create value transforming them in new processes, products and services.

As we have seen in the present research, traditional accounting is no longer able to indicate the market value of a company, there is a noticeable difference between the book value and the market value. We see how assets such as intellectual capital, which has become in the era of knowledge the most important economic resource that creates value added, are not reflected in the current financial statements, due to failure to meet the defining criteria for recognizing assets in the accounting rules in force. If we include in our financial statements the information on intellectual capital, we are in conflict with the international accounting standards in force. Due to this fact, it is not possible to include in the current financial statements only if it would be presented in the form of an annex to the current financial statements, the appendix that we will call “The situation of hidden intangible assets (intellectual capital).” The situation of hidden intangible assets (intellectual capital) should include information such as:

- i. A brief description of the company
- ii. Challenges and actions of the company’s management
- iii. A set of financial and non-financial indicators

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UNDERGROUND ECONOMY - FAVORING FACTORS. THE STUDY OF THE PHENOMENON IN A EUROPEAN CONTEXT

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Abstract: *Continuing the study on the line of deepening the factors that favor and enhance the underground economy, we propose an analysis of how it manifests itself at national level, related to the European context, aiming to find effective solutions to reduce and keep the informal economy within reasonably accepted limits, there can be no question of its complete eradication. The existence of the underground economy level that cannot produce decisive negative effects in the economy, respectively serious market distortions and competitive environment, can be a pressure factor on the bureaucratic-legislative system in order to optimize it, respectively on the need to increase the economy digitalization level. The underground economy is directly related to the policies of a state, respectively responsible for the state budget size as a result of monetary contributions from individuals and legal entities. The underground economy is a complex phenomenon and can differ from one state to another, with certain features shaped by the fiscal policy adopted by each state. Regarding the differences in fiscal policy between states, the study highlights certain specific features of the states in the European economy, generated mainly by the level of development of their economy. In Europe's developed economies, fiscal policy is geared towards achieving a high level of employment, while developing economies focus on creating an conducive environment to economic development. The use of the methodology for investigating the literature, followed by the analysis and synthesis of data allowed us to identify the interdependencies between the factors favoring the underground economy, respectively the impact it had on the national economy as a whole and related to the European environment.*

Keywords: underground economy, favorable factors, tax fraud, undeclared work, corruption

JEL classification: E26, H26

1. Introduction

In accordance with the establishment and application of the state's fiscal policy, each individual (both at the level of the physical entity and at the level of the corporation) will perceive the primary interest as the priority of the collective, so that a behavior is formed in the initial phase to avoid the payment of taxes imposed by the state, constantly looking for ways to operationalize a mechanism for evasion of payment or artificial reduction of payment obligations to the state. We consider this universal

valid behavior being, in fact, the incipient phase of triggering complex mechanisms that have the role of avoiding the payment of obligations to the state, thus fueling the underground economy. Although the triggers of the described mechanism are generally valid, the spread of this phenomenon is uneven, being found in different proportions in the world's economies. The differences come from the way the authorities of a state implement fiscal policies, the existing legislative framework, respectively other subjective factors that derive from the particularities of each economy and society.

As a direct effect of the state budget deprivation, part of the revenues due to the existence of the underground economy, there is a weakening of the democratic state prerogatives in the exercise of its powers. In addition to the direct economic effects, the underground economy is responsible, to a lesser extent, for social and political effects. The economic and financial system that makes up a society determines the way it feeds and also the existence of underground economy. Poor tax collection leads to poor social protection, as well as contributing to an adequate social protection system.

The decrease in revenues to the state budget due to a high level of the underground economy determines, in most cases, the involvement of decision makers in the search for new solutions to finance a chronic budget deficit. A handy solution is to introduce new taxes and / or increase existing ones. Although this solution could have a short-term expected effect, we believe that the negative effects are much more important, as the long-term problem is not resolved. An initial increase in revenues is made without actually removing the root cause - tax evasion, moreover, the increase in taxation that generates a high tax burden results in an increase in tax avoidance, practically a new impetus of tax evasion, which translates into increasing the sources of supply for the underground economy.

In fact, the chain reaction leads to the feeding of a vicious circle whose sustainable solution can only be to reduce tax evasion by optimizing the legislative framework in a package with a determined and effective involvement of the institutions involved in combating this phenomenon.

Only the sustainable reduction of the underground economy is likely to lead to an increase in revenues to the state budget without aggressively changing fiscal policy, without imposing new taxes or increasing existing ones.

In order to understand the local specificities regarding the underground economy, its generating factors, the involvement of the competent institutions in the fight against evasion and corruption, the analysis of the interdependencies between underground economy and corruption at national level is reported in European context.

2. Favoring factors of the underground economy. Objective and subjective parts

According to an extensive study conducted by the International Monetary Fund (IMF) over several years, a number of causes of the underground economy have been

highlighted, revealing a series of complex mechanisms that determine economic developments that enhance to varying degrees the size of the underground economy. The research conducted by Deléchat and Medina (2021) under the auspices of the IMF highlighted the existence of peculiarities regarding the size and evolution of informal economies within and between countries, resulting that: the informal economy is large and represents, on average, one third of the global economy; the underground economy tends to shrink over time and be lower, to a greater extent in advanced economies, compared to lower-income countries (although the downward trend is not universal); the underground economy varies significantly between regions and countries, with Latin America and Africa standing out as the two regions with the largest informal economy in the world. In low-income countries, the average size of the informal sector averages 36%, down to 14% for advanced economies (chart no. 1 and 2).

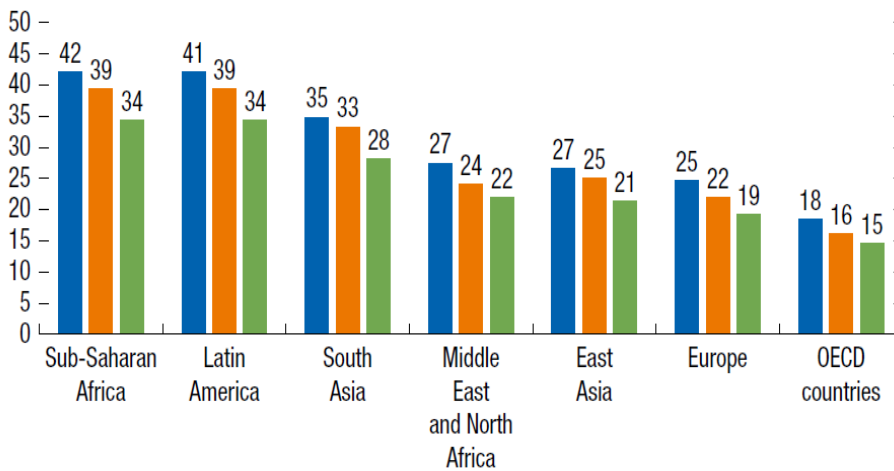


Chart 1: The level of the underground economy by regions, percentage of GDP
 Source: Medina and Schneider, 2021

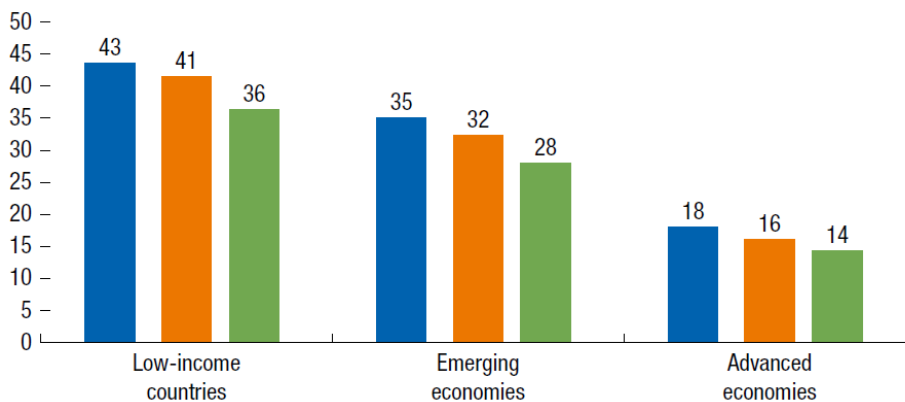


Chart 2: The level of the underground economy by income level, percentage of GDP
 Source: Medina and Schneider, 2021

The extensive study conducted by Medina and Schneider (2021) under the auspices of the IMF reviews the main *objective factors* causing informal activities. Starting from the classification of Gyomai and Van de Ven (2014), who associate the underground economy with the following activities: 1. Hidden production (activities that create value but are deliberately hidden from public authorities); 2. Illegal production (productive activities that generate goods and services prohibited by law); 3. Production in the informal sector (productive activities carried out by companies that partially declare the activity or the number of employees); 4. Production for own use (final) and 5. Underground statistics (productive activities that should be taken into account in data collection programs, but are missed due to poor systems), Schneider (2017) comes with an approach complex of variables that impact the underground economy.

According to this study, the underground economy is boosted by: *the tax burden* (on labor in particular): the distortion of the general tax burden affects work-leisure options and can stimulate labor supply in the underground economy (the higher the tax burden on labor in the official economy, the greater the incentive for labor to move into the informal economy); *the quality of institutions or corruption*: seen as a key factor in the development of the underground economy, due to the efficient and discretionary application of the tax code and government regulations, being considered more important than the real tax burden. A bureaucracy with highly corrupt government officials tends to be associated with more unofficial activity. An informal sector that is developing as a consequence of the failure of public institutions to promote an efficient market economy can only be reduced by consolidating the institutions and fiscal policies preferred by the most of society; *regulation*: labor market regulations in particular or trade barriers are another factor that reduces freedom (of choice) for individuals in the official economy. In fact, they substantially increase labor costs in the official economy and thus provide another incentive to work in the hidden economy; *public sector services*: the growth of the underground economy reduces state revenues, which in turn reduce the quality and quantity of goods and services provided to the public. This may eventually lead to increased tax rates for businesses and individuals, although the deterioration of the quality of public goods (such as public infrastructure) and government would continue. The consequence is an even stronger incentive to operate in the underground economy; *fiscal morality*: public sector efficiency has an indirect effect on the size of the hidden economy because it affects fiscal morale. Compliance with voluntary compliance with the payment of tax obligations is determined by a "tax contract" which involves rights and obligations not only from the taxpayers but also from the tax authorities. Taxpayers are more inclined to pay their taxes fairly if they receive quality public services; *deterrence*: despite the strong emphasis on deterrence in policies to combat the underground economy, little is known about the effects of deterrence. This is due to the fact that data on the legal context and frequency of controls are not available openly and comprehensively. In this context, no objective conclusions can be drawn as to how penalties and fines have an impact on the underground economy.

The same study also identified other factors of marginal importance that contribute to the maintenance or development of the underground economy. Unemployment rates, individual workers or the size of the agricultural sector are variables that are directly related to the size of the underground economy.

In addition to the objective causes, which have a wide support in the literature, there is a unanimous consensus on how it impacts the underground economy, various studies have focused on more unconventional areas, of *subjective causes*, very difficult to quantify, which affect also the level of the informal economy. The multitude of factors favoring the underground economy is underlined by various studies (Achim et al., 2019) which demonstrate an empirical evidence that certain cultural factors can help us understand the size of the underground economy in various countries.

As Stiglitz, Sen, and Fitoussi (2010) argue, the line between economics and other social sciences has become increasingly blurred, and so many behavioral phenomena in economics could be better explained if we turn our attention to other aspects related in the social field. The study of variables: culture, religion and happiness form, in a broad sense, the cultural sphere of a country. The study (Achim et al., 2019) conducted on European countries, in the period 2005–2015, reveals that four cultural dimensions: collectivism, femininity, short-term orientation and retention have a direct impact on the size of the underground economy. In addition, it turned out that happier people naturally tend to act more honestly, with the effect of lowering the level of the underground economy. Moreover, a high level of religiosity increases the inclination to orient activities towards the underground economy.

Several studies (Achim et al. 2018; Bergheim 2007; Schneider and Klinglmair 2004; Thiessen 2010) document a relationship between happiness and the underground economy. Thus we include another independent variable related to culture in our model of underground economy - happiness. Culture plays another important role in expressing spirituality, including religion, and may be directly related to subjective well-being or human happiness (Eckersley 2006). Regarding the influence of happiness on the size of a hidden economy, Schneider and Klinglmair (2004), Bergheim (2007), Thiessen (2010) and Achim et al. (2018) find that happier people are more likely to act honestly, thus reducing the size of the underground economy. Recent studies (Achim et al., 2020) highlight the impact of technology on economic and financial crime, highlighting the fact that an increase in the technological level in society and economy has a contribution to reducing the underground economy. In addition, it has been established that research and development expenditure (% of GDP) is more important in reducing economic and financial crime in low-income countries than in high-income countries. Starting from the premise of the influence that information and communication technology has on institutions with responsibilities in the fight against corruption, (starting from public authorities to the private sector and the media), Adam and Fazekas (2019), focusing especially on developing countries, it considers information technology to be effective in fighting corruption.

However, the positive effect is closely linked to the political environment, public governance and civil society. Wickberg (2013) provides examples of various technologies that impact the reduction of corruption: technologies used to report administrative abuse and corruption, to facilitate the filing of complaints (use of online networks, helplines or telephone applications), including sharing bribery experiences and electoral fraud. Information technology is also used to monitor access to information, public budgets and social services, political life, the judiciary and even illegal logging. Technologies also play a key role in social mobilization campaigns and citizen-government interaction, being extremely useful in several e-government initiatives (e-procurement, e-justice, e-taxation, financial transactions and e-identification).

3. The underground economy in the European Union vs Romania

Starting from the study conducted by Kelmanson et al. (2021), under the auspices of the IMF, a complex analysis was made of the manifestation and level of the underground economy among the countries of the European Union. According to the data processed, although the formal economy has declined across Europe, it still remains at a significant level, especially in emerging market economies.

On average, underground economies are around 15-25% of GDP in the European Union, with higher values (30-40%) among developing countries.

Updated data (up to 2019) of underground economy estimates (Kelmanson et al., 2021) for 47 European countries, using the model of multiple indicators, multiple causes, used to estimate the size of the hidden economy as a share of GDP, highlights values between 10% and 40% of GDP, with a European average of 23%, Romania exceeding the average by about 10 percent (chart no. 3).

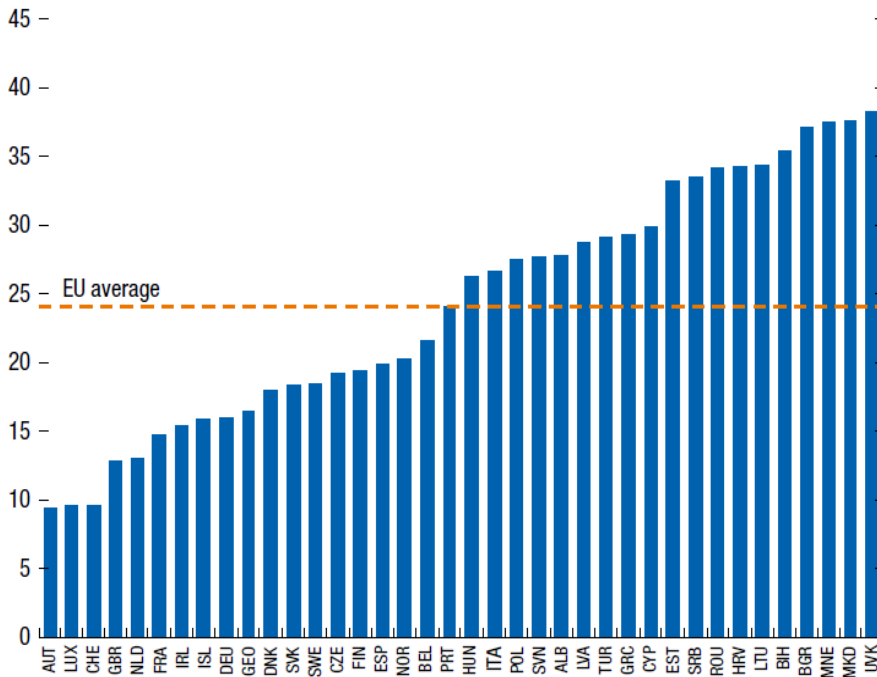


Chart 3: The level of the underground economy in the EU, percentage in GDP, 2019
 Source: IMF statistical calculations

The data of the present study highlighted the existence of some disturbances in the evolution of the informal economies trend, with an obvious change in the period 2008-2010, a period that overlaps with that of the global financial crisis. During this period, most countries saw an increase in informal activity of about 1-2% of GDP (Chart 4).

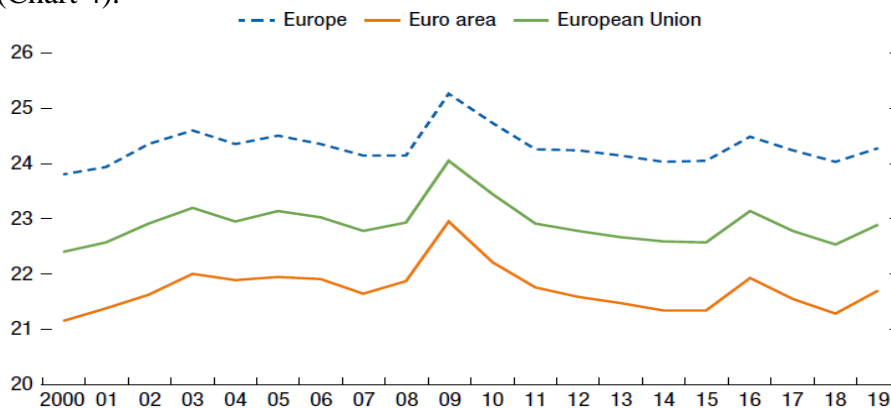


Chart 4: The level of the underground economy in Europe, the Eurozone and the EU, as a percentage of GDP
 Source: IMF Statistical Calculations (2000-2019)

Tax fraud as a relevant economic and social phenomenon in the economy of any state is present in all European Union countries, as an effect of state fiscal policies coupled with the quality of institutions with combat powers, being considered one of the main

causes of the underground economy. When we talk about tax fraud we will always refer to illegal / illicit tax evasion, without taking into account the legal component, tax optimization, respectively “that form of interpretation of tax legislation which, without being fraudulent, leads to a reduction of the tax base, and therefore to pay lower taxes” (Bodu and Bodu, 2019). The study of some databases (National Institute of Statistics - NIS, 2019) and of the specialized literature (Medina and Schneider, 2018) certifies that Romania is higher than the European average in terms of the share of the underground economy fueled by tax fraud, even if in a slight decrease (chart no. 5).

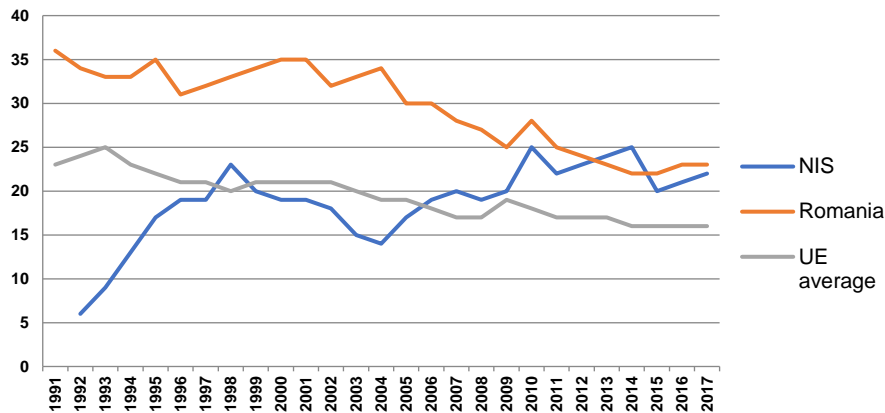


Chart 5: The share of the underground economy in Romania vs. EU average (% in GDP)
 Source: NIS, Medina and Schneider, 2018

The data highlighted by Kelmanson et al. (2021) certifies the existence of an average level of European countries underground economies, with particularities specific to distinct categories of economies (developing and respectively developed), context in which some proposals are made to improve regulation and institutional quality.

Given the inversely proportional relationship between institutional quality and the underground economy, the steps taken by Kelmanson et al. (2021) to strengthen institutions can have a twofold effect: reducing the share of the underground economy while meeting development goals, practically generating a fair and long-term sustainable growth. Institutional reforms are crucial for resolving business bottlenecks, strengthening the rule of law, improving the effectiveness of governance and combating corruption.

Reducing administrative and regulatory barriers will have a direct impact on reducing the cost incentive for participation in the underground economy. Relevant are examples of reforms that include simplifying the registration and licensing process (automatic licensing in Georgia), creating a one-stop shop (Estonia), and reducing registration and statutory fees (USAID 2005).

Improving governance, increasing involvement and transparency through the adoption of measures to promote it (mandatory public electronic procurement for public procurement) in public administration (improving the judiciary) can improve

the government's perception, leading to an increase in voluntary compliance (IMF 2017).

According to the same study (Kelmanson et al. (2021), measures to reduce the share of the underground economy are appropriate to be implemented in the labor market and human capital. Thus, in countries with high labor migration and where the informal economy can act as a form of social security, policy action should focus on improving incentives for informal workers to migrate to the formal sector. In this context, encouraging private sector employment would contribute to the transfer of companies and workers from the informal to the formal sphere.

Actions aimed at improving human capital should focus on measures to increase the flexibility of employment and dismissal (in countries with excessive restrictions on labor law), while it is necessary to apply effective labor laws elsewhere in order to maintain fair competition conditions between companies. Measures to increase labor market inclusion through the development and implementation of personalized employment and training policies for target groups at risk of social exclusion (young people) or measures to create a favorable employment environment should also be considered for migrants returning to their environment, through special training activities and recognition of practical skills acquired abroad.

Conclusions, limits and directions of research

We can see from this study how the underlying causes of the underground economy become its effects, which perpetuated, again turn into favorable factors. An inadequate fiscal policy, with a low quality of institutions, with a society affected by corruption will lead to low quality public services, will impact on fiscal morality, which in turn will fuel the underground economy. In order to stop the vicious circle, in which one factor potentiates another, we consider vital the harmonization of good governance (adequate fiscal policies, high quality of public services, low level of corruption) with the deterrent component of the phenomena that fuel the underground economy.

The study of the favorable factors and the forms of manifestation of the underground economy in Romania, compared to the EU countries cannot be limited only from the perspective of the present analysis, but represents a point of understanding of some correlations and interdependencies in the economy. Understanding the factors that determine the size of the underground economy allows the substantiation of more effective measures to combat this phenomenon. The limitations of the study are given by the need to correlate the data with the harmful effects of the underground economy on the economic and social environment. We aim to focus research on the measures needed to combat the phenomenon and its effects.

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EMPIRICAL ANALYSIS OF FINANCIAL ACCOUNTING INFORMATION RELEVANCE OF ROMANIAN LISTED PHARMACEUTICAL COMPANIES

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Abstract: *Financial reporting aims to provide financial and economic information about a company, which is useful for internal and external users, in order to provide the basis for business decisions. The business area needs to pay close attention to the information in financial reporting, whether it belongs to the entity's internal environment or the external environment, to use the information as efficiently as possible. Financial information most frequently is used through the analysis conducted on indicators calculated with the help of the summary and reporting documents for the financial year. This paper aims to analyze the main factors that make a significant contribution to the relevance of financial information. To achieve our target, we have carried out an empirical analysis of panel data on a sample of five pharmaceutical companies listed on the Bucharest Stock Exchange. The period considered was five years, since financial years were included in this period, which had been conducted under similar conditions, but also surprised a financial year in which most of the areas of activity suffered. The data were collected based on the companies' annual financial reports. The present study confirms that both the net income and the comprehensive income of the year have a substantial impact on the relevance of the financial accounting information. In addition, according to the present study, the main drivers of the relevance of financial information are ROE (Return on equity), ROA (Return on assets), profit margin rate, and LEV (leverage).*

Keywords: *financial accounting information, pharmaceutical industry, net income, comprehensive income, panel data.*

JEL Classification: *M41, C23.*

1. Introduction

Financial information is intended to assist users to base their economic decisions on analysis. The authors Ișfănescu et. al (2002) agree with this concept, considering the information as the raw material upon which the analysis is based and providing the elements necessary for the management of the entity (Laval and Ștefea, 2018). All the information on which the economic and financial analysis is based comes from internal sources, as well as from outside the company. Munteanu et. al (2014) agree that the accounting system is a privileged source of information, useful in any strategic or financial analysis. Therefore, financial information is provided by the analysis through the calculated indicators, using the following summary and reporting documents: balance sheet/statement of financial position, profit and loss

account/statement of comprehensive income, statement of changes in equity, statement of cash flows and notes to the financial statements.

Accounting harmonization requires that financial reports are provided to users in the most efficient and functional format to be as easy to observe the position and financial performance of the company as possible. The accounting standards also expressly state that the financial reports must provide the necessary data faithfully in such a way that the financial position, financial performance, cash flows, and other accounting statements are complete, neutral, and error-free (Tişcenco and Bădicu, 2021; Cosmulese and Hlaciuc, 2019). In an increasingly competitive business environment, measuring company performance is a constant management concern to improve market position and attract new investors. Thus, the performance of companies is the most relevant indicator when it comes to benchmarking within the same industry, the field of activity, or across sectors of activity. Investment in manufacturing is currently increasing. However, assessing the performance of companies becomes more important for managers, shareholders, investors, creditors, and stakeholders, but also competitors in the same industry (Hada, 2020).

In this work, we have chosen to look at the pharmaceutical industry because it is a key area of activity that has grown increasingly in recent years to treat and maintain human health. The progress of science in medicine has also led to progress in the pharmaceutical market, and we, therefore consider it an interesting area to analyze. The central focus of the study is on the relevance of financial accounting information from the perspective of the net and comprehensive income examined on BSE pharmaceutical listed companies. In the light of this, we are seeking answers to the following research questions:

RQ1: To what extent is the relevance of financial information influenced by the comprehensive income of the company? What about the net income per share?

RQ2: What are the main drivers of financial accounting information relevance?

2. Theoretical background and literature review

In the economic field, performance is generally the achievement of organizational objectives, as a quantity of everything that contributes to the achievement of strategic objectives, and over time, the assessment of companies' performance was a widely debated issue in the attempt to find the best measuring tool (Ban et. al, 2020). Biddle and Choi (2006) consider that comprehensive income is a very crucial indicator because it features both net income and other elements of comprehensive income, generating greater usefulness for stakeholder decision-making. Also, the authors of Gazzola and Amelio (2014) believe that in recent years, comprehensive income has been among the most essential indicators of the company's performance, and is higher than net income in the economic market (Pervan and Bartulović, 2014).

The accounting system appreciates profit as a degree of performance or a benchmark for the calculation of indicators relating to the efficiency of the company's management. The profit is calculated by the difference between income and expenses, but these items are subordinated to capital and capital-keeping elements. Therefore, the fair value measurement of indicators in the entity's financial position,

as required by IFRS, has led to the establishment of the financial statement of the comprehensive income (Firescu, 2015; Bunget et. al, 2009; Pordea and Dumitrescu, 2021, Nobes and Stadler, 2015).

In recent years, there has been increasing progress on indicators in terms of financial management, as well as directing company strategy toward value creation. The purpose is to link the business performance translated through the current or previous cash flow to the market value of the entity as well as to the relative level of costs of the joint actions. There are several ways in which shareholder value creation can be expressed, but at the level of this work, we are looking at profitability indicators. These indicators constitute the traditional profit measurement model, which is related to the capital invested. These are earnings per share (EPS), return on investment (ROI), return on assets (ROA), and return on equity (ROE) (Tache, 2007).

Some developers could define performance as a positive difference between revenue and expenditure. But performance is also closely linked to two other elements: efficiency and productivity. Thus, one of the most important concepts of performance – profitability, is influenced by the actions of the company's managers, while having an impact on labor productivity and economic efficiency. (Vesa, 2018; Albu and Albu, 2005; Ștefea and Pelin, 2009). The share price and income per share are partly and simultaneously affected by the return on assets, but also by the added economic value and return on equity. The existing management and organization theories emphasize the links between the return on assets, the return on equity, the value-added, and the price of shares, the changes of which also affect the net result per share (Purnamasari, 2015; Tamuntuan, 2015). The effect of accounting information on earnings per share (EPS) was observed in the light of five types of financial indicators. Based on the results, it was noted that the market rate (PVB), the return on equity (ROE), the leverage ratio (LEV), and the cash flow from operations/sales have a considerable influence on the profit per share (Consler et. al, 2011). It can be noted that return on equity, financial ratios, equity liabilities, cash flow from operating activities, and book value significantly affects the earnings per share. They indicate that from an investor perspective, financial indicators play a significant role in investment decisions (Taani and Banykhaled, 2011; Popa et. al, 2009).

The results of this study are in line with the authors of Pop (2020) and Aqel (2021) that from the perspective of the investor the impact of the net income per share does not differ from the comprehensive income per share, both of which have a significant association with the share price trend, leading to greater value relevance for investors. Furthermore, the authors Pășcan (2014) as well as, Mironiuc et. al, (2015) claim that comprehensive income is a relevant indicator of the company's performance. In addition, the ROE, ROA, and leverage are influencing factors in the relevance of the financial information. The business area needs to pay close attention to the information in financial reporting, whether it belongs to the entity's internal environment or the external environment, to use the information as efficiently as possible. To assess the relevance of comprehensive income as well as net income,

the usefulness of financial statements when provided to the public needs to be verified, not least, the identification of elements/indicators requires an impact on the relevance of financial information. According to this idea are also the authors Mironiuc et. al. (2015).

According to Marchini and D'Este (2015), Morais et. al (2018), Schaberl and Victoravich (2015) results, also due to the reporting requirements related to the comprehensive income statement of listed companies, as well as from the perspective of the empirical study carried out in this paper, is worth to investigate the relevance of the accounting information throughout net and comprehensive income. Based on these indicators the stakeholders can make optimal decisions. Therefore, we made the following assumptions:

H1: Financial accounting information relevance is affected by the comprehensive income per share.

H2: Financial accounting information relevance is affected by the net income per share.

H3: ROE, ROA, and LEV indicators influence the relevance of financial accounting information.

3. Research methodology and design

Through the theoretical part studied and mentioned above, we considered relevant the analysis of the main determinants showing significant action on the relevance of the financial information of the pharmaceutical industry companies listed by the Bucharest Stock Exchange, because it has been an area of activity that has undergone some changes directly. We used a sample of 5 companies tracked over a 5-year horizon, 2016, 2017, 2018, 2019, and 2020 developing panel data models. The period under review has been selected to follow the evolution of the relevance of the information, both a time frame in relatively constant (similar) business conditions, but also covering a financial year in which most business areas have changed. Among the pharmaceutical companies listed on BSE, MedLife was eliminated because the revenues of this company, for the analyzed period were obtained mainly from medical services provided.

The five companies analyzed are among the most representative BSE listed companies in this industry, thus each having a significant share of the Romanian market, which is differentiated in various aspects: Antibiotice S.A. is the only one of the five most state-owned companies and is claimed to be the leading global producer in the production of the active Nistatin sustenance, as well as the main drug supplier of the Romanian hospitals; Ropharma S.A. ranks fourth, among pharmaceutical chains at the national level with a market share of over 7%; Farmaceutica Remedia S.A. is also an important chain of pharmacies, focused on complex services (sales, import, logistics, etc.) and is predominantly owned by Romanian individuals; Biofarm S.A. is one of the main producers of medicines and food supplements; Zentiva S.A. is mostly owned by foreign entities and is focused on the production of

medicines, both domestically and abroad, with 40% of the turnover being made up of exports.

The selected financial indicators as well as the formulated hypotheses are based on the study of the literature on the topic of financial accounting information relevance related to comprehensive income.

4. Data collection and statistics

The financial data were collected from the annual reports of the companies surveyed, and from the BSE records. The analysis uses financial accounting information on five pharmaceutical companies surveyed over the period 2016-2020 and applies panel-specific regression analysis to highlight the main drivers of the relevance of financial information. A breakdown of the variables used in the proposed models is given in Table 1.

Table 1: Description of variables used in the study

| Nr.crt. | Description of the variable | Variable type | Calculation formula |
|---------|--|---------------|---|
| 1. | Price / share | Dependent | The average market price determined for each year |
| 2. | Net income/ share | Independent | Net income for the year / Average number of ordinary shares |
| 3. | Comprehensive income for the year/ share | Independent | Comprehensive income/ Average number of ordinary shares |
| 6. | Return on equity | Independent | Net income/ Equity |
| 7. | Return on assets | Independent | Net income / Total assets |
| 8. | Leverage | Independent | Total debts / Equity |
| 9. | Profit margin rate | Independent | Profit/ Turnover |
| 10. | Net turnover | Control | Natural logarithm of turnover |
| 11. | Company size | Control | Natural logarithm of total assets |

processing

To answer research questions and test the hypotheses, several regression models were developed as follows:

$$\begin{aligned} Pr_act_{it} &= \alpha_0 + \alpha_1 \cdot Rez_net_act_{it} + \alpha_2 \cdot marimea_firmei_{it} + \varepsilon_{it} \\ Pr_act_{it} &= \alpha_0 + \alpha_1 \cdot Rez_global_act_{it} + \alpha_2 \cdot marimea_firmei_{it} + \varepsilon_{it} \\ Pr_act_{it} &= \beta_0 + \beta_1 \cdot ROE_{it} + \beta_2 \cdot control_var_{it} + \beta_3 \cdot vechime_list_BVB_{it} + \\ &\sum_{t=2016}^{2020} \gamma_t \cdot (year)_t + \varepsilon_{it} \\ Pr_act_{it} &= \beta_0 + \beta_1 \cdot ROA_{it} + \beta_2 \cdot control_var_{it} + \beta_3 \cdot vechime_list_BVB_{it} + \\ &\sum_{t=2016}^{2020} \gamma_t \cdot (year)_t + \varepsilon_{it} \\ Pr_act_{it} &= \beta_0 + \beta_1 \cdot levier_{it} + \beta_2 \cdot control_var_{it} + \beta_3 \cdot vechime_list_BVB_{it} + \\ &\sum_{t=2016}^{2020} \gamma_t \cdot (year)_t + \varepsilon_{it} \\ Pr_act_{it} &= \beta_0 + \beta_1 \cdot rata_marjei_profitului_{it} + \beta_2 \cdot control_var_{it} + \beta_3 \cdot \\ &vechime_list_BVB_{it} + \sum_{t=2016}^{2020} \gamma_t \cdot (year)_t + \varepsilon_{it} \end{aligned}$$

where:

control variable as appropriate, company size, net turnover, and length of listing on BSE;

$i = 1 \dots 5$ represents the 5 companies in the sample;

$t = 1, 2, \dots, T$ represents the period (period 2016-2020);

α_i are the parameters of the model;

Pr_act represents the relevance of the companies' financial accounting information;

ε_{it} are model errors.

5. Discussion of results

The impact analysis tested under hypotheses H1 and H2 aimed at estimating two regression models on panel data, in which the impact of net income per share and comprehensive income per share on the relevance of financial accounting information as a variable was measured. The company size as a control variable was measured by the logarithm of total assets. In both models, the hypothesis of fixed effects was accepted based on the results of the Hasman test (Table 2), for which the probability of the test is less than the significance threshold of 1%. The empirical results highlighted the positive and statistically significant impact at the 1% threshold, both the net income per share and the comprehensive income per share, leading to the validation of hypotheses H1 and H2. It also had a significant impact on the relevance of financial information and the size of the company, even if at a significance level of 10%. Both models are statistically valid with Fisher test probabilities below the 1% threshold, and the degree of determination in the models is very high at over 95%.

Table 2: Empirical results of the influence of net income per share and comprehensive income per share on financial accounting information relevance

| Dependent Variable: PRET_ACTIUNE Method: Panel Least Squares Sample: 2016 2020 Periods included: 5 Cross-sections included: 5 Total panel (balanced) observations: 25 | | | | |
|--|-------------------|-----------------------|-------------|--------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -6.642099 | 4.399637 | -1.509693 | 0.1485 |
| REZ_NET_ACTIUNE | 1.473938 | 0.478989 | 3.077187 | 0.0065 |
| MARIMEA_FIRMEI | 0.377919 | 0.221007 | 1.709986 | 0.1045 |
| Effects Specification | | | | |
| Cross-section fixed (dummy variables) | | | | |
| R-squared | 0.959501 | Mean dependent var | 1.025300 | |
| Adjusted R-squared | 0.946001 | S.D. dependent var | 1.230041 | |
| S.E. of regression | 0.285833 | Akaike info criterion | 0.564677 | |
| Sum squared resid | 1.470608 | Schwarz criterion | 0.905963 | |
| Log likelihood | -0.058466 | Hannan-Quinn criter. | 0.659335 | |
| F-statistic | 71.07548 | Durbin-Watson stat | 2.483796 | |
| Prob(F-statistic) | 0.000000 | | | |
| Correlated Random Effects - Hausman Test Equation: EQ01 Test cross-section random effects | | | | |
| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. | |
| Cross-section random | 28.173128 | 2 | 0.0000 | |

| Dependent Variable: PRET_ACTIUNE Method: Panel Least Squares Sample: 2016 2020 Periods included: 5 Cross-sections included: 5 Total panel (balanced) observations: 25 | | | | |
|--|-------------------|-----------------------|-------------|--------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -6.519570 | 4.276917 | -1.524362 | 0.1448 |
| REZULTAT_GL_ACT | 1.527939 | 0.458850 | 3.329931 | 0.0037 |
| MARIMEA_FIRMEI | 0.370283 | 0.214880 | 1.723203 | 0.1020 |
| Effects Specification | | | | |
| Cross-section fixed (dummy variables) | | | | |
| R-squared | 0.961755 | Mean dependent var | 1.025300 | |
| Adjusted R-squared | 0.949007 | S.D. dependent var | 1.230041 | |
| S.E. of regression | 0.277783 | Akaike info criterion | 0.507397 | |
| Sum squared resid | 1.388739 | Schwarz criterion | 0.848683 | |
| Log likelihood | 0.657533 | Hannan-Quinn criter. | 0.602055 | |
| F-statistic | 75.44239 | Durbin-Watson stat | 2.249042 | |
| Prob(F-statistic) | 0.000000 | | | |
| Correlated Random Effects - Hausman Test Equation: EQ02 Test cross-section random effects | | | | |
| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. | |
| Cross-section random | 19.237350 | 2 | 0.0001 | |

Source: Own processing in EViews software

The analysis of the H3 hypothesis, which states that ROE, ROA, profit margin rate, and leverage are factors influencing the relevance of financial information, showed that all indicators considered, ROE, ROA, profit margin rate, and leverage, show a significant impact on the relevance of financial information to a significance threshold of 10%. If profit rates and profit margins lead to an improvement in the relevance of financial information, leverage has the opposite impact. Also, the size of the company influences in a statistically significant way the variation of the relevance of the financial information at a significance threshold of 10%, except for the first model, in which it does not show a significant effect. The BSE listing age of selected companies does not have a statistically significant impact on the change in the relevance of the financial information, the probability related to the t-test being higher than the significance threshold of 10%.

The models are statistically valid in the sense of the Fisher test, and the empirical results of the Hausman test showed the existence of random (random) effects, the probability of the test being above the 10% threshold. The degree of determination in the models is around 36%, approximately 36% of the variation of the financial information being explained by the rates of profitability/rate of profit margin but also by the size of the company.

Table 3: Empirical results of the main determinants of financial accounting information relevance

Dependent Variable: PRET_ACTIUNE
Method: Panel EGLS (Cross-section random effects)
Sample: 2016 2020
Periods included: 5
Cross-sections included: 5
Total panel (balanced) observations: 25
Swamy and Arora estimator of component variances
White period standard errors & covariance (no d.f. correction)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------------|-------------|------------|-------------|--------|
| C | -8.658651 | 5.954498 | -1.454136 | 0.1607 |
| ROE | 0.873673 | 0.480865 | 1.816880 | 0.0835 |
| MARIMEA_FIRMEI | 0.421978 | 0.284996 | 1.480638 | 0.1536 |
| VECHIME_BVB | 0.061378 | 0.044736 | 1.371989 | 0.1845 |

| Effects Specification | | S.D. | Rho |
|-----------------------|--|----------|--------|
| Cross-section random | | 1.698149 | 0.9631 |
| Idiosyncratic random | | 0.332410 | 0.0369 |

| Weighted Statistics | | | |
|---------------------|----------|--------------------|----------|
| R-squared | 0.227667 | Mean dependent var | 0.089414 |
| Adjusted R-squared | 0.117334 | S.D. dependent var | 0.341784 |
| S.E. of regression | 0.321107 | Sum squared resid | 2.165300 |
| F-statistic | 2.063447 | Durbin-Watson stat | 1.665150 |
| Prob(F-statistic) | 0.135736 | | |

Correlated Random Effects - Hausman Test
Equation: EQ05
Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 0.596171 | 2 | 0.7422 |

| Test | Statistic | d.f. | Prob. |
|-------------------|-----------|------|--------|
| Breusch-Pagan LM | 13.94126 | 10 | 0.1757 |
| Pesaran scaled LM | 0.881293 | | 0.3782 |
| Pesaran CD | 0.505426 | | 0.6133 |

Dependent Variable: PRET_ACTIUNE
Method: Panel EGLS (Cross-section random effects)
Sample: 2016 2020
Periods included: 5
Cross-sections included: 5
Total panel (balanced) observations: 25
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (no d.f. correction)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|-------------------------|-------------|------------|-------------|--------|
| C | -8.436150 | 5.250180 | -1.606831 | 0.1230 |
| RATA_MARJEL_PROFITULLUI | 0.019771 | 0.007423 | 2.663439 | 0.0145 |
| MARIMEA_FIRMEI | 0.402218 | 0.230400 | 1.745736 | 0.0955 |
| VECHIME_BVB | 0.065038 | 0.141500 | 0.459630 | 0.6505 |

| Effects Specification | | S.D. | Rho |
|-----------------------|--|----------|--------|
| Cross-section random | | 1.707308 | 0.9699 |
| Idiosyncratic random | | 0.300657 | 0.0301 |

| Weighted Statistics | | | |
|---------------------|----------|--------------------|----------|
| R-squared | 0.364693 | Mean dependent var | 0.080498 |
| Adjusted R-squared | 0.273935 | S.D. dependent var | 0.338804 |
| S.E. of regression | 0.288693 | Sum squared resid | 1.750222 |
| F-statistic | 4.016294 | Durbin-Watson stat | 2.339084 |
| Prob(F-statistic) | 0.020906 | | |

Correlated Random Effects - Hausman Test
Equation: EQ05
Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 0.361980 | 2 | 0.8344 |

| Test | Statistic | d.f. | Prob. |
|-------------------|-----------|------|--------|
| Breusch-Pagan LM | 18.11421 | 10 | 0.0531 |
| Pesaran scaled LM | 1.814393 | | 0.0696 |
| Pesaran CD | 0.504338 | | 0.6140 |

Dependent Variable: PRET_ACTIUNE
Method: Panel EGLS (Cross-section random effects)
Sample: 2016 2020
Periods included: 5
Cross-sections included: 5
Total panel (balanced) observations: 25
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (no d.f. correction)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------------|-------------|------------|-------------|--------|
| C | -11.64522 | 5.192653 | -2.242634 | 0.0358 |
| ROA | 3.409534 | 1.266833 | 2.691384 | 0.0137 |
| MARIMEA_FIRMEI | 0.566735 | 0.234063 | 2.421291 | 0.0246 |
| VECHIME_BVB | 0.059202 | 0.127914 | 0.462831 | 0.6482 |

| Effects Specification | | S.D. | Rho |
|-----------------------|--|----------|--------|
| Cross-section random | | 1.541580 | 0.9633 |
| Idiosyncratic random | | 0.301087 | 0.0367 |

| Weighted Statistics | | | |
|---------------------|----------|--------------------|----------|
| R-squared | 0.369022 | Mean dependent var | 0.089216 |
| Adjusted R-squared | 0.278882 | S.D. dependent var | 0.341714 |
| S.E. of regression | 0.290179 | Sum squared resid | 1.768283 |
| F-statistic | 4.093883 | Durbin-Watson stat | 1.968724 |
| Prob(F-statistic) | 0.019550 | | |

Correlated Random Effects - Hausman Test
Equation: EQ05
Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 0.505929 | 2 | 0.7765 |

| Test | Statistic | d.f. | Prob. |
|-------------------|-----------|------|--------|
| Breusch-Pagan LM | 16.53973 | 10 | 0.0852 |
| Pesaran scaled LM | 1.462328 | | 0.1437 |
| Pesaran CD | 1.775605 | | 0.0768 |

Dependent Variable: PRET_ACTIUNE
Method: Panel EGLS (Cross-section random effects)
Sample: 2016 2020
Periods included: 5
Cross-sections included: 5
Total panel (balanced) observations: 25
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (no d.f. correction)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------------|-------------|------------|-------------|--------|
| C | -11.73221 | 5.781080 | -2.029416 | 0.0553 |
| LEVIER | -0.202317 | 0.026341 | -7.680756 | 0.0000 |
| MARIMEA_FIRMEI | 0.580955 | 0.345780 | 1.680128 | 0.1077 |
| VECHIME_BVB | 0.076162 | 0.116352 | 0.654583 | 0.5198 |

| Effects Specification | | S.D. | Rho |
|-----------------------|--|----------|--------|
| Cross-section random | | 1.902924 | 0.9702 |
| Idiosyncratic random | | 0.333265 | 0.0298 |

| Weighted Statistics | | | |
|---------------------|----------|--------------------|----------|
| R-squared | 0.227592 | Mean dependent var | 0.080058 |
| Adjusted R-squared | 0.117248 | S.D. dependent var | 0.338665 |
| S.E. of regression | 0.318192 | Sum squared resid | 2.126173 |
| F-statistic | 2.062571 | Durbin-Watson stat | 1.730693 |
| Prob(F-statistic) | 0.135858 | | |

Correlated Random Effects - Hausman Test
Equation: EQ05
Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 0.143403 | 2 | 0.9308 |

| Test | Statistic | d.f. | Prob. |
|-------------------|-----------|------|--------|
| Breusch-Pagan LM | 22.03381 | 10 | 0.0149 |
| Pesaran scaled LM | 2.690841 | | 0.0071 |
| Pesaran CD | 1.216047 | | 0.2240 |

Source: Own processing in EViews software

Conclusion, limits, and future research

Through this paper, we aimed to highlight the essential elements of financial reporting in terms of the relevance of financial information, both theoretically and

practically, by exploring it from the perspective of Romanian pharmaceutical listed companies. The relevance of the financial accounting information analyzed through net and comprehensive income was examined by designing hypotheses that were statistically tested. The first and second assumptions proved to have a statistically positive and significant impact, the proposed assumptions being thus valid, the relevance of the financial information is influenced by both the comprehensive income per share and the net income, per share. Regarding the third hypothesis, it can be said that ROE, ROA, profit margin rate and leverage indicators have a very significant influence on the relevance of financial information. Equally, the size of the company has a strong influence on the relevance of the information, however, the listing age at BSE does not influence this feature.

This paper also presents some research limitations, such as the analysis of a small sample of companies, being only five entities in the pharmaceutical industry listed on BSE. This study can be extended to other industries such as manufacturing, information and communications industry, etc. within the BSE, following the indicators related to the relevance and accurate representation of the information. Also, in future works, we intend to analyze the topic of this study over a longer period.

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NON-FINANCIAL REPORTING: A BIBLIOMETRIC REVIEW OF THE PAST DECADE

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Abstract: *As it is shown in the Web of Science database, non-financial reporting spans from the early studies back in 1988, until nowadays. Its importance in the research field started to grow only in the past decade, as from 1988 till 2012 only 180 publications were issued on this subject. The current paper aims to study the following matters: the evolution of "sustainability reporting" research field, the most frequently used terms associated with the subject of "non-financial reporting", the most interested countries in publishing literature on "non-financial reporting" and the most cited authors on this matter. To do so, a bibliometric research will be carried on the topic of "non-financial reporting", using the VOS Viewer program.*

Keywords: *bibliometric analysis; non-financial reporting; VOS Viewer; CSR.*

JEL Classification: M41; Q56

1. Introduction

The interest in Corporate Social Responsibility (CSR) reporting has shown an increasing trend in the last few years, especially in the light of the new coronavirus pandemic and the current war in Ukraine. Even though still overlooked by some stakeholders, who make business decisions based on the financial statements only, most of them check the non-financial reports to see the bigger picture.

Businesses that are socially responsible can also appear more attractive to investors. Most investors consider CSR a way of reducing investment risk, as the company promotes an ethical behaviour and responsibility towards community. Employees will be more likely to choose a socially responsible company as it promotes work-life balance, flexible hours and interest in taking care of its employees through private health care, life insurance or childcare bonuses. Also, customers would be more attracted in purchasing products from an environmentally aware company which practices recycling, GHG emission reduction and supply chain environmental check-ups.

I believe the results of a bibliometric research on the subject of "non-financial reporting" could be of use to scholars, academics and students, as they reveal the subject areas that have not been studied yet and could be researched in the future.

2. Literature review

A CSR report is seen as a way of measurement, disclosure and communication of information about CSR and sustainability topics, including a firm's CSR/ESG (Environmental, Social and Governance) activities, risks and policies. Companies can include CSR information in their annual report, provide a separate CSR report or even list non-financial information on their websites. Firms may refer to it as an "integrated report", "CSR report", "ESG report", "non-financial report", etc. Firms may also ask an auditor, consultant or another external assurance provider to certify their CSR reports and disclosures in order to create a higher credibility to its stakeholders (Casey and Grenier, 2015).

Corporate social responsibility is not a completely new concept, it even dates a few centuries ago (Carroll 2008). But it was not until the 1930s and 1940s that the specifics of social responsibilities of the private sector began to be discussed in the literature (Carroll 1999). The first definition, given by Bowen in 1953, was that the social responsibility of management is to make decisions based on the moral values of society.

The relevance of the relationship between companies and society was a new perspective added in the '60s, which focused mainly on profit making and to a lesser extent on employee satisfaction and social welfare management (Davis, 1960; Frederick, 1960; Walton, 1967).

The 1970's brought a growing sense of concern for the environment, human and labour rights, which raised expectations of corporate social behaviour. The Committee for Economic Development (CED) of the USA argued that the private sector should take on greater social responsibilities. As a result, the popularity of the concept of corporate social responsibility (CSR) has grown but has remained discretionary and limited to certain areas such as waste management, pollution and human and employee rights.

Carroll issued the first unitary definition of CSR in 1979, according to which specific expectations and responsibilities - legal, economic, ethical and discretionary - were placed upon corporations and the company's social objectives were perceived not as incompatible with business infrastructure but as an integral part of it. In the 80's and 90's, CSR operationalization started, with the concept being accepted as a decision-making process and the emergence of the first implementation models (Cochran and Wood, 1984; Strand, 1983). The adoption of several international agreements on sustainable development has also led to an increase in the awareness of the impact of corporate behaviour.

Strategic implementation of CSR began in the late 90's, after Burke and Logsdon demonstrated in 1996 that it could generate economic benefits by creating identifiable and measurable value for the company.

After 2000 international institutions, including the European Commission, realized that they could use CSR as a tool to respond to corporate challenges. Companies have been invested with new responsibilities in the areas of human and employee rights, the environment, anti-corruption and sustainable development. Sustainability

was the criterion that motivated them to make strategic decisions to meet society's expectations (Husted and Allen, 2007; Porter and Kramer, 2006).

Companies were able to improve their competitiveness and at the same time produce shared value through holistic implementation of strategic corporate social responsibility. This concept was included in the Paris Agreement on Climate Change, signed by 195 states in 2015 and the Sustainable Development Agenda adopted by UN member states in 2015, which defined sustainable development goals. The two documents reflected a new social contract in which corporations are expected to play an important role in the global efforts to achieve the sustainable development goals.

After 2015 the perception of the concept of CSR remained focused on its potential to produce shared value and the literature mainly reflected the implementation of CSR and its impact on areas of performance related to sustainable development goals.

3. Research methods

The bibliometric research implies several steps:

- Identifying the necessary data;
- Collection of data;
- Quantitative data processing;
- Result interpretation. (Radu, 2021).

Bibliometric research analyses a large quantity of scientific publications, using statistical instruments to determine trends and citations associated with a specific subject on certain categories like years, countries, authors, journals, methods, theories and research questions. (Paul, Criado, 2020).

A graphic bibliometric analysis can be drawn up with the help of the VOS Viewer programme (Visualisation of Similarities). This programme is highly used in bibliometric analysis of any kind.

The data for this research was collected from Web of Science (WOS), an online data platform. WOS platform, created and maintained by Clarivate Analytics, includes more than 34500 journals, books, articles and it contains 116 million publications.

For this research I used the following keywords: „non-financial reporting” OR „CSR reporting” OR „integrated reporting” OR „sustainability reporting”. After that, I limited the research to select only information about released publications from 2012 to 2021 (I excluded year 2022 from the research, as it has not ended and the graphic comparison would have no relevance). Therefore, the statistical data sample that I obtained, contains 2,411 scientific papers (articles, books, etc.) and 200 authors, most of them (97.43%) written in English.

4. Results and discussions

4.1. Bibliometric analysis of scientific papers and citations

The graph in Figure 1 represents the number of scientific publications with the subject of „non-financial reporting” during the past decade. It can be noticed the increasing trend of „CSR reporting” publications, signalling a high interest on this subject by researchers. So, if at the beginning of the research period i.e. 2012-2013, only an average of 62 papers were published, at the end of it, in 2020-2021, the average spikes to 423 publications.

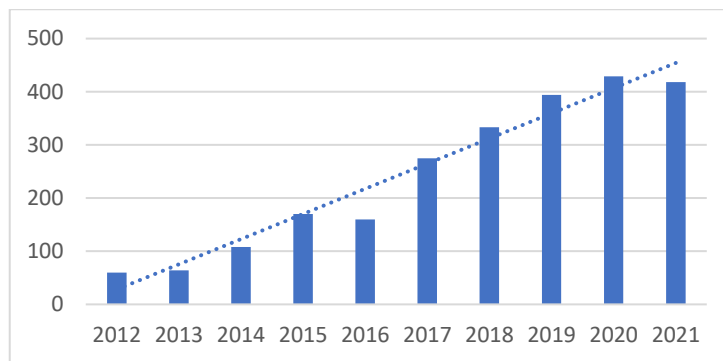


Figure1: The evolution of „non-financial” publications from 2012 to 2021
Source: Author’s processing

This powerful increase in the research interest in this field is due to the fact that more companies disclose a larger quantity of non-financial information. A KPMG study shows that nearly 80 percent of the N100 companies worldwide reported on sustainability as of 2020. In comparison, nearly 90 percent of the world's largest companies by revenue as defined in the Fortune 500 ranking of 2019, have reported on sustainability that year. An increase in the global sustainability reporting rate from N100 companies is expected in the coming years.

Furthermore, graph in figure 2 shows that the most frequently used journal is “Sustainability”. Sustainability is an international, cross-disciplinary, scholarly, peer-reviewed and open access journal of environmental, cultural, economic and social sustainability of human beings. It provides an advanced forum for studies related to sustainability and sustainable development and is published semi-monthly online.

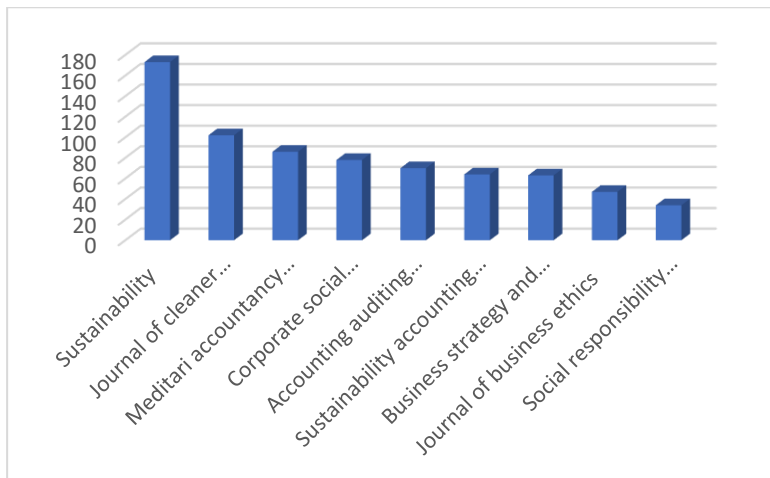


Figure2: Top 10 Journals publishing research papers on „non-financial reporting” field

Source: Author’s processing

In a bibliometric study the citation analysis is one of the most important tools, as it considers the scientific knowledge of a paper and the value recognition of a previous publication. The citation analysis consists of several research techniques, from determining the number of citations to the co-authorship study through simultaneous citations (Lord, 1984).

Table 1 reveals the top 20 countries most interested in publishing scientific research on the topic of “non-financial reporting”. Italy published the highest number of research papers during the past decade, 292. But because the importance of the scientific papers is given by the number of citations, it is the English-speaking countries (England, Australia and USA) that published the most relevant work on the subject of “CSR reporting”, displaying the most citations, with over 5552 citations. Even though Romania published a relatively high number of papers (136), their citation number is low.

Table 1: Top 20 most interest countries in releasing „CSR reporting” publications

| Country | Citations | Documents |
|--------------|-----------|-----------|
| England | 5647 | 237 |
| Australia | 5586 | 230 |
| USA | 5552 | 210 |
| Italy | 5108 | 292 |
| Spain | 4584 | 168 |
| Germany | 3352 | 127 |
| Canada | 2664 | 75 |
| New Zealand | 2570 | 76 |
| South Africa | 2387 | 112 |

| | | |
|-------------|------|-----|
| China | 2274 | 111 |
| France | 2015 | 70 |
| Netherlands | 1725 | 48 |
| Scotland | 1131 | 27 |
| Malaysia | 895 | 78 |
| Belgium | 790 | 20 |
| Poland | 767 | 115 |
| Sweden | 752 | 30 |
| Portugal | 643 | 58 |
| Romania | 583 | 136 |
| Finland | 577 | 24 |

Source: Author's processing

4.2. Bibliometric analysis of the Keywords

The keywords used by authors, with a higher occurrence of 20 times in the WOS data base were selected for the final keyword bibliometric research and it resulted in a number of 58 keywords from the total of 4154. In Table 2, the top 20 keywords used by authors are sorted in decreasing order based on the link strength between them.

Table2: Top 20 keywords

| Keywords | Occurrences | Total link strength |
|---------------------------------|-------------|---------------------|
| sustainability reporting | 586 | 510 |
| integrated reporting | 489 | 414 |
| corporate social responsibility | 352 | 387 |
| sustainability | 257 | 314 |
| sustainable development | 147 | 183 |
| content analysis | 113 | 162 |
| corporate governance | 121 | 152 |
| non-financial reporting | 131 | 132 |
| global reporting initiative | 88 | 130 |
| csr | 95 | 129 |
| gri | 75 | 121 |
| legitimacy theory | 67 | 113 |
| disclosure | 80 | 112 |
| stakeholder engagement | 61 | 108 |
| reporting | 82 | 106 |
| stakeholder theory | 59 | 98 |
| csr reporting | 117 | 95 |

| | | |
|----------------|----|----|
| stakeholders | 62 | 95 |
| assurance | 61 | 92 |
| accountability | 53 | 77 |

Source: Author’s processing

Figure 3 represents a scientific map which visualises the clusters of publications where the keywords from the articles searched are found. Keywords which have a link to each other, from the same cluster, (appear simultaneously in the same publication) have the same colour. The relevance of each key word is given by the size of the dot, so the larger the dot, the more important it is. The links between the dots, graphically represented by lines between them, show the occurrence frequency of the two terms it connects: the closer the keyword is to the terms, the stronger the relationship.

As a result of the research, I obtained three clusters of keywords. The red cluster makes up most of the keywords. The biggest dot from this group is represented by the term: „corporate social responsibility”. The cluster contains 10 keywords: corporate social responsibility, assurance, CSR, CSR reporting, GRI (Global Reporting Initiative), Non-financial reporting, Reporting, Stakeholders, Sustainability, Sustainable development.

The most used terms, keywords in author’s publications, which have an occurrence of over 300 times are: „Sustainability reporting”, „integrated reporting”, „corporate social responsibility”. There are also 4 terms referring to stakeholders, which implies their interest in this type of reporting.

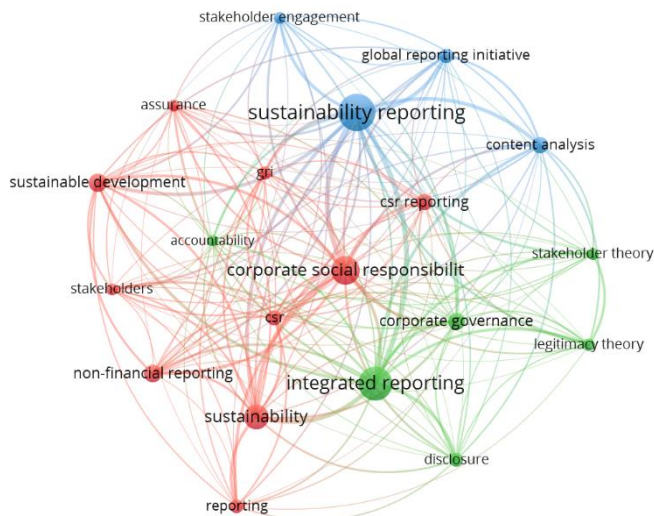


Figure 3: Bibliometric analysis of keywords in “non-financial reporting” publications.

Source: Author’s proceedings using VOS viewer

4.3. Bibliometric analysis of co-authorship by countries

I examined the network of collaboration between authors in terms of their countries of origin to identify the interest of the scientific world in the direction of the CSR reporting, corresponding to geographical areas. Therefore, I set a minimum number of documents of a country at 20 and from a total of 96 countries, 33 were selected. Results are depicted in Figure 4.

The size of a dot shows the country's research relevance in the field of CSR reporting. The line thickness and the distance between dots represents the collaboration between authors of different countries. Figure 4 shows six clusters of co-authorship from different countries. The country that had the most international collaborations is England, with 29 links, represented in the cluster by the green colour, and the authors from England have mostly collaborated with authors from Scotland, Australia, India, Denmark, Italy and Sweden.

Romania also shows a high interest in publishing CSR reporting information, with 136 documents published and its authors collaborated with authors from 12 different countries the most frequent being: Croatia, Czech Republic, Poland, England.

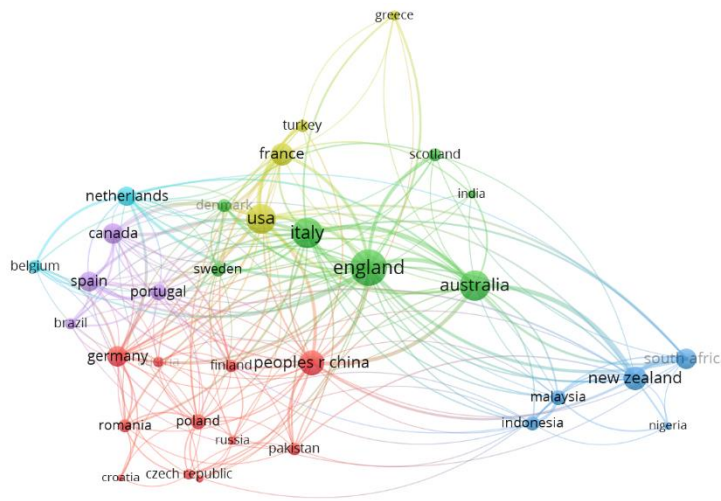


Figure 4: Country co-authorship representation in the „non-financial reporting” field
Source: Author's proceedings using VOS viewer

Conclusions

The bibliometric analysis in this study reveals several interesting information:

- The “CSR reporting” publications have shown an increasing trend throughout the past decade, going from 60 documents per year in 2011 to over 800 documents in 2021.
- The keywords analysis shows that CSR reporting is also strictly tied to integrated reporting, corporate governance and stakeholders' engagement.

- The most relevant country in researching “CSR reporting” is England and its authors have a wide variety of international collaborations like Australia, Sweden, etc.

The number of bibliometric studies with the subject of “non-financial reporting” is limited at international level and this is why I consider this analysis contributes to the accounting research by providing premises for further research and a starting point for relevant bibliographic references on this topic.

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POLAND – MODEL OF REGIONAL DEVELOPMENT IN CENTRAL AND EASTERN EUROPE

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Abstract: *Regional development plays an important role in the economic and social policy of each Member State of the European Union. In this article, we have analyzed the absorption of European funds in Poland, their impact on regional development and identified the pragmatic ways to improve absorption, which will be useful in future financial years. The aim of the research is to identify the structure of the absorption system, the components on which it is built, the mode of operation and the determinants of the absorption process.*

Keywords: *Poland, regional development model*

JEL classification: *F63, F65*

Introduction

Cohesion policy is the most important source of support for regional development. At EU level, more than half of the funding it provides is provided through the Structural and Investment Funds, which are the instruments of cohesion policy. Cohesion policy for the MFF 2021-2027 must respond to such prerogatives as a smarter, greener, more connected, more social Europe and, last but not least, closer to its citizens. In this regard, European Union investment will focus on the areas that will bring the most added value.

The European Regional Development Fund (ERDF), the Cohesion Fund (CF) and the European Social Fund (ESF) are the instruments through which the objectives of regional policy are achieved. Together with the European Agricultural Fund for Rural Development (EAFRD) and the European Fisheries and Maritime Fund (EMFF), they constitute the European Structural and Investment Funds.

Regional development plays an important role in the economic and social policy of the Member States.

Regional development policy is designed as a series of measures planned and promoted by local and central government authorities, in association with various economic participants (private, public, voluntary), to ensure economic growth, in a dynamic and sustainable, by efficiently exploiting the regional and local potential, in order to optimize living conditions. Regional policy focuses on areas such as: business development, labor market, attracting investment, technology transfer,

developing the I.M.M. sector, improving infrastructure, environmental quality, rural development, health, education, education, culture.

The regional development policy is implemented over a seven-year programming period and follows trends in population development, migration, relative growth in activity, research and development spending, and public spending dynamics. , the liberalization of international trade, managing to connect them with other Community policies. The regional development policy concerns both the general trends identified and the specific regional ones in which they are implemented.

Regional development is a new engine aimed at supporting a variety of economic activities, increasing private investment, reducing the unemployment rate and generating an improved standard of living for the citizens of the European Union.

1. Research methodology

This part of the presentation of the methodology used aims to facilitate the completion of the following passages of the research paper, by presenting the sources of information that have been used in the following.

The starting point of this research was bibliographic and webliographic documentation from books, national and international articles or various current studies in the literature. I will take into account both the national and the European context. We have taken into account the statistical reports provided by local, national and, last but not least, European bodies. We used the “Anelis” platform to obtain bibliographic information. Using these resources we were able to make an analysis of the research papers that we considered to be of interest as a topic for this study. In order to obtain the data set, the keyword used in the query was: “regional development in poland”, restrictions being imposed on the field of research and the year of publication of the articles.

The information contained in this paper is updated as of April 4, 2022.

2. Literature review

In order to synthesize the main concepts and deepen the research, we took into account some of these landmarks, which formed the theoretical-methodological basis, describing the concepts of several specialists on the research approach, the methods used and the conclusions reached:

- Sabău-Popa (2010) briefly presents the budgetary developments of the European Union, since the establishment, the budgetary process at the level of the European Union, the budgetary impact of the Member States on the European Union. In the last chapter of the paper "*The European Union Budget and Community Funds*" it examines in detail the funding provided to Member States through Community funds allocated to the various common policies of the European Union.
- Ianoși, A. L. (2018), due to the special importance of using European funds as a tool to reduce the gaps between developed and underdeveloped Member States of the European Union and to improve the living standards

and living standards of citizens of developing countries. development, in the paper *“Romania's road to an efficient absorption of European funds. About the transformation of the Polish miracle into the Romanian miracle. Comparative analysis”* analyzed the absorption of European funds in Romania during 2007-2013 and the results of the absorption process, carried out for the first time in Romania. As a secondary objective, more attention was paid to the process of absorption of European funds in Poland, which led to the operation of relevant comparative analyzes between the two states on their absorption capacity and the quality of use of European funds. The research also aimed to identify the main factors that had a negative influence on the efficiency of absorption of community funds in our country and to propose viable solutions for their removal or minimization in the 2014-2020 programming period.

- Vlădoi, J. M. (2021), presents in the work *“Accessing European funds: the stake for Romania's development”* conceptual aspects regarding the European Union, principles and values that govern it, the purpose for which European funds are set up and how they are allocated and reimbursed to the Member States. The investment priorities for the next financial period 2021- 2027, the role and impact of European funds on the economies of the Member States, their contribution to economic growth, the exemplification of successes through the Poland model as a success story are highlighted. It presents the way in which the access and management of the allocated funds in the periods 2007-2013 and 2014-2020 have been achieved so far. It also identifies the difficulties encountered and the impact of the deficiencies found, the causes that generated them and the short, medium and long-term effects that led to a poor absorption. All the information presented is based on a methodology developed on documentation, analysis and comparison of statistical data that support the analysis of the results underlying the identification of problems encountered in each operational program, the causes that generated problems in fund management, and the negative effects of very low absorption rates.
- Heijman, W., Koch, T., (2011), in the article *“The allocation of financial resources of the EU structural funds and cohesion fund during the period 2007-2013”*, describes a model to predict the allocation of EU structural funds and the Cohesion Fund to the Member States. By comparing the planned allocation with the actual allocation, it is possible to identify which Member States receive more and which countries receive less than the planned quota. The variables that determine the allocation forecast are the GDP per capita and the size of the population.
- Mosionek-Schweda, M. (2014), in the article *“The absorption of the European Funds granted to Poland for the period 2007-2013 - Examples of Projects and Evaluation”*, presents the evaluation of the use of EU funds in Poland for the period 2007-2013. The analysis was based on

statistics published in Poland by the Ministry of Infrastructure and Development, Eurostat and the European Commission. The analysis of the sources on this topic, as well as the observations of the business practices, allowed the formation of a thesis that Poland used the European funds competently for the years 2007-2013 and benefited considerably from them.

- Tome, E., Tracz-Krupa, K. (2019), "*The European social fund in the Visegrad countries in the 2007-2013 programming phase*", define the impact of investment in training in education by the European Social Fund (ESF) in four Eastern countries, namely Poland, Hungary, the Czech Republic and Hungary. These countries have some political, cultural, social and economic similarities and have some things in common in the areas of human resource development. The authors use human capital theory to analyze the context, operations and impact of the ESF in the four Visegrad countries (V4) between 2007 and 2013.

3. Poland - a model of regional development in Central and Eastern Europe

For Poland - as a Member State, the analysis of the country report, compared to the stage of fulfilling the targets assumed by this country in the period 2007-2015, highlights the evolution and economic stability of Poland, but also the status of regional leader, depending on the degree of absorption, is due to the concrete measures that Poland has taken.

In 2011, Poland amazed Europe with its unpredictable results in absorbing European funds. In 2011, Poland managed to exhaust all European funds allocated to large-scale sustainable projects, all two years before the official end of the programming period. Under these conditions, Poland and Italy were the only European countries to receive additional funding for their performance, amounting to 10% of the amount allocated in 2007, thus registering a 110% absorption of European funds in 2013, while also acquiring the title of regional leader in the absorption of European funds for the period 2007-2013 (Vlădoi, J. M., 2021, p. 79).

The European Union is commonly seen as a group of 28 member states, which are areas with different levels of economic and social development, different traditions and aspirations, and have joined EU structures at different stages of European integration. However, according to the EU's territorial classification, called NUTS, the EU is a group of 270 regions, among which development disparities are even more evident.

When assessing the level of wealth of the regions, the rate based on **gross domestic product (GDP) per capita (or GDP per capita) in relation to the EU average** is used. According to Eurostat, in 2008, Inner London in the United Kingdom was the richest region in the EU, with a GDP per capita at 343% of the EU27 average. The leading regions in this ranking were also: Grand Duchy of Luxembourg (279% of the EU27 average), Brussels in Belgium (216%),

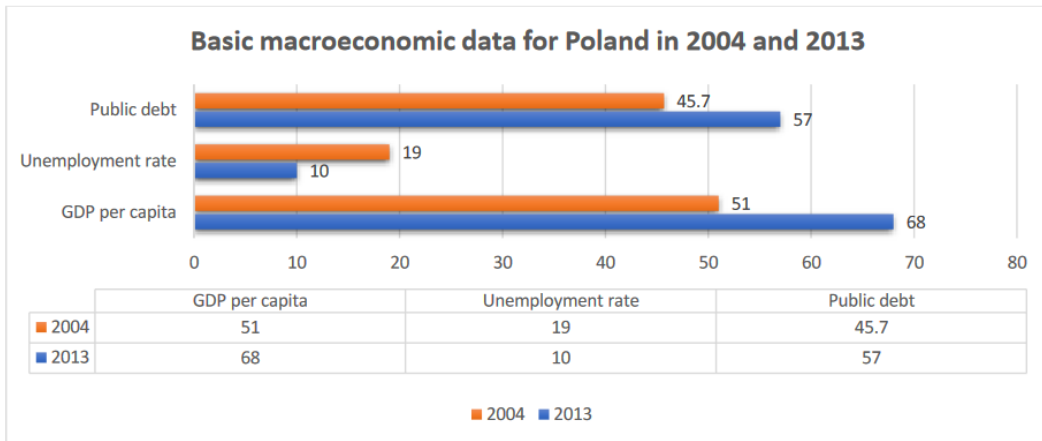
Groningen in the Netherlands(198%), Hamburg in Germany (188%) and Prague in the Czech Republic (172%). Of the 40 regions above 125% of the EU's average GDP, ten were in Germany, five in the Netherlands, four in Austria and the United Kingdom, three in Spain and Italy, two in Belgium. and Finland and one each. in the Czech Republic, Denmark, Ireland, France, Slovakia, Sweden and Luxembourg. On the other hand, in every fourth region of the EU, GDP per capita was below 75% of the average. Among the poorest regions in the ranking were all in Bulgaria and Romania. Of the 64 regions below 75%, 15 were in **Poland**, seven in the Czech Republic and Romania, six in Bulgaria and Hungary, four in Italy and Portugal, three in Greece, France and Slovakia, two in the Kingdom. United, one in Spain, Estonia, Latvia and Lithuania(Mosionek-Schweda, M., 2014, p. 48).

According to statistics published by Eurostat in 2014, the three leading regions in the regional GDP per capita ranking in 2011 remained the same, but some changes can be seen in the subsequent positions of this list. The richest regions in the EU were: Inner London in the UK (321% of the EU average), Grand Duchy of Luxembourg (266%), Brussels in Belgium (222%), Hamburg in Germany (202%), Bratislava in Slovakia (186%), Île de France in France and Groningen in the Netherlands (both 182%), Stockholm in Sweden (173%) and Prague in the Czech Republic (171%). Of the 41 regions above 125% of the EU average, eleven were in Germany, five in the Netherlands and Austria, three in Italy, Belgium and the United Kingdom, two in Spain and Finland, one in Czech Republic, Republic of Denmark, Ireland, France, Slovakia and Sweden, as well as the Grand Duchy of Luxembourg in the single region. The list of the twenty poorest regions in the EU contained the same regions. The lowest eight regions in the ranking were all in Bulgaria and Romania, with the lowest figures being recorded in Severozapaden in Bulgaria and Northeast in Romania (both 29% on average), followed by Severen tsentralen (31%) and Yuzhen tsentralen both in Bulgaria (32%). 75 regions had a GDP per capita below 75% of the EU average (fifteen in **Poland**, nine in Greece, seven in the Czech Republic and Romania, six in Hungary, five in Bulgaria and Italy, four in Portugal and the United Kingdom). United, three in Slovakia, two each in Spain, France and Croatia, one in Slovenia, as well as in the Member States of the Single Region of Estonia, Latvia and Lithuania) (Mosionek-Schweda, M., 2014, p. 49).

According to the NUTS classification, Poland is divided into 16 regions, five of which are included in the ranking of the twenty poorest regions in the European Union. The analysis of the data indicates, however, a gradual increase in GDP per capita in these regions compared to the EU average. There is no doubt that the support from European funds allocated to Poland has contributed to the development of these regions.

The Republic of Poland, the largest central European state, became a full member of the EU Member State on 1 May 2004. Within the EU-25, Poland ranked, at the time of accession, the penultimate position in the ranking of developed Member States. EU, with a GDP per capita of 11,678 euros at a European average of 25,400

euros, the last place being occupied by Latvia, with a GDP per capita of 11,100 euro (Ianoși, A. L., 2018, p. 131).



Source: Mosionek-Schweda, M. (2014), *The absorption of the European Funds granted to Poland for the period 2007-2013 - Examples of Projects and Evaluation*, 2014

Figure 1 Basic macroeconomic data for Poland in 2004 and 2013

Measures taken by the Polish state since the beginning of the post-communist period, continued in the pre-EU accession period, then in the first financial year 2004-2006, and measures prepared for implementation in the 2007-2013 programming period (extending until 2015) created the ideal premises for shaping the architectural basis of an efficient mechanism for absorbing European funds and ensured the success of Poland in this field since the end of 2013. As shown in official documents, especially the National Development Strategy of Poland 2007-2015, the process of decentralization of public administration and business, administrative division into voivodeships, districts and communes, efficient regionalization, institutional reforms, massive investments in human capital specialized in absorbing European funds, simplifying procedures for accessing funds, strengthening political stability, measures anti-corruption, operation of legislative guidance, consultancy and project support services, consulting with civil society on how and where to use the funds, encouraging civil society to participate in democratic speeches, referendums or to take citizens' initiatives to improve the mechanism of funding. absorption, setting the target of absorbing European funds as the main national target (without neglecting funding from other adjacent sources such as the state budget, self-government territorial budgets, public finance sector entities, European Economic Area Financial Mechanism, Norwegian Financial Mechanism and the European Investment Bank), establishing the efficiency of public institutions and their representatives according to the degree of absorption obtained, all of which make up the structure of the Polish absorption model, each with a specific and indispensable role in structure (Vladoi, J. M., 2021, p. 79).

For the efficient use of European funds, Polish experts did not hesitate to adapt models of practice in the absorption of European funds of other Member States to the Polish specific, taking into account both EU development strategies and their objectives (Ianoși, A. L., 2018).

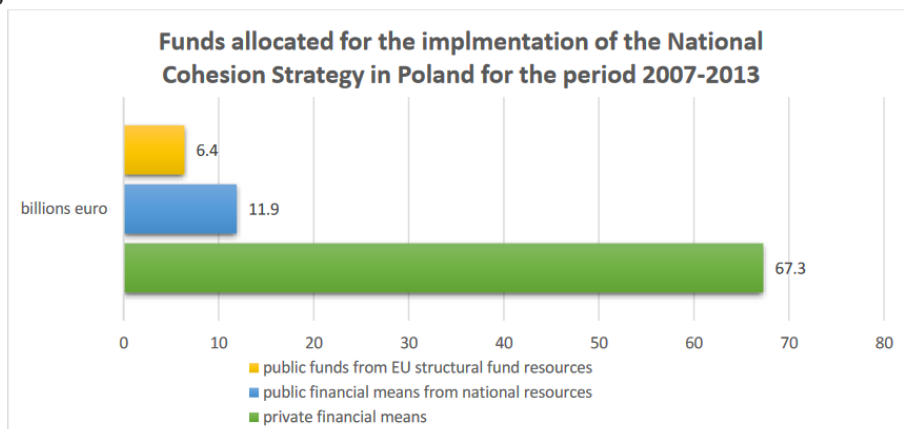
Poland's successful model in terms of high absorption of funds was due to the efficient institutional framework, the good interaction between its components, the well-prepared human capital within the system.

| Operational programs | Allocated funds (billions euro) | Allocated funds (% from the total allocation) |
|-------------------------------------|---------------------------------|---|
| Infrastructure and environment OP | 27,9 | 42 |
| Regional 16 OP | 16,6 | 25 |
| Human capital OP | 9,7 | 14 |
| Innovative economies OP | 8,3 | 12 |
| Development of Eastern Europe OP | 2,3 | 3 |
| Technical support OP | 0,5 | 1 |
| European territorial cooperation OP | 0,7 | 1 |
| National reserve | 1,3 | 2 |
| Total | 67,3 | 100% |

Source: Mosionek-Schweda, M. (2014), *The absorption of the European Funds granted to Poland for the period 2007-2013 - Examples of Projects and Evaluation*, 2014

Table 1 Allocation of structural funds in Poland for the period 2007-2013

Of the funds allocated for the period 2007-2013, the Polish authorities attracted most of the available money. The ambitious targets set by the Government and the Ministry of Regional Development have been repeatedly exceeded. The record was reached in 2011, when 10 billion euros, European money, were spent on regional projects.



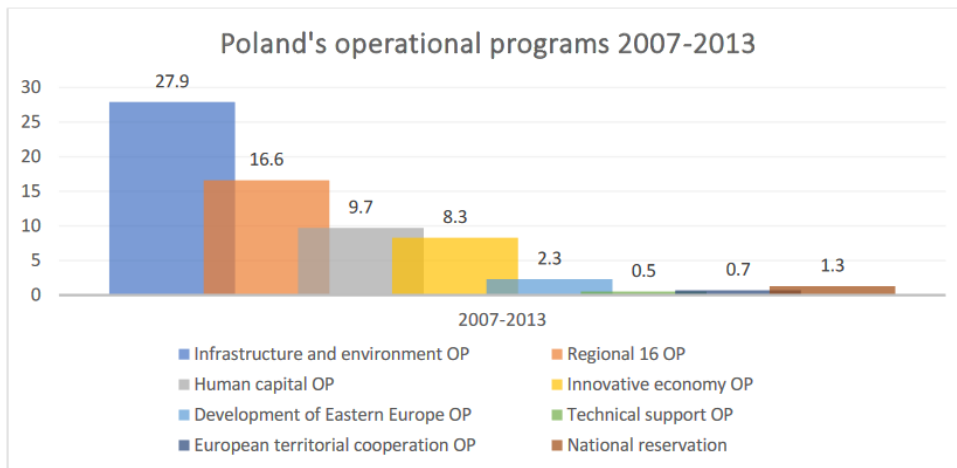
Source: <https://www.slideserve.com/spencer/changes-in-polish-regional-policy-after-the-accession-to-the-european-union-powerpoint-ppt-presentation>

Figure 2 Polish regional policy budget 2007-2013

The amount of the European contribution to the implementation of the National Strategic Reference Framework for the period 2007-2013 is EUR 67.3 billion, making Poland the largest beneficiary of European funds. Over EUR 66.5 billion has been implemented under the Convergence objective, over EUR 557.7 million has been allocated to European Territorial Cooperation. In addition, more than EUR 173.3 million has been allocated to cross-border cooperation programs (using the European Neighborhood and Partnership Instrument).

Under the Convergence objective, 67% of the financial resources will come from the Structural Funds (52% from the European Regional Development Fund, 15% from the European Social Fund) and 33% from the Cohesion Fund.

The operational programs available in Poland are the largest not only for the years 2007-2013, but also in the history of the EU. The Structural Funds are the basic instrument of EU structural policy.



Source: <https://www.paih.gov.pl/europeanfunds#>

Figure 3 Poland's operational programs 2007-2013 (billion euro)

The implemented measures have led Poland to attract 60% of funds in small projects (innovation, education, IT, higher education) and 40% in major, large-scale projects (infrastructure, roads, railways, health, culture, programs for innovative companies). which promotes new ideas on the market, human capital programs), quickly depleting the funding received. Following the results obtained, this model represents a favorable evolution compared to the 2004-2006 programming period, when the regions partially controlled the implementation of the Operational Programs.

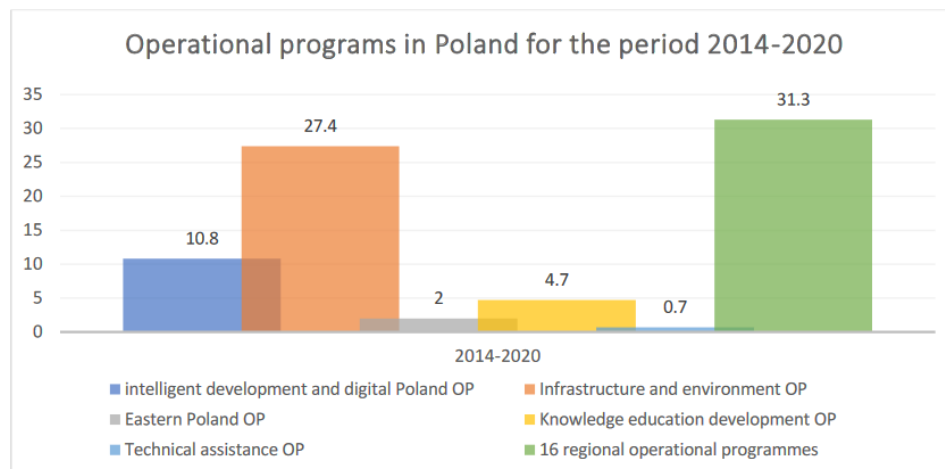
A basic component of the Polish absorption model, which practically supported this mechanism, is represented by the 16 regional operational programs (one for each region), made up according to the development needs of each voivodeship and reaching approval. a special program for the development of Eastern Poland, which represents the 5 most underdeveloped Polish regions.

As mentioned above, Poland has been the largest beneficiary of EU cohesion policy support for 2007-2013. All Polish regions were eligible for EU grants under the Convergence Objective and the Cohesion Fund. In 2008, only one region exceeded the level of GDP per capita at 75% of the EU average, reaching 89%.

Although the EU budget for 2014-2020 was generally lower than in the 2007-2013 programming period, almost € 4 billion was allocated to Poland, more than in the 2007-2013 financial framework (<https://getsix.eu/resources/doing-business-in-poland/eu-funds-in-poland-2014-2020/>).

Cohesion policy has been of great significance to the new Member States, whose development and standard of living in most regions have differed dramatically from that of the old EU countries. In both the financial periods 2007-2013 and 2014-2020, Poland was the main beneficiary of cohesion policy (€ 67 billion and approximately € 77 billion respectively). The Mazowsze region (which includes Warsaw) is among the top 20 beneficiaries of European regional development fund investment (approximately € 6 billion since 2016).

Between 2014 and 2020, Poland has been allocated € 105.8 billion from the EU budget - € 72.9 billion for cohesion policy and € 28.5 billion for agricultural policy. In the 2014-2020 programming period, Poland managed six Operational Programs (OPs) and 16 regional programs (one for each region).



Source: https://www.case-research.eu/files/?id_plik=6170

Figure 4 Operational programs in Poland for the period 2014-2020 (billion euros)

The assessment of the benefits of economic growth is based on estimates, which show positive directional effects. In the last two decades, Poland has developed at an average rate of almost 4%, approx. 1.5-2 percentage points faster than the old European countries. Thus, the level of income per capita has moved from the level of approx. 45% in 2004 to 70% of average income in 2017 in the EU 28 (Eurostat 2018).

Conclusions

In conclusion, within the Polish absorption model, 3 main elements could be distinguished that were the basis of Poland's success: regionalization, human capital and common will. The measures adopted and applied by the Polish executive under the Polish absorption system can be listed in simplified form as follows:

- Decentralization and Regionalization (Multi-level Governance);
- Well-trained human capital;
- Common will (political and social);
- Establishing the 6 priorities of the National Development Strategy 2007-2015;
- Examples of practices from other Member States;
- Ensuring political stability and efficient governance;
- Fighting corruption and embezzlement;
- Simplifying bureaucracy in accessing and using funds;
- Development of entrepreneurial culture;
- Consultations with civil society;
- Government support for financial support of contracted projects;
- Establishing special programs to support underdeveloped regions;
- Implementation of efficient and effective projects: sustainable development.

In addition to these measures, which have contributed to the effective absorption of European funds, regional development in Poland has been supported by the good cooperation of stakeholders: future beneficiaries and public and private actors who have faced the challenges posed by the shortcomings of the absorption system. Strengthening cooperation at all levels of government, monitoring the performance of regional and sectoral policies and the continuity of legislative corrections were challenges that could be overcome by the parties involved in the management of European funds.

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THE MARATHON OF ACHIEVING THE OBJECTIVES OF THE EUROPEAN GREEN DEAL, mirrored in integrated reporting

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Abstract: *The European Green Deal (EGD) signing has kicked off a "long-haul route" that European companies must take to protect the environment and mitigate climate change. To what extent the Romanian companies have started, we can only find out if they are willing to provide information in the annual reports. The elements presented in this regard through integrated reporting and the informative role will influence the decision-making regarding the future of the economic entity regarding the operational activity, financing needs, or investment possibilities. All this considers risks and opportunities and the geographical space in which the economic entity operates. In this article, we aim to identify the information provided by companies on the actions taken to achieve the purpose of the European Green Deal. In this regard, there were analyzed annual reports elaborated by the companies whose securities are traded on the Bucharest Stock Exchange and carry out their activity in the fields with impact on the environment and climate, respectively, the extractive industry and the energy-producing industry. We extracted financial and non-financial information from the annual reports regarding the companies' actions to protect the environment, maintain sustainability, reduce pollution, and develop an ecological lifestyle. As a result of the research, we identified the differences and similarities in presenting information in the annual financial reporting before (2017-2018 period) and after the end of the European Green Deal (2019-2020). We consider that the analysis of the information – regarding the protection of the environment, the climatic neutrality, the ecological life profile, the economic growth – disclosed in the financial statements of the companies subjected to the case study in the light of the EGD represents the authors' contribution.*

Keywords: *European Green Deal; Integrated reporting; Explanatory notes; Environmental protection; Economic growth; Sustainability.*

JEL Classification: *M41; O44; Q56.*

Introduction

From the desire to satisfy the users' needs for accounting information, the accounting professionals, through the complexity of the elements presented in the integrated reporting, facilitate the unraveling of the image of the economic entity. As outlined

by the financial information generated by the accounting, the image of the economic entity is not the complete picture. Of equal importance, non-financial information shapes a clearer picture of the economic entity.

For a promising future, economic entities must make efficient use of resources – financial, non-financial, or natural – and contribute to reducing pollution or environmental degradation. The European Green Deal (EGD) is the promise of a united Europe to ensure the sustainability of the European economy by accepting environmental or climate challenges and turning them into new opportunities for economic entities.

Will environmental and climate change objectives affect companies' behavior in disclosing information from integrated reporting? For example, are companies willing to spend extra on such activities? For example, are companies willing to invest toward these goals? Can we still talk about economic growth when challenges arise regarding acquiring fixed assets focused on reducing gas emissions or energy efficiency?

These topics led us to look for answers to the following questions in our research:

RQ1. Is the disclosure by companies of their efforts to protect the environment influenced by the signing of the European Green Agreement?

RQ2. Does the economic growth of companies depend on the field of activity? Is its evolution the same as that of the average number of employees?

Literature Review

A careful analysis of the scientific papers indexed in the Web of Science database reveals a multitude of topics related to integrated reporting, performance, impact, or risk of some factors on the management or sustainability of a company. We have found several groupings of research topics concerning the subject of our research.

The most studied association is Integrated reporting concerning management and performance, sustainable development, non-financial reporting, information or firm value, then that of impact and risk studied together with benefits, challenges, cost-effectiveness, health or quality of life. Another association of research interests is growth concerning cointegration, models, economics, prices, and innovation. Of less broad interest – perhaps also for recent interests in these topics – are the links between topics such as trade, energy, industry, globalization, and business cycles.

The links between the research topics are very many and diverse; the detailed illustration of the main links, made with the help of the Biblioshiny for Bibliometrix, is presented in **Figure 1**.



Figures 1: Related research for "Integrated reporting" and "Sustainability."

Source: Authors projection by <https://access-clarivate-com.am.e-nformation.ro/> with Bibliometrix R Package

We note that integrated reporting has been studied with sustainability, sustainable development, stakeholders, corporate social responsibility, environmental reporting, environmental accounting, sustainability reporting, human capital, and non-financial reporting. In addition, analyzing the sustainability research associations, we observe research on ways to continue the activity of companies with a minor impact on the environment and climate change, even the possible innovations that can be made for this purpose.

A bibliometric analysis of the main links of keywords with the publications in which these researches appear and the countries from which their authors come is highlighted in **Figure 2**. We have selected only the top ten most used elements in each category - source, keywords, and country of authors.

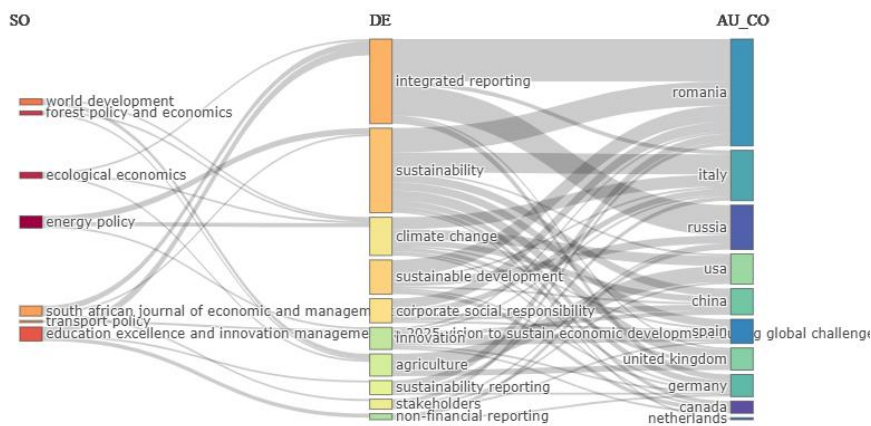


Figure 2. The first ten important source-keywords-country links

Source: Authors projection by <https://access-clarivate-com.am.e-nformation.ro/> with Bibliometrix R Package

We note the significant interest in integrated reporting and sustainability in different publications. In sources in energy or transport policies, research for sustainability prevails, those for integrated reporting being presented in publications of green

economy, excellence in education, and innovation management. From the authors' point of view, those in Romania are focused on the two keywords, more than half of them showing interest in this regard.

These last three research directions are not found in the ten most essential sources. However, they are research topics for authors from Italy, Russia, USA, China, Spain, United Kingdom, Germany, Canada, and for few from Netherlands. In their research, Italian authors, like the American ones, associated sustainability with climate change, corporate social responsibility, and sustainability reporting. In addition, the authors from Russia have carried out significant research on integrated reporting while at the same time turning their attention to corporate social responsibility, sustainability reporting, and stakeholders.

The publication of the European Green Deal on 11 December 2019 was the moment when the member countries of the European community started a long-distance route to improve the well-being and health of Europeans, to transform the European economy into a modern economy, competitive and efficient.

The European Green Deal (EGD) covers the following areas: Clean energy and increasing the role of alternative energy sources, climate neutrality and sustainable energy, Circular economy and ecological production cycles, sustainable mobility by promoting the development of environmentally friendly transport, biodiversity by ensuring the protection of ecosystems, promoting the concept from field to table by ensuring the sustainability of food systems and food safety (Skydan et al., 2022; Stump 2021; Smol et al., 2020; Wolf et al. 2021).

The issue of expenditures committed by economic entities for environmental protection was the subject approached by many authors, the promoted concept being that of corporate social responsibility (Carrol 1979, Jasch, 2003; Reynolds & Yuthas 2007; Jung et al., 2022;). Some authors have analyzed in antithesis the social responsibility and irresponsibility of corporations or the irresponsible behavior of employees and consumers (Jung et al., 2022; Farooq et al., 2014; Ferreira & Ribeiro, 2017; Turban & Greening, 1997; Oncioiu et al. 2018).

Climate neutrality by reducing gas emissions to increase air quality and improve quality of life was an old but essential objective for many countries, brought back to attention with the European Green Deal. This objective can be achieved at the national and European levels through the involvement of economic entities through governmental and European policies to support the acquisition of electric means of transport by promoting public transport (Ringel et al., 2021; Tsakalidis et al., 2020; Fragkiadakis et al. 2020, Rietmann et al. 2020)

The change of lifestyle to the ecological lifestyle must be based on the directions mentioned above on the activity of development, production, and use of energy from renewable sources. This act has attracted the attention of numerous studies (Hanmer et al., 2022; Kougiyas et al., 2021; Fusco et al., 2022; Gielen et al., 2019; Mohsin et al., 2022;)

Nevertheless, a big question arises: How will economic entities respond to these new challenges? How will these efforts of companies be reflected in financial reports? Paying attention to the achievement of the EGD's objectives, will the performance

(economic, social, or financial) of economic entities be different? Although the answers to these questions are few or almost non-existent, there are still a few studies that have tried to analyze the behavior of economic entities regarding the information disclosed in the financial statements and integrated reporting: (Chatzistamoulou & Tyllianakis, 2022; Voicu et al. 2022; Mensah et al. 2020; Turzo et al. 2022; Caiazza et al. 2021)

Research Methodology

In this research, we started from the current state of knowledge in this field, making an overview of the scientific literature with the help of the Web of Science database. In addition, we performed the bibliometric analysis of the information obtained with the help of the Bibliometrix R Package. The opinions of the authors we have studied are also presented in the literature review out of a desire to discover new ideas and recent research.

As mentioned before, the main objective of this research is to identify the actions taken by economic entities to achieve the EGD objectives by presenting them in the annual reports of companies in fields of activity with an impact on the environment. In order to achieve the research objective, to ensure comparability before and after 2019, the year of signing the EGD, we decided that the analysis period of the information disclosed by companies will be 2017-2020. This period allows us to draw comparable conclusions about the impact of the EGD in presenting the information in the integrated reporting.

The first step in our research was to identify the areas of activity that impact the environment, and the companies envisaged are those listed on the Bucharest Stock Exchange. The fields of activity that we considered to impact the environment are Extractive industry, Production and supply of electricity and heat, gas, Sanitation, and waste management.

At the stage of verifying the existence of the annual reports, we found that out of the 14 companies operating in the mentioned fields, one company is suspended from trading. However, three companies do not submit an annual report on the period subject to the case study. One company offers only three annual reports, and three companies have posted only one annual report. Thus, we found ourselves where can analyze only six companies from two fields of activity: Extractive Industry and Electricity Producing Industry.

Next, we collected the information from the annual reports, following the *existence* of information on environmental protection and *the types* of information on environmental protection. Finally, we carried out with Tableau Software the processing, association, comparison, and graphic presentation of the research results. With the help of the K Means cluster in Tableau, we grouped the 24 items (6 companies x 4 annual financial reporting) into 3 clusters. In order to assess the quality and cohesion of clusters, we used the Calinski-Harabasz criterion, according to the formula:

$$\frac{SS_B}{SS_W} \times \frac{(N-k)}{(k-1)} \quad (1) \text{ (Pandey, 2021)}$$

where:

- SS_B – global variance between clusters
- SS_W – overall variance within the cluster
- k – number of clusters
- N – number of observations

We analyzed the clusters in terms of indicators that can make a difference in the grouping of companies. Depending on the grouping performed, we issued conclusions on the behavior of companies in reporting information on EGD objectives.

Design of research directions

In order to limit the effects of climate change, by meeting the EGD objectives, we are called to bring changes in the daily activity, both individuals and companies or authorities from the Member States of the European Union.

For companies, the EGD signing brings challenges regarding additional expenses and guidelines on future investments or even on the transformation of the current activity.

In **Figure 3**, we present a selection of EGD objectives applicable to the areas analyzed and the non-financial information disclosed by the companies which could be associated with these objectives.

| | |
|----------|--|
| 1 | Environment protection |
| | <ul style="list-style-type: none"> • Environment protection expenditures • Provisions for environmental risks and expenses |
| 2 | Climate neutrality |
| | <ul style="list-style-type: none"> • Purchases of electric means of transport • Reduction of gas emissions |
| 3 | Ecological lifestyle |
| | <ul style="list-style-type: none"> • Renovation of buildings • Renewable energy |
| 4 | Transforming the economy and societies |
| | <ul style="list-style-type: none"> • Creating jobs • Economic growth |

Figure 3:
Non-financial information associated with the objectives of the EGD.

Source:
Authors
projection
after

https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

1. Environmental protection, climate neutrality, and ecological lifestyle

The first section of the research aims to collect information from the financial statements on environmental protection. We present the evolution of *the analyzed companies' environmental protection expenditures* in **Figures 4**.

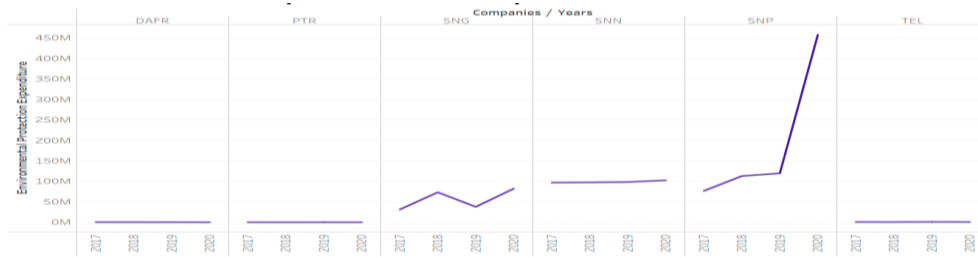


Figure 4: Evolution of environmental spending.

Source: Authors processing with Tableau 2021.4.

We note that three of the six companies analyzed have minimum values. Two are in increasing trends in environmental interest; only one has a deep interest in 2020 compared to previous periods with a spectacular increase in environmental protection spending.

For information on *climate neutrality* and *ecological lifestyle*, we followed the information provided by companies through annual reports or explanatory notes to the financial statements. In **Table 1**, we have summarized the information collected by associating it with the objectives pursued and the periods under study.

Regarding the protection of the environment, we identified information that was not included in the table, as follows:

- Optimizing the consumption of electricity and gas through the use of LED lamps and the use of new low-consumption thermal power plants
- Reducing paper consumption through electronic archiving

Table 1: Information presented in the annual reports

| Description of the information | (number of companies) | | | |
|--|-----------------------|------|------|------|
| | 2017 | 2018 | 2019 | 2020 |
| <i>About environmental protection expenses</i> | | | | |
| Collection of waste from the production process by companies authorized to do so (of which one company in 2017-2018 presents information on separate collection) | 4 | 4 | 5 | 5 |
| Existence of internal control on compliance with environmental protection requirements | 3 | 3 | 4 | 4 |
| Detailed assessment of activities with an impact on the environment | 3 | 3 | 3 | 3 |
| Disputes regarding violations of environmental legislation | 2 | 2 | 3 | 3 |
| <i>About climate neutrality</i> | | | | |
| Acquisition and use of fixed assets to reduce pollutant emissions | 1 | 1 | 2 | 2 |
| Gas emissions (2017-2018) Efficient carbon management (2019-2020) | 1 | 1 | 1 | 2 |
| New products (organic) | 1 | 1 | 1 | 1 |
| Greenhouse gas emission allowances | 1 | 1 | 1 | 1 |
| <i>About ecological lifestyle</i> | | | | |

| | | | | |
|--|---|---|---|---|
| Monitoring compliance with measures on the efficient use of water, proper treatment and disposal of waste, rational use of natural resources | 2 | 3 | 4 | 4 |
| Environmental protection works (investment chapter) | 2 | 2 | 2 | 2 |
| Reuse of packaging used for liquid additives in order to reduce the quantity of packaging placed on the internal market | 1 | 1 | 1 | 1 |
| <i>Other information</i> | | | | |
| Presentation of environmental management | 2 | 2 | 1 | 1 |
| Compliance with environmental permit requirements | 1 | 1 | 2 | 2 |
| Development of energy balances and environmental audits | 1 | 1 | 2 | 2 |
| Environmental responsibility (2017-2018) Social responsibility – environment (2019-2020) | 1 | 1 | 1 | 1 |
| Sustainability Report | 1 | 1 | 1 | 1 |

Source: data processed by authors according to the information available on www.bvb.ro.

We note that the information on EGD objectives in the annual reports is very diversified, with no information being found in the same form in all six analyzed companies.

Regarding *environmental protection expenditure* and the aforementioned financial information, in the period 2017-2018, four companies provided information on the collection of waste from the production process by companies authorized to do so. Between 2019 and 2020, the number of companies providing such information increased to five. The same increasing trend in the availability of disclosures is also found in the existence of internal control on compliance with environmental protection requirements (from three companies in 2017-2018 to four companies in 2019-2020) and on disputes related to violations of environmental legislation (from two companies in 2017-2018 to three companies in 2019-2020). Throughout the analyzed period, three companies reveal that they are carrying out a detailed assessment of the activities with an impact on the environment.

Regarding *the climate neutrality* objective, a single company in the period 2017-2018 and two companies in the period 2019-2020 provide information on the acquisition and use of fixed assets to reduce polluting emissions. One company provides information on gas emissions or efficient carbon management in 2017-2019, and two companies in the year 2020 report. A single company discloses information on greenhouse gas emission allowances over the entire period under review, and a single company provides information on the production of new (green) products.

Monitoring compliance with water efficiency measures or the rational use of natural resources as part of *an ecological lifestyle* has increased the number of companies willing to disclose such information, from two companies in 2017 to three companies in 2018 and four companies in 2019-2020. Throughout the analyzed period, two companies carried out investment works on environmental protection, and one

company revealed information on the reuse of packaging used for liquid additives in order to reduce the amount of packaging placed on the internal market,

In order to reduce pollutant emissions, we have identified the following information:

- Acquisition of cars/machinery and equipment to reduce polluting emissions
- Reducing the pollutants eliminated in the atmosphere by replacing the special vehicles equipped with non-euro engines with modern trucks, equipped with EURO 6 engines (2017-2018)
- Continue the process of renewing the fleet with new generation trucks equipped with Euro 6 engines, thus contributing to the reduction of pollutants eliminated in the atmosphere (2019-2020)

About the EGD, we have identified information provided by two companies. In its 2019 annual report, a company states that it is starting the transition to a cleaner future and mentions setting the goal of reducing the carbon intensity of current operations. For 2020, two companies refer to the annual reports on the European Green Deal. In the same context, in the Annual Reports 2019 and 2020, a company informs about finding a balance between climate protection efforts, affordable energy and reliable supply as a result of the 2025 Sustainability Strategy.

2. Transforming the economy and societies

From the same perspective of the financial statements, we focused on obtaining information on the growth of jobs and the economic growth of the analyzed companies, the economic growth being represented by the turnover and net result. For a good analysis of these indicators and the formulation of conclusions regarding the present research, with the help of Tableau Software we have grouped the variables into three clusters. Finally, we present the results of the description in **Table 2**. The description of the clusters is given by:

Inputs for Clustering

| | |
|-------------------------|------------------------------------|
| Variables: | Sum of Equity |
| | Sum of Turnover |
| | Sum of Average number of employees |
| Level of Detail: | Companies, Year of Years |
| Scaling: | Normalized |

Summary Diagnostics

| | |
|--------------------------------------|---------|
| Number of Clusters: | 3 |
| Number of Points: | 24 |
| Between-group Sum of Squares: | 6.6788 |
| Within-group Sum of Squares: | 0.38736 |
| Total Sum of Squares: | 7.0661 |

Table 2: Results of clustering

| |
|----------------|
| Centers |
|----------------|

| Clusters | Number of Items | Sum of Equity | Sum of Turnover | Sum of Average number of employees |
|---------------|-----------------|---------------|-----------------|------------------------------------|
| Cluster 1 | 8 | 7.6197e+09 | 3.4073e+09 | 3842.7 |
| Cluster 2 | 12 | 1,056e+09 | 9.0952e+08 | 823.17 |
| Cluster 3 | 4 | 3.0559e+10 | 1.6793e+10 | 12146.0 |
| Not Clustered | 0 | | | |

Source: Authors processing with Tableau 2021.4.

The annual periods subjected to the case study were analyzed individually, resulting in 24 items (6 companies x 4 years subject to the case study). The indicator with the highest value for the grouping in the first cluster is the value of equity; this cluster included the companies SNG and SNN with the financial-accounting indicators for 2017-2020, which represents one company each from two areas of activity studied. The classification of the annual periods in the second cluster was made by turnover, and the level of equity and the number of employees being the lowest of the annual periods subject to the case study. This cluster includes the companies DAFR, PTR, and TEL with the financial-accounting indicators for the period 2017-2020, respectively, two companies in the energy industry and one company in the energy production.

The third cluster includes the annual periods in which the number of employees has the highest value of those analyzed. It is the case of four annual periods of a single company, SNP, for the entire period subject to the case study, a company operating in the extractive industry.

Analyzing the model of cluster formation by the variables Equity and Turnover, we can see that any of the two variables cannot achieve the distinction between clusters. The variable "Average number of employees" is the one that registers the most significant differences between clusters. We present in Figure 5 the graphic image of the clusters thus determined.

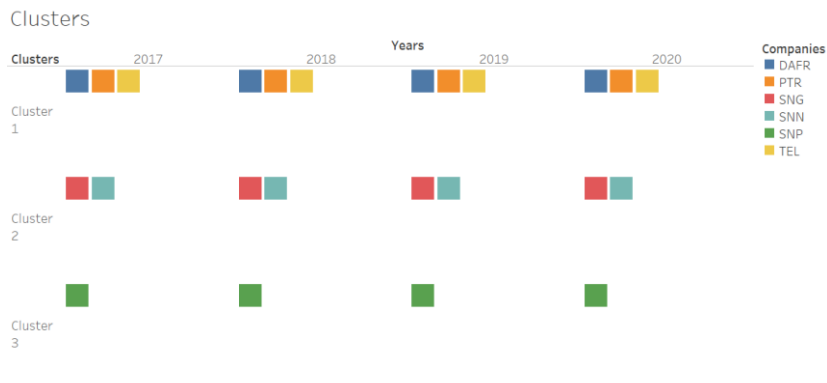


Figure 5: Grouping of companies into clusters.

Source: Authors processing with Tableau 2021.4.

As mentioned before, the delimitation in clusters is close in terms of the three variables taken into account as indices of economic growth. In **Figure 6** we have presented the evolution of these indicators in the three clusters.



Figure 6: Analysis of growth indicators by clusters.

Source: Authors processing with Tableau 2021.4.

The companies included in cluster 1 register almost linear evolutions for the number of employees; for two, the same evolution is recorded by the turnover and equity. We find the economic growth indices only in the case of a company through the upward evolution of the net result and equity.

Regarding the economic growth of the companies included in cluster 2, there are indications of economic growth due to the upward trend of the evolution of equity and net results. However, there are no indications of creating new jobs; the evolution of the average number of employees is linear.

For the only company in cluster 3, we have not identified any indices of economic growth, with all four variables analyzed between 2019 and 2020 downward recording developments.

Conclusions and directions for future research:

Following the case study and the research carried out regarding the disclosure by companies of their steps for environmental protection and if the signing of the EGD influences them, we note the increase in cases in which such information is published through the integrated reporting of the analyzed companies.

In contrast, we do not notice any additional information associated with EGD, except for two companies that refer to the fact that they are starting the transition to a cleaner future. However, they also seek to find a balance between selling the object of activity at affordable prices and the efforts to follow the 2025 sustainability strategy. For the second research question, we did not identify an affirmative answer regarding the economic growth of companies as being dependent on the field of activity and in

the same trajectory as the average number of employees. In most cases, the evolution of the average number of employees is linear, which we cannot say about the turnover, equity, or net result.

Taking into account the findings, we would like in the future to turn our attention to other areas of activity in order to form an image of the behavior of companies regarding the disclosure of information that can be associated with EGD. Last but not least, we intend to continue the research for future periods and by comparison with the information disclosed by companies from other states to identify the solutions taken by them to achieve the objectives of the European sustainability strategy.

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BIBLIOMETRIC ANALYSIS OF THE APPROACH TO THE ROLE OF COSTS IN MANAGERIAL DECISION MAKING

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Abstract: *The purpose of this literature review is to provide an understanding of the research topic in order to develop the ability to provide assessments, judgements and interpretations. We aim to outline new elements by which we can contribute to and improve the state of scientific knowledge in our research area, i.e. accounting. Taking a classical approach to our scientific approach, the first thing to be taken into account is the grounding of the topic addressed through the delimitation of the current state of knowledge. We aim to achieve this objective primarily through a projection of the literature from the perspective of the literature.*

Keywords: *costs, managerial decision, managerial accounting, cost calculation.*

JEL Classification: M40, M41, M49.

1. Introduction

Public Managers should aim to break down costs by responsibility centre as realistically as possible. When managers are faced with having to make certain decisions involving cost analysis, the certainty of the correctness of direct costs is much greater than that of indirect costs. Regardless of what entities do, indirect costs are a major headache because it is not possible to accurately quantify the resources consumed on each separate cost item.

The cost of production is the monetary expression of expenditure; it reflects the costs incurred by the producer in producing and marketing the goods produced and represents a proportion of the total effort incurred by the enterprise in the pursuit of economic activity.

Cost efficiency implies an efficient use of available resources under existing production conditions and within the constraints imposed by the crisis situation.

In order to make relevant strategic decisions, managers need to know closely the evolution of costs which can be closely observed with the help of cost functions. We can perceive the cost function as a mathematical expression of cost changes.

In today's economy, the only way to increase economic efficiency is to use cost budgets efficiently. In order to withstand competition, entities must find numerous

levers to reduce expenditure and make good use of the resources they consume.

A significant role in the research process is the literature review, with the help of which we establish the basis for research in the area of interest. The literature review should be seen as having a dual role, that of exposing the state of the art of knowledge and another role could be seen as identifying new research opportunities through which to add information to knowledge.

2. Research methodology

In order to highlight the basic objective of the research we want to conduct a broad literature survey in the field of accounting, especially managerial accounting. We define this objective as: to delineate the current state of knowledge on the influence of costs in informing managerial decisions.

We believe that our research addresses a topic of particular interest and importance today - namely the influence of costs in informing managerial decision-making. Our motivation is based on one main objective, which is our main research question: what decisions can management make that are influenced by costing? The main goal can be separated into secondary goals, which create our main proposed research areas, shown in the figure below. The secondary objectives will be achieved using quantitative and qualitative studies to make a separation of the current state of research in managerial accounting.



Figure 1: Secondary objectives of delimiting the current state of knowledge

Source: own projection.

Motivation for sample selection and period analysed We focused mainly on recent studies, with an emphasis on studies published between 2015-2021. We believe that these studies should address current issues in management accounting. However, there are high quality studies published before 2015 that still provide a detailed

perspective on this topic, but we decided not to include them in the qualitative literature review, focusing only on the 2015-2021 interval.

We have chosen to analyse articles published in the period 2015-2021 for the following reasons: The period 2015-2021 can be considered as a period of roughly similar economic development, without financial or economic crisis. Another defining element is the increased interest in recent years of managers towards the implementation of modern costing models, and then use this information obtained with these calculation methods in the decision-making process.

Methodology - in order to achieve the proposed objectives we have gone through the following step: we have selected articles that focus on this field of research, published in journals from prominent publishing house: Scopus, ISI indexed database.

3. Literature Review

The role of managerial accounting in manufacturing companies is to oversee the achievement of the proposed objectives. This monitoring is done by means of indices and indicators which must be anchored in the reporting system of production business equities. As will be outlined below managerial accounting is of particular importance in production companies.

Taking into account the definitions given by the authors Caraiani and Dumitrana (2004, p.11) with which we agree, managerial accounting "is a broader concept involving professional knowledge and skill in the preparation and especially in the presentation of information required by management at different hierarchical levels. The source of such information is financial accounting and management cost accounting".

The definitions in the literature under consideration reinforce our perception of managerial accounting, resulting in its wider application.

In an operational sense managerial accounting deals with annual budget planning, cost management and productivity control. There are several definitions of managerial accounting in the literature. In the following we present the point of view of the author Briciu Sorin about management accounting, a point of view that reveals the features of this branch of accounting, an opinion that we share, namely "managerial accounting can be defined as a set of procedures for identifying, quantifying, collecting, analysing and reporting accounting information on operations, activities, processes, works and services performed by economic entities in order to support tactical and strategic decisions on achieving the objectives set by the business entity" (Briciu, 2006, p. 25).

As the authors R. Laptés, L. Possler have said, with which we agree, accounting has undergone a substantial evolution that has adapted to economic reality. These authors argue that "the adaptation of accounting to the information requirements of the planned economy was mainly a matter of Soviet experience. In this regard, in the early 1950s, accounting works by Russian authors were translated and turned into accounting manuals, which formed the theoretical basis for the development of a

new accounting system. The beginning of the 1970s was a time of change, both in accounting legislation, with the advent of regulations on the organisation and conduct of accounting, and the introduction of a system of accounts" (Laptes et. al., 2007, p.1870).

Lenghe's scholarly work, shows the impact of harmonization of accounting adapted to the economic specifics of each country, saying rightly that "international accounting harmonization is the process by which national rules or standards, different from one country to another, sometimes divergent, are refined to become compatible" (Lenghel, 2011, p.186).

In our opinion the author has rightly said that "Managerial accounting is an integral part of management dealing with the identification, presentation and interpretation of information" (Briciu, 2006, p.427). I think the above excerpt gives us the simplest definition of managerial accounting by clearly stating its components.

"The main purpose of management accounting is to reflect all operations for the collection and allocation of expenditure by destination, i.e. by products, works, services, orders, stages of manufacture, activities, departments, etc., the settlement of the production obtained, and the calculation of the production cost of the products manufactured, works carried out and services rendered, including production in progress" (Calin, 2002, p.15). This helps managerial accounting which, in order to prepare the information needed by the management team, is also required to use information provided by financial accounting and management control. We believe that this view correctly reflects the reality of the problem presented by the author.

4. Research results

In the table below we present the list of journals and magazines in which more than one article has been published, as well as the number of articles that have been considered in the framework of the study on the state of the art in management accounting.

We selected articles published between 2015-2021 in the 113 journals and magazines considered in our chosen sample. The search for articles was conducted by the keywords "managerial decision" and "cost" and was limited to the appearance of these words in the title, keywords or abstract of the articles. Initially, 368 articles resulted from this selection criterion. The limitation to these keywords that are directly related to the topic of our research was made because we wanted to make a selection of articles relevant to the researched field and moreover to avoid a high number of articles, with all these limitations we reached a number of 185 articles that we analyzed in order to determine their impact and relevance to the researched topic. The next step to reach the proposed objective is the selection of articles in order to eliminate those articles that are not directly related to the research topic. After detailed analysis of the articles we selected, our sample was reduced to 123 articles.

Table 1 : List of journals included in the study

| Nr.crt. | List of journals included in the study | Nr. of articles |
|---------|--|-----------------|
| 1 | Journal of Cleaner Production | 9 |
| 2 | International Journal of Production Research | 5 |
| 3 | Problems and Perspectives in Management | 4 |
| 4 | Custos e Agronegocio | 3 |
| 5 | International Journal of Mathematical, Engineering and Management Sciences | 3 |
| 6 | International Journal of Production Economics | 3 |
| 7 | Academy of Accounting and Financial Studies Journal | 2 |
| 8 | Actual Problems of Economics | 2 |
| 9 | Decision Sciences | 2 |
| 10 | Economic Annals-XXI | 2 |
| 11 | Emerald Emerging Markets Case Studies | 2 |
| 12 | Entrepreneurship and Sustainability Issues | 2 |
| 13 | Espacios | 2 |
| 14 | European Journal of Operational Research | 2 |
| 15 | International Journal of Accounting | 2 |
| 16 | International Journal of Business and Systems Research | 2 |
| 17 | International Journal of Research in Marketing | 2 |
| 18 | International Journal of Systems Science: Operations and Logistics | 2 |
| 19 | Journal of Advanced Research in Law and Economics | 2 |
| 20 | Journal of Business Research | 2 |
| 21 | Journal of Enterprise Information Management | 2 |
| 22 | Journal of Social Sciences Research | 2 |
| 23 | Management Decision | 2 |
| 24 | Strategic Management Journal | 2 |

After establishing the sample, we have resorted to a detailed analysis of these articles in order to identify the main research directions. Therefore we grouped the articles into 5 research themes:

- The influence of costs in informing management decisions;
- Problematizing the use of modern costing methods;
- The relationship between costs and managerial decisions;
- Establishing relevant expenses in cost determination;
- Other aspects of cost management.

Also at this stage we identified the type of research, which can be of three types:

- Qualitative research - theoretical research;
- Quantitative research - empirical research;
- Mixed research - theoretical research combined with empirical research;
- Following the identification of the defining elements of the articles included in the sample we resorted to a qualitative analysis of the articles in the sample, within this

analysis we categorized the articles into the 5 themes determined by us according to the content of the articles;

- The last stage of the literature review was devoted to the contour of the results obtained.

The added value of this study is to outline research directions in the field of managerial accounting. Furthermore we want to identify the current state of the literature.

The sources of information used to carry out our proposed case study we used the non-participatory observation method, analysing the journals and magazines included in the sample in order to select relevant articles for our study.

The results of the analysis is quantitative study - evolution and and type of research

The evolution of research in the field, as stated in the research methodology 113 journals indexed in the Scopus database were included in the study. If we refer to the indexing of the journals that included the 152 articles, it can be noticed that all of them were published in journals and magazines indexed in the Scopus database. Our sample as can be seen in the graph below following the analysis performed on the articles and the elimination of a significant number of the total articles, is based on 24 journals and magazines out of the 113 indexed in the Scopus database.



Figure 2: Classification of articles by provenience
 Source: own projection based on collected date.

It is worth noting that researchers' interest in publishing in the field of management accounting is directed towards journals such as International Journal of Production Research, Journal of Cleaner Production, Problems and Perspectives in Management and Custos e Agronegocio.

Thus we can say that the topic of costs and their influence on the basis of managerial decisions has been and is a topic of interest given the approach to the concept by practitioners, specialists and researchers in the field.

Also, we can see in the graph below analyzing the correlation with the date of publication of these articles included in our sample, we notice the intensification of interest of researchers as well as practitioners in addressing costs and their influence in the foundation of managerial decisions in the period 2015-2021.

Table 2: Distribution of articles by year

| Year | Nr. of articles |
|------|-----------------|
| 2015 | 18 |
| 2016 | 14 |
| 2017 | 21 |
| 2018 | 28 |
| 2019 | 20 |
| 2020 | 26 |
| 2021 | 25 |

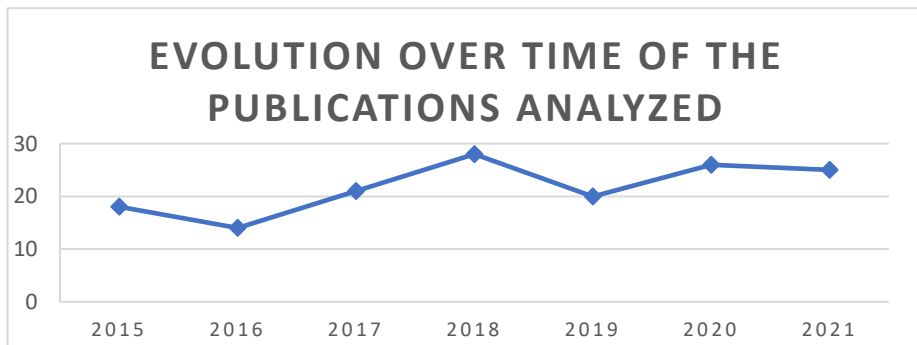


Figure 3: Evolution over time of the publications analysed

Source: own projection based on collected date.

From one year to another, the interest of researchers to devote themselves to the topic of the role of costs in managerial accounting is still on an upward trend, if in 2015 or published 18 articles in 2021 we are talking about a number of 25 articles. It also notes a slight decrease in the interest to publish in the field in 2019.

The main theme addressed in the articles is one of the most important features. Therefore, at the level of the quantitative study of the articles in our sample, we have limited ourselves to the delimitation of these themes and the quantification of the number of articles identified in each theme. In a research on the current state of knowledge in the field of managerial accounting we consider it important to highlight the research trends on each theme. Following the identification of these research

themes we are able to develop our quantitative study into a qualitative study in which we aim to present the current state of knowledge in the main research areas identified. In order to classify the articles in our sample, we have identified 5 main themes addressed by specialists in the field, articles that have been divided into one of the 5 themes:

- The influence of costs in informing managerial decisions - in this category we have included those articles that deal with the role of costs in informing managerial decisions;
- Problematising the use of modern costing methods - in this category we have included those articles that deal with the use of modern methods in business entities and the benefits of their use for the entity;
- The relationship between costs and managerial decisions - in this category we have included those articles that deal with the binomial costs, managerial decisions from the management perspective of economic entities;
- Determination of relevant expenses in determining costs - in this category we have included those articles that deal with the classification of expenses according to different factors, and the detailed analysis of those that enter into the costs that form the basis of managerial decisions;
- Other aspects of cost management - in this category we have included those articles that deal with managerial accounting from different perspectives.

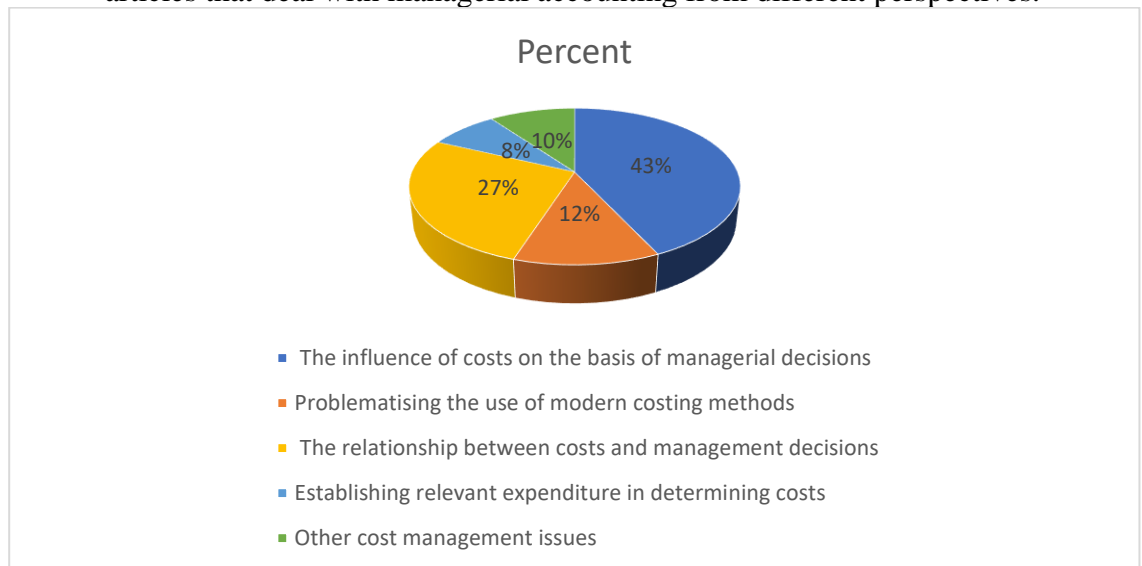


Figure 4: Theme covered by sampled articles
Source: own projection based on collected date.

A detailed analysis of the articles included in the sample on the topic addressed showed a high interest on the part of the authors in addressing the influence of costs on the basis of managerial decisions, with a weight of 43%, followed by articles dealing with the relationship between costs and managerial decisions, with a weight of 27%. Also of interest, in descending order, are articles dealing with the use of modern costing methods, with a weight of 12%, followed by other aspects of cost

management with a weight of 10%. In last place are articles dealing with issues related to the determination of relevant expenses in costing, with a share of only 8%. The type of research used as we have shown in the methodology in point four, we have mentioned that in the quantitative study we will also analyse the type of research addressed by the authors in the articles. In terms of the type of research in the field of accounting the research falls into two broad categories:

- Qualitative research, i.e. a descriptive theoretical approach to certain aspects of research, with the aim of presenting existing research in the field;
- Quantitative research, i.e. empirical approach direct observation of reality, carried out using specific methods and techniques for collecting and processing information;
- Mixed research, i.e. a descriptive theoretical approach as well as an empirical approach.

Thus, after analysing the articles included in the sample, we found that both qualitative and quantitative approaches exist in the field of managerial accounting. However, it is worth noting that qualitative approaches predominate in this field, which can be seen in the figure below.



Figure 5: Types of research used in articles
Source: own projection based on collected date.

Thus following the analysis of the articles included in the sample we found the countries in which the topics of managerial accounting, specifically costs and managerial decision were of interest in the period 2015-2021. It is worth noting is that the United States is the country where the most articles were published in the analyzed sample, namely 39 articles.

In the chart below we present the list of countries where more than one article was published, as well as the number of articles that were considered in the framework of the study on the state of the art in management accounting.

NUMBER OF PUBLICATIONS CORRELATED WITH THE COUNTRIES WHERE THE PUBLICATION WAS PRODUCED

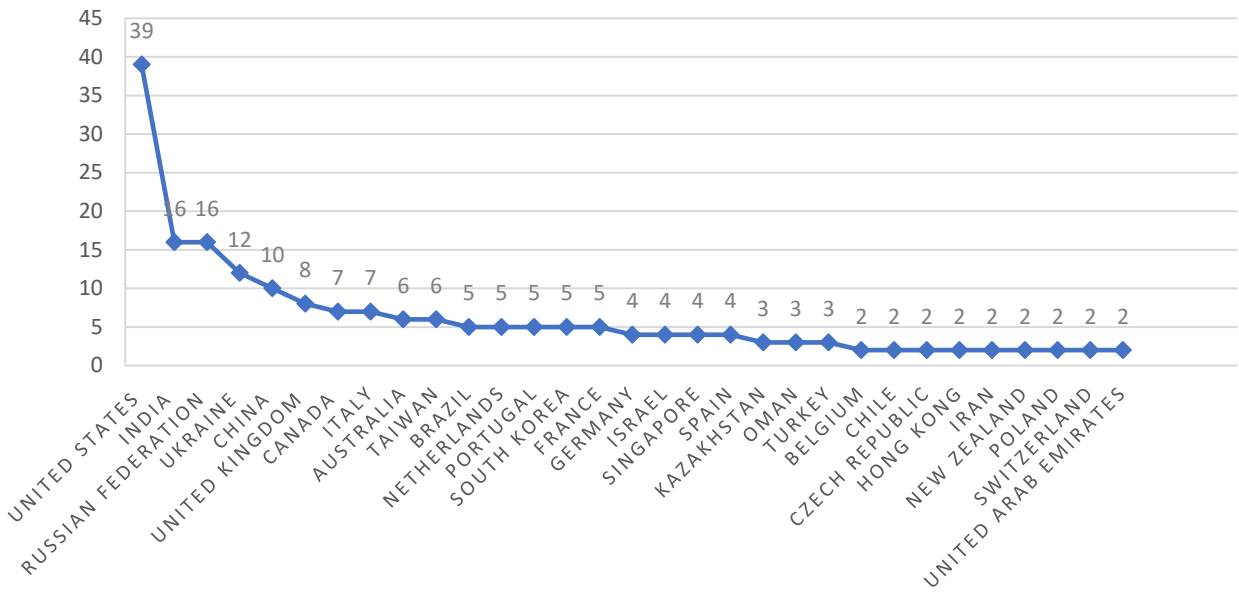


Figure 5: Number of publications correlated with the countries where they took place in the field of management accounting
 Source: own projection based on collected date.

Also, if we analyse the language in which these articles included in our sample were published, we notice 146 articles published in English, 3 articles published in Portuguese and only one article published in Spanish, Russian and Ukrainian. Because the vast majority of articles are published in English, they are available to researchers and practitioners worldwide.

5. Conclusions

In conclusion, following the bibliometric analysis of the research carried out in the period, 2015-2021, the evolution of management accounting on costing and how it can, in a decisive way, through the information provided by management accounting, influence managerial decisions has been progressively highlighted and exposed. The quality of the published articles is of great help to both research specialists and practitioners.

6. Limitations of the research

The present research analyses articles published between 2015-2021, indexed in the ISI-Scopus database. As a limitation of the research we can highlight the period before 2015, and articles published in other prestigious databases.

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THE FUZZY OPTIMISTIC-REASONABLE-PESSIMISTIC INVENTORY MODEL

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Abstract: *In inventory and production decision problems, decision makers are interested to identify the optimal inventory and production level. In a certain decision environment, the optimal inventory level could be determined through traditional inventory methods and the optimal production level could be determined through linear programming algorithms. In an uncertain decision environment, the traditional methods and algorithms can not provide efficient and relevant solutions for these levels, due to the vague and changing parameters. In this case it is necessary to develop new methods and models that can deal with vague variables and provide optimal levels. In this paper, the optimal inventory and production levels are determined through a single model that uses fuzzy linear programming. This new model is Fuzzy Optimistic-Reasonable-Pessimistic Inventory Model. It has three scenarios: optimistic, reasonable and pessimistic, that are defined through triangular fuzzy numbers. In this way, decision makers can deal with vague parameters. These scenarios help managers to divide the Fuzzy ORP Model into three sub-models, that can be easily solved through traditional Simplex Algorithms. Each sub-model provides a crisp solution for each scenario. The solutions form the final fuzzy optimal solution. The Fuzzy PRO Inventory Model helps managers to identify three optimal levels and to rank them according to their evaluations. This is useful, also, in predictions, where the decision makers should predict different scenarios for the production process. The limit of this model is the definition of the variables and scenarios. This model considers that all values for all variables and coefficients have the same definition: the inferior limit is related to the optimistic scenario, the peak represents the reasonable limit and the superior limit is related to the pessimistic scenario. In real problems, the decision variables could have different definitions than coefficients. The inferior limit of the cost is related to the optimistic scenario, but the superior limit of the production level can be related to the optimistic scenario. There are different representations for the scenarios.*

Keywords: *fuzzy number, simplex method, decision process, scenarios, inventory, production, level*

JEL Classification: *C44; C53; D24; M11.*

1. Introduction

“All organizations are at least 50 per cent waste – waste people, waste effort, waste space and waste time”. (Robert Townsend, 1970, as cited in Waters, 2009) This waste could be reduced by combining lean and agile strategies in decision making process. A lean strategy means a detailed analysis of tactical operations and helps

decision makers: to remove operations that add no value, to eliminate delays, to reduce complexity, to simplify movements, to increase efficiency and therefore to eliminate the waste of resources. An agile strategy helps decision makers firstly, to keep a close look on consumers changing needs and secondly to react quickly to changes by providing improved services and products. There could be some problems if the managers take only a lean or agile approach. In inventory management, the lean strategy assume the idea that reducing stock would allow managers to save money and to minimize the inventory cost. On the contrary, the agile strategy support the idea that the companies should respond quickly to the costumers needs, by holdin stocks. Therefore, the decision makers should ensure an optimum inventory level that would satisfy the costumers need any time. If there are stockouts, the reorder cost would be higher and the costumers satisfaction would be low due to delivery-delay. The problem for the decision makers is to identify the optimum level of inventory that minimize the total cost of production and can be easily adapted to the changes of the consumers needs.

There are different methods that can be used in order to manage inventories efficiently. Economic Order Quantity, ABC Analysis, Just in time, Reorder point, Simplex method are just a few. These methods provides relevant solutions for inventory problems with known parameters. If the decision problem has some vague information or unknown parameters, the traditional inventory methods are less efficient. In an uncertain environment, they can be improved with fuzzy logic.

This paper aims to develop a new fuzzy linear model that combine traditional inventory and production optimization method, Dual Simplex Method, with Fuzzy logic. The linear model has fuzzy variables and coefficients. It is designed to have three scenarios: pesimistic, reasonable and optimistic. The scenarios are described through triangular fuzzy numbers. Therefore, the scenarios are considered for every variable and for every coefficient from the objective function and restrictions. The fuzzy model is divided in three sub-models associated with the scenarios. Each sub-model is solved through Dual Simplex Method. The new model is called in this paper: ORP Fuzzy Model (Optimistic-Reasonable- Pessimistic Fuzzy Model). This model is applied in an inventory and production planning decision problem.

2. Short literature review

In inventory decision problems, decision makers have three options to use or create models in order to obtain the optimum solution for the inventory level or production level. They can use pre-existing models, if these models fulfil the requirements of the decision problem. They can adapt the pre-existing models to the requirements. They can create new models, if the decision problem has some characteristics that are not considered on the pre-existing models.

In this paper, the need for building the new fuzzy model with three scenario comes from: the lack of the pre-existing models that can provide different approach for the decision maker's objectives, the lack of the algorithms that can solve quickly and easy fully fuzzy linear models, the lack of using Non-fuzzy Simplex Algorithm to

solve fuzzy decision problems and the complexity of applying Fuzzy Algorithms to real decision problems. There are no software applications that can solve quickly the fuzzy problems through Simplex Algorithm. Therefore, the new model is designed to provide optimal solution to the fuzzy inventory and production problems, through the simplest way possible.

In the literature, the authors were more focused to develop new algorithms and methods to solve some linear models. This is emphasized in the following table:

Table 1 The literature review of fuzzy linear models

| Authors | Fuzzy linear model | Methodology |
|---------------------------|--|---|
| Kumar et al. (2010) | $\left\{ \begin{array}{l} \min \bar{z} \approx \sum_{j=1}^n (p_j, q_j, r_j) \otimes (x_j, y_j, z_j) \\ \sum_{j=1}^n (a_{ij}, b_{ij}, c_{ij}) \otimes (x_j, y_j, z_j) \\ \leq (b_i, g_i, h_i), i = \overline{1, m} \\ (x_j, y_j, z_j) \geq (0, 0, 0) \end{array} \right.$ | The authors developed the fully fuzzy linear model and solved the model through ranking functions and α - level sets. |
| Cheng et al (2013) | $\left\{ \begin{array}{l} \max \bar{z} \approx \sum_{j=1}^n (c_j^{(1)} x_j^{(1)}, c_j^{(2)} x_j^{(2)}, c_j^{(3)} x_j^{(3)}) \\ \sum_{j=1}^n (a_{ij}^{(1)} x_j^{(1)}, a_{ij}^{(2)} x_j^{(2)}, a_{ij}^{(3)} x_j^{(3)}) \\ \leq (b_i^{(1)} + p_i^{(1)}, b_i^{(2)} + p_i^{(2)}, b_i^{(3)} + p_i^{(3)}) \\ \sum_{j=1}^n (a_{ij}^{(1)} x_j^{(1)}, a_{ij}^{(2)} x_j^{(2)}, a_{ij}^{(3)} x_j^{(3)}) \\ \leq (b_i^{(1)} - q_i^{(3)}, b_i^{(2)} - q_i^{(2)}, b_i^{(3)} - q_i^{(1)}) \\ (x_j^{(1)}, x_j^{(2)}, x_j^{(3)}) \geq (0, 0, 0) \end{array} \right.$ | The authors proposed a more flexible linear model. They added a fuzzy number p to right-hand side term and subtracted a fuzzy number q from right-hand side term . These fuzzy numbers are the minimum and maximum values that right-hand side term could have. |
| Khan et. al (2013) | $\left\{ \begin{array}{l} \min \bar{z} = \tilde{c}^t \tilde{x} \\ \tilde{A} \tilde{x} \approx \tilde{b} \\ \tilde{x} \geq 0 \end{array} \right.$ | The authors proposed a linear model with three scenario objective function: pessimistic, reasonable and optimistic scenarios. They used membership functions in order to create the pessimistic and optimistic objective function. |
| Borzabadi și Alemy (2015) | $\left\{ \begin{array}{l} \min \bar{z} = \tilde{c}^t \tilde{x} \\ \tilde{A} \tilde{x} = \tilde{b} \\ \tilde{x} \geq 0 \end{array} \right.$ | The authors proposed Dual Simplex Method to solve a simple linear fuzzy model. They used triangular fuzzy numbers. |

| | | |
|-----------------------------|--|---|
| Nasseri and Mahmoudi (2019) | $\left\{ \begin{array}{l} \max \tilde{z} \approx \sum_{j=1}^n (c_j^l, c_j^c, c_j^u) \otimes (x_j^l, x_j^c, x_j^u) \\ \sum_{j=1}^n (A_{ij}^l, A_{ij}^c, A_{ij}^u) \otimes (x_j^l, x_j^c, x_j^u) \\ \leq (b_i^l, b_i^c, b_i^u) \\ (x_j^l, x_j^c, x_j^u) \geq (0, 0, 0) \end{array} \right.$ | <p>The authors proposed a new method to transform a fuzzy model in crisp model. They transformed the objective function through ranking functions.</p> |
| Boloş et. al (2020) | $\left\{ \begin{array}{l} Z = \bar{Z}_B - \sum_{j \in J_s} (Z_j^B - C_{aj}) x_j \\ X_B = \bar{X}_B - \sum_{j=1}^n \bar{C}_{lj} x_j \\ x_i = \bar{x}_j^B - \sum_{j=1}^n \bar{C}_{lj} x_j \\ x_i \geq 0, i \in \bar{1}, \bar{n} \end{array} \right.$ | <p>The authors proposed a model that emphasize the relations between fuzzy basis variables (X_B) and crisp values of the variables (x_i). The model was solved through Fuzzy Primal Simplex Algorithm.</p> |
| Ghoushchi et al. (2021) | $\left\{ \begin{array}{l} \max \tilde{z} \approx \sum_{j=1}^n (c_j^l, c_j^m, c_j^u) \otimes (x_j^l, x_j^m, x_j^u) \\ \sum_{j=1}^n (A_{ij}^l, A_{ij}^m, A_{ij}^u) \otimes (x_j^l, x_j^m, x_j^u) \\ \leq (b_i^l, b_i^m, b_i^u) \\ (x_j^l, x_j^m, x_j^u) \geq (0, 0, 0) \end{array} \right.$ | <p>They proposed a new model with modified triangular fuzzy numbers. These modified fuzzy numbers were developed using alpha-cut theory. Through this model the uncertainty is consistently reduced.</p> |
| Davoodi and Rahman (2021) | $\left\{ \begin{array}{l} \min \mathfrak{R} \left(\sum_{j=1}^n \tilde{c}_j \tilde{x}_j \right) \\ \mathfrak{R} \left(\sum_{j=1}^n \tilde{a}_{ij} \tilde{x}_j \right) \geq \mathfrak{R}(\tilde{b}_i), i = 1, 2, \dots, m \\ \frac{\alpha_{xj}}{ m_{xj} } \leq M, j = 1, 2, \dots, n \\ \frac{\beta_{xj}}{ m_{xj} } \leq M, j = 1, 2, \dots, n \\ \mathfrak{R}(\tilde{x}_j) \geq 0, j = 1, \dots, n \end{array} \right.$ | <p>The authors proposed a new linear model. In this model a parameter is used in order to determine the maximum and minimum values for fuzzy variables. This parameter helps managers to reduce the universe discourses of the fuzzy solution. In real-life situations, the managers would be able to understand and implement more easily a fuzzy solution with a reduced numbers of crisp values.</p> |

All these models are fully fuzzy linear models that can deal with triangular fuzzy numbers. Kumar et al (2010) applied the linear model in production planning problem. Khan et al (2013) proposed an example of his model in project selection problems. Bolos et al (2020) uses his model to support decision makers in investment decisions in tangible assets. Davoodi and Rahman (2021) applied his model in a farm planning problem.

3. Pessimistic-Reasonable-Optimistic (ORP) Fuzzy Linear Model

3.1. The Fuzzy Operations of ORP Model

The ORP Model is a fuzzy linear model that uses triangular fuzzy numbers for all variables and coefficients and is developed through fuzzy arithmetic operations between triangular fuzzy numbers.

Let A and B be two triangular fuzzy number, represented by three points: $\tilde{A} = (a_1, a_2, a_3)$ and $\tilde{B} = (b_1, b_2, b_3)$ and by the following membership functions:

$$\mu_{(A)}(x) = \begin{cases} 0, & x < a_1, x > a_3 \\ \frac{x-a_1}{a_2-a_1}, & a_1 < x < a_2 \\ \frac{a_3-x}{a_3-a_2}, & a_2 < x < a_3 \\ 1, & x = a_2 \end{cases} \quad \mu_{(B)}(x) = \begin{cases} 0, & x < b_1, x > b_3 \\ \frac{x-b_1}{b_2-b_1}, & b_1 < x < b_2 \\ \frac{a_3-x}{a_3-a_2}, & b_2 < x < b_3 \\ 1, & x = b_2 \end{cases}$$

Considering these triangular fuzzy numbers, the arithmetic operations defined by Borzabadi and Alemy (2015) on these numbers are:

- Addition
 $\tilde{A} \oplus \tilde{B} = (a_1, a_2, a_3) \oplus (b_1, b_2, b_3) = (a_1 + b_1, a_2 + b_2, a_3 + b_3)$
- Subtraction;
 $\tilde{A} \ominus \tilde{B} = (a_1, a_2, a_3) \ominus (b_1, b_2, b_3) = (a_1 - b_3, a_2 - b_2, a_3 - b_1)$
- Multiplication;
 $\tilde{A} \otimes \tilde{B} = (a_1, a_2, a_3) \otimes (b_1, b_2, b_3) = (a_1 b_1, a_2 b_2, a_3 b_3)$
- Division.
 $\tilde{A} \oslash \tilde{B} = (a_1, a_2, a_3) \oslash (b_1, b_2, b_3) = (\frac{a_1}{b_3}, \frac{a_2}{b_2}, \frac{a_3}{b_1})$

3.2. The Fuzzy Elements of ORP Model

The ORP Model is a linear programming model that has the following elements: variables, coefficients, restrictions and right-hand side terms. Due to the minimization objective function, the inferior values of the parameters would be considered optimistic values and the superior values of the parameters would be considered pessimistic values.

$$\begin{aligned} \min \tilde{z} &\approx \sum_{j=1}^n (c_j^o, c_j^r, c_j^p) \otimes (x_j^o, x_j^r, x_j^p) \\ \sum_{j=1}^n (a_{ij}^o, a_{ij}^r, a_{ij}^p) \otimes (x_j^o, x_j^r, x_j^p) &\geq (b_i^o, b_i^r, b_i^p) \\ (x_j^p, x_j^r, x_j^o) &\geq (0, 0, 0) \end{aligned}$$

Where: (c_j^o, c_j^r, c_j^p) – triangular fuzzy coefficients of objective function with three scenarios:

optimistic, reasonable and pessimistic
 (x_j^o, x_j^r, x_j^p) – triangular fuzzy variables with three scenarios:
 optimistic, reasonable and pessimistic

$(a_{ij}^o, a_{ij}^r, a_{ij}^p)$ – triangular fuzzy coefficients of constraints with three scenarios:

optimistic, reasonable and pessimistic
 (b_i^o, b_i^r, b_i^p) – triangular fuzzy right-hand side terms with three scenarios:

optimistic, reasonable and pessimistic

Remark 1: Let x be a crisp value within triangular fuzzy coefficients. This value is a optimistic value if $c_j^o < x < c_j^r$, an pessimistic value if $c_j^r < x < c_j^p$ and a reasonable value if $x = c_j^r$.

Remark 2: Let y be a crisp value within triangular fuzzy variables. This value is a optimistic value if $x_j^o < y < x_j^r$, an pessimistic value if $x_j^r < y < x_j^p$ and a reasonable value if $y = x_j^r$.

Remark 3: Let z be a crisp value within triangular fuzzy coefficients of constraints. This value is a optimistic value if $a_{ij}^o < z < a_{ij}^r$, an pessimistic value if $a_{ij}^r < z < a_{ij}^p$ and a reasonable value if $z = a_{ij}^r$.

Remark 4: Let w be a crisp value within triangular fuzzy coefficients of constraints. This value is a optimistic value if $b_i^o < w < b_i^r$, an pessimistic value if $b_i^r < w < b_i^p$ and a reasonable value if $w = b_i^r$.

3.3. The Transformation of Fuzzy ORP Model into Crisp ORP Models

In order to solve the linear model, it is necessary transform this fuzzy model into a crisp model. Nasserri and Mahmoudi (2019) transformed this model through fuzzy ranking functions. This fuzzy ORP model is transformed into crisp ORP model through fuzzy arithmetic operations:

$$\min \tilde{z} \approx \sum_{j=1}^n (c_j^o, c_j^r, c_j^p) \otimes (x_j^o, x_j^r, x_j^p)$$

$$\sum_{j=1}^n (a_{ij}^o, a_{ij}^r, a_{ij}^p) \otimes (x_j^o, x_j^r, x_j^p) \geq (b_i^o, b_i^r, b_i^p)$$

$$(x_j^o, x_j^r, x_j^p) \geq (0,0,0)$$

$$\begin{aligned} \min \tilde{z} &\approx \sum_{j=1}^n (c_j^o x_j^o, c_j^r x_j^r, c_j^p x_j^p) \\ \Rightarrow \sum_{j=1}^n (a_{ij}^o x_j^o, a_{ij}^r x_j^r, a_{ij}^p x_j^p) &\geq (b_i^o, b_i^r, b_i^p) \\ (x_j^p, x_j^r, x_j^o) &\geq (0, 0, 0) \end{aligned}$$

This modified model is divided in three sub-models, as follows:

- Optimistic sub-model:

$$\begin{aligned} \min z &= \sum_{j=1}^n c_j^o x_j^o \\ \sum_{j=1}^n a_{ij}^o x_j^o &\geq b_i^o \\ x_j^o &\geq 0 \end{aligned}$$

- Reasonable sub-model:

$$\begin{aligned} \min z &= \sum_{j=1}^n c_j^r x_j^r \\ \sum_{j=1}^n a_{ij}^r x_j^r &\geq b_i^r \\ x_j^r &\geq 0 \end{aligned}$$

- Pessimistic

sub-model:

$$\begin{aligned} \min z &\approx \sum_{j=1}^n c_j^p x_j^p \\ \sum_{j=1}^n a_{ij}^p x_j^p &\geq b_i^p \\ x_j^p &\geq 0 \end{aligned}$$

The solutions of these sub-models are considered the inferior limit, the peak and the superior limit of the triangular fuzzy solution (x_j^o, x_j^r, x_j^p) . It is possible only if the $x_j^o < x_j^r < x_j^p$. Therefore, this is only a rule in order to solve the Fuzzy PRO Model.

4. The Inventory Fuzzy PRO Model

4.1. The Elements of the Inventory Fuzzy PRO Model

In an inventory decision problem, the Fuzzy PRO Model was created considering the three scenarios presented in the previous section. In addition, the Fuzzy Inventory PRO Model has three types of variables: production quantity, inventory quantity and unfinished quantity. The Fuzzy Inventory Model has the following structure:

Fuzzy objective function:

$$\min \tilde{z} = \sum_{i=1}^n (\tilde{c}_i \otimes \tilde{q}_i + \tilde{h}_i \otimes \tilde{s}_i + \tilde{k}_i \otimes \tilde{u}_i)$$

Fuzzy restrictions:

$$\tilde{d}_i = \tilde{s}_{i-1} + \tilde{u}_{i-1} + \tilde{q}_i - \tilde{s}_i + \tilde{u}_i$$

$$\sum_{i=1}^n \tilde{a}_{ik} \otimes \tilde{q}_i \geq \tilde{b}_k$$

Non-negativity constraints:

$$\tilde{q}_i, \tilde{s}_i, \tilde{u}_i > 0$$

Where:

$\tilde{c}_i = (c_i^o, c_i^r, c_i^p)$ – the production cost for product i

$\tilde{q}_i = (q_i^o, q_i^r, q_i^p)$ – the production quantity for product i

$\tilde{h}_i = (h_i^o, h_i^r, h_i^p)$ – the holding cost for product i

$\tilde{s}_i = (s_i^o, s_i^r, s_i^p)$ – the inventory quantity for product i

$\tilde{k}_i = (k_i^o, k_i^r, k_i^p)$ – the penalty cost for unfinished product i

$\tilde{u}_i = (u_i^o, u_i^r, u_i^p)$ – the unfinished quantity for product i

$\tilde{d}_i = (d_i^p, d_i^r, d_i^o)$ – the demand for product i

$\tilde{a}_{ik} = (a_{ik}^o, a_{ik}^r, a_{ik}^p)$ – the amount of k resource used for production of the product i

$\tilde{b}_k = (b_k^o, b_k^r, b_k^p)$ – available quantity for resource k

The fuzzy variables were defined through the three scenarios: pessimistic, reasonable and optimistic. The variables were defined considering the minimization objective function, which is a minimization cost function. If the objective of this model is to minimize the production inventory and penalty costs, then the minimum value of these fuzzy costs would be the optimistic values and the maximum value of these fuzzy costs would be the pessimistic values of the fuzzy costs. Also, the minimum values of fuzzy variables, would be considered optimistic and the maximum values would be considered pessimistic values. The demand is defined different from the

costs and quantities, because the maximum demands are related to optimistic scenarios and minimum demands are related to pessimistic scenarios.

There could be another way to define the variables. They could be defined with minimum values as pessimistic values and with maximum values as optimistic values. In this case, multiplying the costs with quantities means to produce with minimum cost maximum quantities. This case is part of a larger research and it will be published in a subsequent papers.

4.2. The Elements of the Inventory Fuzzy PRO Model

The transformation of this model into a crisp one is realised using the arithmetic operations, as follows:

$$\begin{aligned} \min \tilde{z} &= \sum_{i=1}^n [(c_i^o, c_i^r, c_i^p) \otimes (q_i^o, q_i^r, q_i^p) + (h_i^o, h_i^r, h_i^p) \otimes (s_i^o, s_i^r, s_i^p) \\ &\quad + (k_i^o, k_i^r, k_i^p) \otimes (u_i^o, u_i^r, u_i^p)] \\ (d_i^p, d_i^r, d_i^o) &= (s_{(i-1)}^o, s_{(i-1)}^r, s_{(i-1)}^p) - (u_{(i-1)}^o, u_{(i-1)}^r, u_{3(i-1)}^p) \\ &\quad + (q_i^o, q_i^r, q_i^p) - (s_i^o, s_i^r, s_i^p) + (u_i^o, u_i^r, u_i^p) \\ &\sum_{i=1}^n (a_{ik}^o, a_{ik}^r, a_{ik}^p) \otimes (q_i^o, q_i^r, q_i^p) \leq (b_k^o, b_k^r, b_k^p) \\ &\quad (q_i^o, q_i^r, q_i^p), (s_i^o, s_i^r, s_i^p), (u_i^o, u_i^r, u_i^p) \geq (0,0,0) \\ \Rightarrow \min \tilde{z} &= \sum_{i=1}^n [(c_i^o \times q_i^o, c_i^r \times q_i^r, c_i^p \times q_i^p) + (h_i^o \times s_i^o, h_i^r \times s_i^r, h_i^p \times s_i^p) \\ &\quad + (k_i^o \times u_i^o, k_i^r \times u_i^r, k_i^p \times u_i^p)] \\ (d_i^p, d_i^r, d_i^o) &= (s_{(i-1)}^o - u_{3(i-1)}^p, s_{(i-1)}^r - u_{(i-1)}^r, s_{(i-1)}^p - u_{(i-1)}^o) \\ &\quad + (q_i^o - s_i^p, q_i^r - s_i^r, q_i^p - s_i^o) \\ &\quad + (u_i^o, u_i^r, u_i^p) \\ &\sum_{i=1}^n (a_{ik}^o q_i^o, a_{ik}^r q_i^r, a_{ik}^p q_i^p) \leq (b_k^o, b_k^r, b_k^p) \\ &\quad (q_i^o, q_i^r, q_i^p), (s_i^o, s_i^r, s_i^p), (u_i^o, u_i^r, u_i^p) \geq (0,0,0) \\ \Rightarrow \min \tilde{z} &= \sum_{i=1}^n [(c_i^o \times q_i^o + h_i^o \times s_i^o + k_i^o \times u_i^o, c_i^r \times q_i^r \\ &\quad + h_i^r \times s_i^r + k_i^r \times u_i^r, c_i^p \times q_i^p + h_i^p \times s_i^p \\ &\quad + k_i^p \times u_i^p)] \\ (d_i^p, d_i^r, d_i^o) &= (s_{(i-1)}^o - u_{3(i-1)}^p + q_i^o - s_i^p + u_i^o, s_{(i-1)}^r - u_{(i-1)}^r \\ &\quad + q_i^r - s_i^r + u_i^r, \\ &\quad s_{(i-1)}^p - u_{(i-1)}^o + q_i^p - s_i^o + u_i^p) \end{aligned}$$

$$\sum_{i=1}^n (a_{ik}^o q_i^o, a_{ik}^r q_i^r, a_{ik}^p q_i^p) \leq (b_k^o, b_k^r, b_k^p)$$

$$(q_i^o, q_i^r, q_i^p), (s_i^o, s_i^r, s_i^p), (u_i^o, u_i^r, u_i^p) \geq$$

(0,0,0)

This transformed model is divided in three sub-models:

- Optimistic sub-model

$$\min z^o = \sum_{i=1}^n (c_i^o \times q_i^o + h_i^o \times s_i^o + k_i^o \times u_i^o)$$

$$d_i^p = s_{(i-1)}^o - u_{3(i-1)}^p + q_i^o - s_i^p + u_i^o$$

$$\sum_{i=1}^n a_{ik}^o q_i^o \leq b_k^o$$

$$q_i^o \geq 0$$

- Reasonable sub-model

$$\min z^r = \sum_{i=1}^n (c_i^r \times q_i^r + h_i^r \times s_i^r + k_i^r \times u_i^r)$$

$$d_i^r = s_{(i-1)}^r - u_{(i-1)}^r + q_i^r - s_i^r + u_i^r$$

$$\sum_{i=1}^n a_{ik}^r q_i^r \leq b_k^o$$

$$q_i^r \geq 0$$

- Pessimistic sub-model

$$\min z^p = \sum_{i=1}^n (c_i^p \times q_i^p + h_i^p \times s_i^p + k_i^p \times u_i^p)$$

$$d_i^o = s_{(i-1)}^p - u_{(i-1)}^o + q_i^p - s_i^o + u_i^p$$

$$\sum_{i=1}^n a_{ik}^p q_i^p \leq b_k^p$$

$$q_i^o \geq 0$$

The solutions of the sub-models form the final fuzzy solution of the Fuzzy Inventory ORP Model. The sub-models are solved using Dual Fuzzy Algorithm.

4.3. Testing the Fuzzy Inventory PRO Model

A furniture company produces four types of products. The decision makers plan the production process every month and they need to have a linear model that can provide an optimum solution even in vague, uncertain and changing environment. The model they need is an Inventory ORP Model with 12 variables and with following structure:

Fuzzy Objective Function:

$$\begin{aligned} \min \tilde{z} = & (1798 \ 2349 \ 2773) \otimes (q_1^o \ q_1^r \ q_1^p) \oplus (2327 \ 3195 \ 4131) \otimes \\ & (q_2^o \ q_2^r \ q_2^p) \oplus (202 \ 378 \ 510) \otimes (q_3^o \ q_3^r \ q_3^p) \oplus (1020 \ 1546 \ 2372) \otimes \\ & (q_4^o \ q_4^r \ q_4^p) \oplus (2413 \ 2477 \ 2541) \otimes (s_1^o \ s_1^r \ s_1^p) \oplus (3437 \ 3697 \ 3921) \otimes \\ & (s_2^o \ s_2^r \ s_2^p) \oplus (459 \ 540 \ 691) \otimes (s_3^o \ s_3^r \ s_3^p) \oplus (1709 \ 1872 \ 2035) \otimes \\ & (s_4^o \ s_4^r \ s_4^p) \oplus (2349 \ 2753 \ 3057) \otimes (u_1^o \ u_1^r \ u_1^p) \oplus (3195 \ 3713 \ 4131) \otimes \\ & (u_2^o \ u_2^r \ u_2^p) \oplus (378 \ 494 \ 610) \otimes (u_3^o \ u_3^r \ u_3^p) \oplus (1546 \ 2009 \ 2472) \otimes \\ & (u_4^o \ u_4^r \ u_4^p) \end{aligned}$$

Fuzzy Restrictions:

$$\begin{aligned} & (q_1^o \ q_1^r \ q_1^p) \ominus (s_1^o \ s_1^r \ s_1^p) \oplus (u_1^o \ u_1^r \ u_1^p) \geq (20 \ 47 \ 68) \\ & (q_2^o \ q_2^r \ q_2^p) \ominus (s_2^o \ s_2^r \ s_2^p) \oplus (u_2^o \ u_2^r \ u_2^p) \geq (19 \ 28 \ 45) \\ & (q_3^o \ q_3^r \ q_3^p) \ominus (s_3^o \ s_3^r \ s_3^p) \oplus (u_3^o \ u_3^r \ u_3^p) \geq (40 \ 60 \ 80) \\ & (q_4^o \ q_4^r \ q_4^p) \ominus (s_4^o \ s_4^r \ s_4^p) \oplus (u_4^o \ u_4^r \ u_4^p) \geq (15 \ 35 \ 60) \\ & (38 \ 41 \ 45) \otimes (q_1^o \ q_1^r \ q_1^p) \oplus (75 \ 80 \ 86) \otimes (q_2^o \ q_2^r \ q_2^p) \oplus (25 \ 28 \ 31) \\ & \quad \otimes (q_3^o \ q_3^r \ q_3^p) \oplus (37 \ 40 \ 45) \otimes (q_4^o \ q_4^r \ q_4^p) \\ & \quad \leq (5400 \ 11000 \ 17000) \\ & (0.3 \ 0.35 \ 0.4) \otimes (q_1^o \ q_1^r \ q_1^p) \oplus (0.6 \ 0.64 \ 0.7) \otimes (q_2^o \ q_2^r \ q_2^p) \oplus (0.08 \ 0.09 \ 0.1) \\ & \quad \otimes (q_3^o \ q_3^r \ q_3^p) \oplus (0.2 \ 0.25 \ 0.3) \otimes (q_4^o \ q_4^r \ q_4^p) \leq (100 \ 150 \ 300) \\ & (278 \ 296 \ 320) \otimes (q_1^o \ q_1^r \ q_1^p) \oplus (145 \ 161 \ 191) \otimes (q_2^o \ q_2^r \ q_2^p) \oplus (55 \ 65 \ 78) \\ & \quad \otimes (q_3^o \ q_3^r \ q_3^p) \oplus (72 \ 90 \ 107) \otimes (q_4^o \ q_4^r \ q_4^p) \\ & \quad \leq (23000 \ 34000 \ 47000) \\ & (1.9 \ 2 \ 2.2) \otimes (s_1^o \ s_1^r \ s_1^p) \oplus (1.7 \ 1.85 \ 1.95) \otimes (s_2^o \ s_2^r \ s_2^p) \oplus (1.3 \ 1.45 \ 1.60) \\ & \quad \otimes (s_3^o \ s_3^r \ s_3^p) \oplus (1.4 \ 1.6 \ 1.8) \otimes (s_4^o \ s_4^r \ s_4^p) \leq (200 \ 300 \ 400) \\ & (s_1^o \ s_1^r \ s_1^p) \oplus (s_2^o \ s_2^r \ s_2^p) \oplus (s_3^o \ s_3^r \ s_3^p) \oplus (s_4^o \ s_4^r \ s_4^p) \geq (60 \ 80 \ 100) \\ & (u_1^o \ u_1^r \ u_1^p) \oplus (u_2^o \ u_2^r \ u_2^p) \oplus (u_3^o \ u_3^r \ u_3^p) \oplus (u_4^o \ u_4^r \ u_4^p) \geq (10 \ 20 \ 30) \end{aligned}$$

Where: - $(q_1^o \ q_1^r \ q_1^p)$, $(s_1^o \ s_1^r \ s_1^p)$, $(u_1^o \ u_1^r \ u_1^p)$ – production, inventory and unfinished quantities for the first product
 - $(q_2^o \ q_2^r \ q_2^p)$, $(s_2^o \ s_2^r \ s_2^p)$, $(u_2^o \ u_2^r \ u_2^p)$ – production, inventory and unfinished quantities for the second product
 - $(q_3^o \ q_3^r \ q_3^p)$, $(s_3^o \ s_3^r \ s_3^p)$, $(u_3^o \ u_3^r \ u_3^p)$ – production, inventory and unfinished quantities for the third product
 - $(q_4^o \ q_4^r \ q_4^p)$, $(s_4^o \ s_4^r \ s_4^p)$, $(u_4^o \ u_4^r \ u_4^p)$ – production, inventory and unfinished quantities for the fourth product

This model is divided in three sub models in order to obtain the solution.

- Optimistic sub-model

$$\begin{aligned} \min \tilde{z} = & 1798 \times q_1^o + 2327 \times q_2^o + 202 \times q_3^o + 1020 \times q_4^o + 2413 \times s_1^o + \\ & 3437 \times s_2^o + 459 \times s_3^o + 1709 \times s_4^o + 2349 \times u_1^o + 3195 \times u_2^o + 378 \times u_3^o + \\ & 1546 \times u_4^o \\ & q_1^o - s_1^o + u_1^o \geq 20 \\ & q_2^o - s_2^o + u_2^o \geq 19 \\ & q_3^o - s_3^o + u_3^o \geq 40 \\ & q_1^o - s_1^o + u_1^o \geq 15 \\ & 38 \times q_1^o + 75 \times q_2^o + 25 \times q_3^o + 37 \times q_4^o \leq 5400 \\ & 0.3 \times q_1^o + 0.6 \times q_2^o + 0.08 \times q_3^o + 0.2 \times q_4^o \leq 100 \\ & 278 \times q_1^o + 145 \times q_2^o + 55 \times q_3^o + 72 \times q_4^o \leq 23000 \\ & 1.9 \times s_1^o + 1.7 \times s_2^o + 1.3 \times s_3^o + 1.4 \times s_4^o \leq 200 \end{aligned}$$

$$s_1^o + s_2^o + s_3^o + s_4^o \geq 60$$

$$u_1^o + u_2^o + u_3^o + u_4^o \geq 10$$

- Reasonable sub-model

$$\min \tilde{z} = 2349 \times q_1^r + 3195 \times q_2^r + 378 \times q_3^r + 1546 \times q_4^r + 2477 \times s_1^r + 3697 \times s_2^r + 540 \times s_3^r + 1872 \times s_4^r + 2753 \times u_1^r + 3713 \times u_2^r + 494 \times u_3^r + 2009 \times u_4^r$$

$$q_1^r - s_1^r + u_1^r \geq 47$$

$$q_2^r - s_2^r + u_2^r \geq 28$$

$$q_3^r - s_3^r + u_3^r \geq 60$$

$$q_1^r - s_1^r + u_1^r \geq 35$$

$$41 \times q_1^r + 80 \times q_2^r + 28 \times q_3^r + 40 \times q_4^r \leq 11000$$

$$0.35 \times q_1^r + 0.64 \times q_2^r + 0.09 \times q_3^r + 0.25 \times q_4^r \leq 150$$

$$296 \times q_1^r + 161 \times q_2^r + 65 \times q_3^r + 90 \times q_4^r \leq 34000$$

$$2 \times s_1^r + 1.85 \times s_2^r + 1.45 \times s_3^r + 1.6 \times s_4^r \leq 300$$

$$s_1^r + s_2^r + s_3^r + s_4^r \geq 80$$

$$u_1^r + u_2^r + u_3^r + u_4^r \geq 20$$

- Pessimistic sub-model

$$\min \tilde{z} = 2773 \times q_1^p + 4131 \times q_2^p + 510 \times q_3^p + 2372 \times q_4^p + 2541 \times s_1^p + 3921 \times s_2^p + 691 \times s_3^p + 2035 \times s_4^p + 3057 \times u_1^p + 4131 \times u_2^p + 610 \times u_3^p + 2472 \times u_4^p$$

$$q_1^p - s_1^p + u_1^p \geq 68$$

$$q_2^p - s_2^p + u_2^p \geq 45$$

$$q_3^p - s_3^p + u_3^p \geq 80$$

$$q_1^p - s_1^p + u_1^p \geq 60$$

$$45 \times q_1^p + 86 \times q_2^p + 31 \times q_3^p + 45 \times q_4^p \leq 17000$$

$$0.4 \times q_1^p + 0.7 \times q_2^p + 0.1 \times q_3^p + 0.3 \times q_4^p \leq 300$$

$$320 \times q_1^p + 191 \times q_2^p + 78 \times q_3^p + 107 \times q_4^p \leq 47000$$

$$2.2 \times s_1^p + 1.95 \times s_2^p + 1.60 \times s_3^p + 1.8 \times s_4^p \leq 400$$

$$s_1^p + s_2^p + s_3^p + s_4^p \geq 100$$

$$u_1^p + u_2^p + u_3^p + u_4^p \geq 30$$

The first sub-model has the following optimal solution:

$$q_1^o = 20, q_2^o = 19, q_3^o = 90, q_4^o = 15, s_1^o = 0, s_2^o = 0, s_3^o = 60, s_4^o = 0, u_1^o = u_2^o = u_3^o = u_4^o = 0.$$

The value of objective function in optimal solution is: $\min z = 144973$

The second sub-model has the following optimal solution:

$$q_1^r = 47, q_2^r = 28, q_3^r = 120, q_4^r = 35, s_1^r = 0, s_2^r = 0, s_3^r = 60, s_4^r = 0, u_1^o = u_2^o = u_3^o = u_4^o = 0$$

The value of objective function in optimal solution is: $\min z = 326873$

The third sub-model has the following optimal solution:

$$q_1^p = 68, q_2^p = 38, q_3^p = 180, q_4^p = 49, s_1^p = 0, s_2^p = 0, s_3^p = 100, s_4^p = 0, u_1^p = 0, u_2^p = 7, u_3^p = 0, u_4^p = 22.$$

The value of objective function in optimal solution is: $\min z = 667679$

Combining the values of the three sub-models it results the following fuzzy solution:

$$\tilde{q}_1 = (20 \ 47 \ 68), \tilde{s}_1 = (0 \ 0 \ 0), \tilde{u}_1 = (0 \ 0 \ 0) - \text{for the first product;}$$

$\tilde{q}_2 = (19\ 28\ 38)$, $\tilde{s}_2 = (0\ 0\ 0)$, $\tilde{u}_2 = (0\ 0\ 7)$ – for the second product;
 $\tilde{q}_3 = (90\ 120\ 180)$, $\tilde{s}_3 = (60\ 60\ 100)$, $\tilde{u}_3 = (0,0,0)$ – for the third product;
 $\tilde{q}_4 = (15\ 35\ 49)$, $\tilde{s}_4 = (0,0,0)$, $\tilde{u}_4 = (0\ 0\ 22)$ – for the fourth product.

The fuzzy value of objective function is: $\min \tilde{z} = (144973, 326873, 667679)$. The solution is optimal because the fuzzy numbers that represents the solutions respect the rule : $x_j^o < x_j^p < x_j^r, j = \overline{1,4}$, for each product.

Conclusions

In modelling and testing Fuzzy Inventory ORP Model, the following strengths and weaknesses can be identified:

Strengths:

- The Fuzzy Inventory ORP Model allows decision-makers to formulate decision problems, even if the parameters are vague;
- The Fuzzy Inventory ORP Model allows managers to identify the optimal production and inventory level even in uncertain conditions;
- The Fuzzy Inventory ORP Model provides a flexible optimal solution, which can be easily implemented in a changing decision environment;
- The Fuzzy Inventory ORP Model provides the optimal solution in three scenarios and allows managers to select the most appropriate solution for their problem;
- The Fuzzy Inventory ORP Model helps managers in forecasting, due to the large numbers of the values for variables and coefficients considered through fuzzy numbers.

Weaknesses:

- The Fuzzy Inventory ORP Model deals only with positive fuzzy numbers.
- The Fuzzy Inventory ORP Model has to be defined considering the type of the objective function. In this paper, the ORP Model has a minimization objective function. In a maximization problem, the variables of the ORP model have to be transformed in such a way that the maximum values of the variables are related to the optimistic scenario and the minimum values of the variables are related to the pessimistic scenario. In real decision problems, there can be some difficulties on modelling the variables, especially when there are variables that have different rules for modelling.
- The model does not consider the fact that can be different ways to define the three scenario. In this model, the optimistic scenario is defined through minimum values for both variables and coefficients, and the pessimistic scenario is defined through maximum values for both variables and coefficients. This means that for a company it is optimistic to produce and hold in stock minimum quantities with minimum costs, because the objective function would achieve the minimum value of total costs. In reality, this is not always true. A company could consider more efficient and optimistic if it can produce or hold in stock large quantities of items with minimum costs. Therefore, the optimistic scenario, would have a different definition: q_i^o, s_i^o and u_i^o would be the maximum values of the fuzzy \tilde{q}_i, \tilde{s}_i and \tilde{u}_i and c_i^o, h_i^o and k_i^o would be the minimum values of the fuzzy costs: \tilde{c}_i, \tilde{h}_i and \tilde{k}_i .

The ORP Model could be developed in order to consider different combination in

defining the variables and scenarios. Also, it could be applied to the maximization problems by transforming it in PRO Model. This directions would be considered in subsequent research.

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*INTERNATIONAL BUSINESS, EUROPEAN INTEGRATION,
FOREIGN LANGUAGES AND BUSINESS ENVIRONMENT*

AFRICA'S WATER INSECURITY AND ITS TRIGGERS

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Abstract: *Even Africa boasts some of the greatest water resources in the world with large rivers, they are unevenly distributed on the continent, some countries being well endowed with water resources, other being forced to make difficult choices in order to get sustainable access to water; in the same time, precipitations' regime has the same feature: too much during specific part of the year, lower (or missing altogether) precipitations doubled by high evaporation rate due to high temperatures. Overlapping these natural elements, there have been engineering actions and urban planning – both, during colonial period and after Africa's countries gained independence – influencing the access to this vital resources in a discriminatory manner. Climate changes doubled with the dynamic population trend on this continent are newcomers, influencing in a negatively way the possible evolution on the continent. Water commodification is another element hitting hard the poor in Africa; as wealthy parts of African cities are well connected to urban water pipes and facilities, poorer parts of the same city totally misses access to water facilities. The poorest people must buy bottled water to get through daily challenges, large part of their incomes being diverted to gaining access to water. The paper intends to bring to East-European audience the problems and challenges the most dynamic continent is going to face, and how can it influence the evolution there, and in other parts of the world, due to migration. Poor access to water, and when available its dubious quality, are other components of African water landscape with great medical consequences and costs at both personal and state level.*

Keywords: *Africa, cities, dams, colonialism, population, rivers, water*

JEL Classification: *F54, L95, Q25, Q56*

Background

Even Africa is somewhere quite far from East-Europe, being less studied in Romanian economic and social literature, worldwide interconnectivity due to modern transport and communications brings closer and closer the Earth's continents. But Africa is gaining momentum, both because it boasts a significant population dynamism – it is the youngest continent on Earth – attracting attention of large companies involved in producing house apparel and real estate investors, while Africa's resources are well known; it is a continent where great powers strive

gaining access to. While old colonial powers from Europe are decreasing, their place is taken by newcomers from Asia, especially China, India, Brazil, and Russian Federation. But this continent has a unique feature related to water resources: African aquatic sources are unevenly and irregularly distributed within and between African states, water becoming a contested resource, *increasingly privatized*, and commoditized (Issacman & Musemwa, 2021: 7).

In the same time, the African continent produces less than 4% of world's greenhouse emissions, but it bears the greatest negative consequences of externally induced effects of global warming (UN Fact Sheet, 2006). Although the continent has great reserves of untapped water, they are distributed unevenly: the great part of this resource lies in few *large* basins such as Congo, Niger, Nile, Zambezi, while some 30% of African population live already in regions prone to droughts and semi-aridity. Climate changes intensification has added pressures on a larger population, people at risk on this very continent hovering around 325 million (Fleshman, 2007).

Anyway, countries on the African continent shares some peculiarities related to water: unequal distribution and access due to natural factors (in some respect), but in greatest part due to colonial and post-colonial anthropogenic waterscape, these overlapping the geographically expanding cities and their rising population; damming of big rivers without any care given to the most affected communities, the poor, the peasant and the fisherman, respectively; irrigation schemes – most of them related to dams' construction – which affected and impounded millions of lives on the continent; and the presence and recurrence of waterborne and water-related diseases (cholera, typhoid, schistosomiasis, onchocerciasis, kidney failure, and related C Hepatitis contamination due to dialysis, and other diseases).

Rising population and unequal access to water

One of the peculiarities of Global South's cities is the presence of a large share of population living in *informal settlements*; for example Tanzania's capital, Dar es Salaam has 70% of its population living in such settlements (Bender, 2021: 48), a figure repeated overall African continent (Livingston, 2021: 89). Formal access to water puts this city among the world's worst positions: near 80% of its population doesn't have access to piped water in their homes. But access doesn't mean *safe access*: water quality is questionable, its reliability poor, and round the clock availability rare. The situation of this capital city is not unique, unfortunately; like most colonial cities it has developed a segregated urban space, based on economic assertiveness: the ruling class, un-free labor, and peasant. Post-colonial regimes have in great part kept the same direction: letting informal settlements to flourish means there is no compulsory need to develop water infrastructure and sewage systems related to specific standards connected to formal settlements, so there was low level of investments and scarce money could be used for other political ends. To put it bluntly, if Africans (the natives) use in Dar es Salaam only 3-4 liters of water per day, European colonizers had gotten access to 140-195 liters per day

(Bender, 2021: 51). But adaptation is a peculiarity of African people: an ingenuous method of fetching water has gradually risen in this city, and around the continent: private water vending. Of course it means money to be paid for water, but it works: 50% of Dar's its population relies, at least in part, on private vending. It is important to mention here that this trend follows the trend promoted by the free-market philosophy, rooted in neo-liberal thinking which sees even *water* a marketable good and a commodity to be traded and influenced by supply and demand. But it comes with great economic and social costs: the pattern that has emerged indicates the fact that users in the *poorest* neighbourhoods pay the highest rates for their water, and likewise spend the most time per day fetching it (Bender, 2021: 55). It is an important mark how neo-liberalism impacts the poorest; private vending of water represents the commodification of a basic human right, perpetuating social inequities that have long been a characteristic of Global South! And African continent registers great population dynamism. It has a young population and is marked by a significant population growth. Having these in mind, it becomes difficult to speak about human rights in the Global North and under the international institutions umbrella, when in the same historical moment millions fight for gaining access to a basic human right, directly connected to life... In the same time, neo-liberal institutions – such as The World Bank and IMF – pressed the need to treat water as an economic good to be sold at a profit, and not as a “social good” to be provided by the *state*. This trend has only maintained the precedent asymmetrical provision of water between colonizers and natives in African cities – especially in African capital cities – which has contributed to specific marks of deeply divided cities, emerging along *racial, spatial, and income lines* (Musemwa, 2021: 31).

Dams and Development for Whom?

After the 2-nd World War, a dam revolution manifested in the world; African continent, with its huge untapped water potential – didn't miss this trend. Even the motivations pushing for dams' constructions were dressed up in developmental discourses publicly heralded, the motivations had been more obscure, few gaining a lot, while the greatest part of population bearing the costs of “development”, in terms of fertile land's disappearance, lost fisheries and other wild life species, strong or definitive ecosystems alterations, and cultural obliteration due to people relocation. Those who gained were those with strong interests in dams industry: constructors, financiers, ex-colonizers countries, and (some) representatives of local governments.

For example, Mozambique's Cahora Bassa Dam stands as a herald in this respect: its construction was masked as a development project, while its main motivations had to do with security (Isaacman, 2021: 104). Both South Africa and Portuguese identified the dam and the future lake it would create as a buffer blocking the anti-colonial guerillas' advances. Portugal agreed with Pretoria to export the energy produced by future dam to South Africa at a fraction of the world price, in exchange for Pretoria's rally against nationalistic fervor in Mozambique (Middlemans, 1975).

It became the largest dam in the world constructed for the specific purpose of exporting electricity (Isaacman and Isaacman, 2013).

All in all, this dam deserves the label of being the least studied, and (possibly) the least environmentally acceptable dam in Africa (Bleifuss and Davies, 1995: 145-154).

Another case, Akosombo Dam was aimed to produce energy and to create an irrigation scheme (through the creation of Volta Lake) in Ghana. It was imagined as a mean sustaining Ghana on its road to modernization and it was not connected to a security imperative as the Kahora Bassa. But it negatively impacted the environment and local population, bringing over time little positive effects overall; the anticipated modernization didn't happen (Miescher, 2021: 136).

Of course, there are a lot of dams in Africa, most of them sharing the negative characteristics mentioned in these two shortly presented cases. Water resources development in Africa after the 2nd World War were designed based only on engineering and economic criteria. Only recently, most governments, developers, financiers have become attentive to ecosystems that provided water. But in the past the costs were calculated only related to construction and operation and the benefits were related to food, job creation, economic development, missing altogether to identify the ecological, social, and physiochemical costs of degrading landscapes, loosing gene pools, flora and fauna, soil erosion, shoreline and coast erosion, and forced relocation of millions across Africa. Put shortly, the decision on dams and other major water development schemes were taken by “far too few for far too many” (Asmal, 2000).

During the second part of the last century, African governments constructed over a thousand dams, some of them belonging to mega-projects category, such as: Akosombo Dam (Ghana), Lagdo Dam (Cameroon), Kanji and Bakolori (Nigeria), Kossou Dam (Cote d'Ivoire), Masinga Dam (Mozambique).

It is important to underscore that during the 20th century the political discourse packed dams and irrigation schemes in developmental framework, the new millennium discourse press for dams' construction as climate change brings unpredictable pattern of precipitations, and extreme weather events. Developmental speech gives the stage to climatic motivated discourse, with a new attraction for building dams: but we must learn from past experiences and when new dams are decided upon to be built, ecological, social, and cultural factors *must* be introduced in the calculus preceding their construction.

As a matter of fact, there is under construction in Africa the largest power-station in the world (40 GW) – called the Grand Inga Dam project, with an estimated cost of US 80.billions. it is a series of 6 dams, two already completed, one in the design phase, the remaining three depending on markets and founding, but its development occurred without any risk evaluation being made public, or without any special environmental or social studies. These are obscured by *political announcements* (King & Brown, 2021: 243) and boasts, as in the past....

As water security is directly connected to food security, and to infrastructure which “manipulate” water, dams and irrigations schemes come to the forefront. In the

context of climate changing patterns, population's dynamism in Africa, and the continent great untapped water-related energy capacity, there is place for future development of such infrastructure projects. But much more attention must be given to environment and social factors than in past cases. As a matter of fact, only 5% of Africa's cultivated land is *irrigated*, while less than 10% of hydropower potential on the continent is used (Foster and Briceno-Garmendia, 2010).

Water development projects and health

Water is the cornerstone of public health; Covid 19 with the slogan "wash your hands" being the last reminder of the centrality of water in healthcare area. But Africans urbanites face serious challenges when it comes to water availability; this problem has the nefarious potential of becoming more pressing as rapid urbanization and climate change intersect, further constraining the provision of water. It is important to underscore that in Africa water scarcity is both an environmental and a technical phenomena, but a political determined one, too. Missing water means that infectious diseases like cholera, typhoid, amoebiasis, giardiasis, rotavirus, E coli, schistosomiasis and kidney diseases, hovers over the continent.

Water development projects, as that existing for example in Egypt related to Aswan High Dam and its irrigation connected scheme, favouring the harvesting of cotton fields, generated favourable environment, sustaining good conditions for schistosomiasis' spread. In the past, one approach related to this disease was connected to the endeavour of eradicating it, using chemicals; it had even got the WHO support, and of governments from developed countries seeking to promote their *national* chemical companies and pharmaceuticals (Derr, 2021: 151). But in the past schistosomiasis was regarded as a countryside specific disease, while fast and disordered urbanization has brought it to urban areas, with debilitating effects. Furthermore, chemicals used in agriculture (fertilizers, pesticides, and other chemicals) have brought a heavy burden on African people: epidemiologists note both rising incidence of bladder cancer, and a continuously shift from the prevalence of subtypes caused by chronic schistosomiasis to those generated by exposure to industrial chemicals (Adeloye, 2019: 110).

Illness caused by poor quality of water consumed and the unhygienic disposal of used water are a major source for kidney disease; dialysis, as a final stage where kidney diseases is heading to, is in the same time iatrogenic: between 70-80% of patients has contracted Hepatitis C via dialysis machines; this happens in an area situated in the Nile's Delta. Patients blamed toxic drinking water and contaminated food for their ailments, as a consequence of dumping pesticides and chemical runoff into the Nile. Worst to be blamed are government-owned companies (Livingston, 2021: 86)!

Other diseases as malaria, trypanosomiasis, onchocerciasis have fully manifested as environment-changes brought by techno-political decisions implying water infrastructures as dams, artificially lakes and irrigations schemes, were put in place. Ghana's Akosombo Dam and its reservoir – Volta Lake – is a case to be mentioned

here: while the government promises that the future dam would create the premises for a mechanized agriculture and a society which would modernize, the benefits for the backward nation, these announced benefits have never materialized. The promised scheme of a modernized agriculture failed, while after resettlement, people felt inside their bodies the hard hand of reversed modernization.

In conclusion

Even this paper presents is only a short description of problems being encountered in Africa due to technologies related to water manipulation and management, it can be a useful guide to understand future decisions which *sure* will be taken on this continent in relation with water management. While climate change and the population's dynamism concentrating in African large cities are heading-on each other, water provision, quality of water, and its disposal will receive important positions on states' agenda. In the past, discourses related to modernization, industrialization, development, nationalistic fervor, national independence, have been directly connected to large project construction. In the previous three decades the run for such large projects faded away, but recently, the resurgence regarding even larger projects is back. Climate change, water and food security are new discourses, motivating the need to develop such schemes, and new financiers – especially from Asia – are more and more involved in them.

For us, as Europeans such a debate can be quite strange because of geography, but is a truncated view; Africa – in case of destabilization – can disturb the economy and society of the Old continent which is not very far from Africa.

Climate change, water and food security, the diseases they can maintain, and the droughts and famines which could hit the continent with a very high increase of population, could trigger mass migration towards Europe, which already faces quite difficult times...

Dams and other water infrastructure which would change African landscape could become part of future solutions, to create a more stable, and even a more prosperous continent; but all deleterious effects of decisions based on narrow techno-financial interests which generated water schemes in the past should be replaced with a more social and environment-friendly decisions, in order to get the best solutions.

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APPLICATION OF STATISTICAL INDICATORS IN FOOTBALL

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Abstract: *In our article, we describe the different statistical indicators using secondary research. In our article, we show you in which areas of football the data can be used for analysis. We present in detail the data that can be used for player monitoring and sports betting. With the help of the primary research, we created an online questionnaire in which we asked footballers, professionals and fans about the topic. The results obtained are illustrated with figures and tables.*

It is clear from the research that professionals, footballers and supporters share the same view, as the economic situation caused by the epidemic means that club teams have to rely much more on data-driven player monitoring. It's a good idea to invest in players instead of buying overvalued football players. As described in our article, it is not possible to predict the outcome of a match with traditional statistical indicators (goal shots, corners, possession of the ball, etc.). This is because these statistics do not return an accurate picture of a match. These numbers are not suitable for drawing conclusions for a match. In our opinion, these numbers show the quantity and not the quality of the shot on goal.

Keywords: *sports, indicators, calculation, football analysis*

JEL Classification: L83, Z20, Z21, Z28

1. Heading: Generally, Introduction or Background- Importance of statistical indicators in football

In football, one of the most significant statistical indicators is the Expected goals ratio (in the literature it is the xG indicator), which determines the proportion of goals expected. This is a statistical model that shows how likely an average footballer is to score a goal in a given match. There are many models to calculate that can take into account different variables and conditions. The most significant variables are:

- the exact location of the shot: the farther or the narrower the angle of the shot, the less chance the player has of scoring;
- the body part: with which part of the body the player scored the goal (it is more difficult to control the ball upside down than from the ground);
- type of goal pass: the chance to score a goal changes if the player making the shot wants to score a goal after a bounce, a pass or a point kick

- types of attacks: a lot also depends on this variable (multiplayer, counterattack, series or a simple cut-off, etc.).

Based on the variables, the scoring attempt is compared to thousands of similar shots, the end result of which is assigned a number between 0 and 1 for that shot (1 is the safe goal and 0 is the worthless option). For example, if a shot gets a value of “0.5 xG,” the sample has a 50% chance of scoring. The value of all the shots of the teams in a given match is added up, so by the end of the 90th minute, it will be decided which team has developed better in terms of the number and quality of shots fired.

Figure 1 shows an xG diagram in which the goals are marked with the green circles and the omitted positions with the red circles.

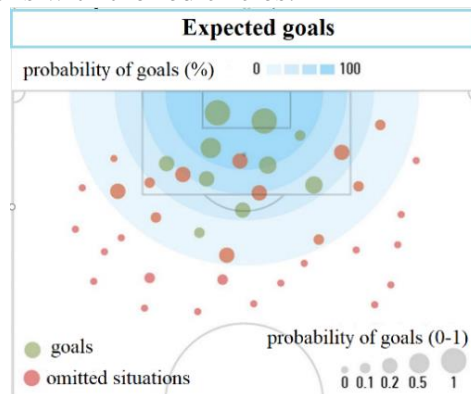


Figure 1: Probability of expected goals and their scoring

Source: nemzetisport.hu

The larger the circle in the figure, the more likely it is to score a goal. The minimum value that can be assigned to a shot is zero, and the highest value is 1 (the probability of this is very minimal). Based on this, if a shot is worth “0.5 xG,” that shot will have a 50% chance of scoring. Blue semicircular curves are used to assign the value to the shot. The farther away and the more displaced a player is, the less likely he is to score a goal.

The other most significant indicator is the Expected assists ratio (known in the literature as the xA indicator), which is an indicator of expected goal pass. In a goal pass, only the pass from which the teammate scores a goal counts, so a player can create up to five positions in a match if his teammates do not change to a goal. The amount of key passes gives a more accurate picture, as it already takes into account every pass that is followed by a shot. However, with the help of the xA pointer, we can find out how much the player who gave the last pass before the shot put his teammate in position. This indicator also follows the principle of the xG model, with each pass before the shot being assigned an xG of 0 to 1 for the subsequent shot. The higher the quality of the situation based on the xG score, the more the preparatory player puts his teammate in the xA score. A pass in preparation for a shot from thirty meters in the middle of the opponent's half will be worth much less than a pass after which the teammate only has to throw the ball into the goal.

The third most significant indicator is the Expected goal against (xGa indicator in the literature), which gives the number of goals expected to be scored. The lower the number of this indicator, the better the defense of that team. By calculating the difference between the xG index and the xGa index and comparing it with the real goal difference, we can find out whether the team under test performed according to its performance during the season or just below or above.

The non-Penalty Expected goals (NPxG index in the literature) is also significant, giving the proportion of goals expected without a penalty. With Xg, we can not only measure the performance of teams, we can also measure the performance of players. Comparing an attacker's actual number of goals to the expected number of goals, we can get an idea of how successful a given player is in a position, how good a finisher is, or just how unlucky he is in front of the goal. What can distort judges' performance is the performance of penalties, as it has a penalty of "0.76 xG," which can thoroughly discard the total xG score for a designated penalty executive. That's why it's worth subtracting these from the formula and looking at the so-called NPxG, which takes the shots fired from the penalties from the total value: total xG - penalties xG = NPxG value

Post shot expected goals (PSxG) examines the quality of the shot. This means the chances of scoring from that experiment. If a shot doesn't find a goal, there's no chance of it scoring. In this case, the value of PSxG will be around 0. For shots that hit a goal, the closer and farther a shot goes to one edge of the goal, the higher it will receive (for example, a shot from twenty yards to the center of the goal will be less than a shot from eight meters to a corner). The most advantageous feature of the PSxG is that it is easier to measure the performance of the goalkeepers. The number of goals scored without goals or the effectiveness of defense alone doesn't say much about how well someone defends. If a team lets a few shots into its goal (and they also come mostly from a distance), the goalkeeper has a much better chance of getting off the goal without the goal being scored (while the goalkeeper is constantly blocking weak attempts). The PSxG shows exactly the quality of shots that a particular goalkeeper must deliver.

Passes per defensive action (PPDA) means passes allowed before intervention. This indicator shows how many passes a given team has allowed the opponent to play in their own half of the field before carrying out any defensive action (ball acquisition, preventive assembly, or foul). The lower this score, the more intense the attack on that band. It is also important to point out that the PPDA indicator strictly measures the intensity of pressing and not its quality. It can easily happen that a team allows very few passes to an opponent on average (trying hard to get the ball), yet they create high-quality situations against them due to unsuccessful attempts to attack. The PPDA indicator gives a bad result if a team allows the opponent to pass in the back (increasing the number of passes before the defensive action) but starts very aggressively on a signal (such as a ball next to a line, a bad pass, a back pass) to attack.

The Opponent passes allowed per defensive actions (OPPDA) indicator determines how many passes a team is able to make in its own half of the space before the

opponent takes a defensive action. Unlike the PPDA indicator, the higher the value of the OPPDA indicator for a given team, the better it can withstand the opponent's attacks. However, this is often only true on paper. If a team is left free to pass in the forefront of their own sixteen and then the player regularly loses the ball in an aggressive attack launched on a signal, no matter how high the OPPDA score is, it will not be more resistant to pressing. Of course, it is also true that teams that are able to replay aggressive pressing on a regular basis after a while may no longer be caught attacking by opponents, which can result in an even higher OPPDA score (I01).

The Expected goal ratio chain (xGChain) indicator shows how much each player takes part in the build-up play. This indicator is derived from the xG model. When determining the xGChain value, each ball possession cycle is recorded. The shots fired during these are recorded, and the corresponding xG values are added up. The player who touched the ball during the action is then assigned to the player.

The Expected goal 2 / Expected save (xG2 / xSV) metrics show which goalkeepers are used to measure the ratio of expected defenses. This value shows, from the perspective of the goalkeepers, the probability that a goal will usually be scored from a given shot. Only shots that hit the goal are counted, and their value depends on the strength of the shot fired. The xG indicator indicates its danger at the moment before the shot, and the xG2 indicates the moment after the shot. A position in front of a goal has a distinctly high xG value, but if the player does not hit the goal from the shot, the value of xG2 is already 0.

If we subtract the value of xG2, we immediately get the expected save index, which shows ($1 - xG2 = xSV$). The indicator determines how likely the goalkeeper is to fire a given shot.

The Indice di Pericolosità (IPO) indicator is known as the hazard indicator. This indicator was introduced in Italy, an improved (more reliable) version of the xG indicator. The indicator measures the degree of danger of a team's attack leads, which is calculated on the basis of the total score of the goal situations (promising attack leads, shots, corners, passes, key passes) achieved in the attacking third. Statisticians evaluate the performance of the bands based on a constant table. The cleaner the situation, the more points a team puts at the end of their opponent's goal (the better their chances of scoring a goal). Consider an example: completing a penalty (or if the attacker can lead the ball alone) 10 points, while taking a free kick from 20 meters (a shot taken within a penalty area, a pass or a corner) can score 4, 3, 2 or 1 point.

The Indice di Rischio Difensivo (IRD) is abbreviated to the risk indicator. It was introduced in Italy, which measures the degree of passive danger of ensembles (how much space the ensemble gives to the opponent's attacks). The performance of the teams is assessed on the basis of similar criteria and a constant table as for the hazard indicator. Subtracting the results of the two metrics (IPO-IRD) gives the extent to which the team under study dominated the match or just played a subordinate role (I02).

| Team | IPO | IRD | IPO - IRD | Team | IPO | IRD | IPO - IRD |
|------------|------|------|-----------|-----------|------|------|-----------|
| Napoli | 61.8 | 25.4 | 36.5 | Sampdoria | 44 | 47 | -3 |
| Milan | 66.7 | 35.1 | 31.6 | Lazio | 40.3 | 45.8 | -5.6 |
| Atalanta | 57.3 | 38 | 19.3 | Torino | 38.2 | 45.4 | -7.2 |
| Udinese | 46.7 | 27.6 | 19.1 | Cagliari | 40 | 49.4 | -9.4 |
| Inter | 57.2 | 38.3 | 19 | Verona | 43.5 | 53.4 | -9.9 |
| Roma | 60.1 | 45 | 15.1 | Crotone | 34.3 | 51.3 | -17 |
| Juventus | 52.4 | 37.9 | 14.5 | Parma | 33 | 53.6 | -20.6 |
| Sassuolo | 61.1 | 50.8 | 10.3 | Spezia | 38.1 | 62.9 | -24.8 |
| Bologna | 56.2 | 53.6 | 2.6 | Genova | 27.1 | 53.6 | -26.5 |
| Fiorentina | 48.9 | 49.4 | -0.5 | Benevento | 38.1 | 74.6 | -36.4 |

Table 1: The IPO-IRD table for the 2020-21. until the 7th round of the Italian First Division

Source: Own editing based on bunteto.com

In addition to the names of the teams, the points of the IPO show how much the team generally posed a threat to their opponents during the matches (Table 1). The higher this score, the more dangerous the team. These are marked with different colors in the table: green for outstanding performance, blue for good performance, yellow for poor performance, red for poor performance. The IRD column shows how vulnerable (how vulnerable) the troops' defenses are. In this column, the lower the score, the better the defense, the higher the score, the higher the risk. In the IPO-IRD column, the difference between the two indicators shows how much the team is usually dominated by the team or how subordinate it is.

2. Research, results - What are statistics used for in football?

There are four immediate areas of application of the information processed, which are as follows:

1. One group is pre-match preparation. The data stored by the statistical analysis companies can be retrieved at any time for the bands in the partnership agreement. Abroad, it is common for video analysts to compile a material for the coach based on this data, who will use it to shape the team's preparation for the next opponent. An excellent example of this is the example of István Kovách (leader of the Central European region of Instat Football) in his football podcast called Ziccer, when a goalkeeper from Hungary measured the opponent's free kicks, corners and coached the goalkeeper for the match based on Instat's data.

2. The second group is the post-match analysis. After the match, the associations in the partnership agreement will receive a multi-page pdf document from the analysis companies, in which all the data about the players (running volume, heat map, won / lost matches) can be found. Based on these, the coach has the opportunity to analyze a situation with the given player, which may later affect the development of the player.

3. The third group belongs to the commentators. In essence, statistical firms can provide live help even to commentators who can use them immediately during broadcasts (e.g., Opta, tweet, posted curiosities, etc.).

Next is the player observation. Certain statistics allow analysts to list arbitrary teams or players based on special filtering methods. If there are less listed teams or players on these lists, it means that they will compete with the best based on certain criteria. In this case, it is worth paying close attention to them, as there is a chance that they will be able to find players with high ability and high potential for little money (I02). Brentford FC is not a big name club. This West London team has spent much of its history in the lower classes of English football. In recent years, however, they have gained a huge reputation in the transfer market. The transfer policy of the Bees (nicknamed Brentford FC) laid the foundation for them, as they also finished in the first half of the table for five consecutive years after promotion from the third division. This result was achieved by having the club with the fourth lowest budget in the Twenty-Four Team Championship for years. Brentford's successful player selection policy and sales policy have allowed them to now have a cutting-edge budget and fight for promotion to the first division. After the promotion in 2014, the club reformed its selection system. Using mathematical models, they discovered for themselves several key players that were relatively inexpensive to obtain. The success of this model is now clear. This strategy is also followed by the Danish FC Midtjylland, which is not surprisingly owned by the same person as Brentford (Matthew Benham). The English owner also has a sports betting company that uses various statistical methods to estimate the outcome of matches and the performance of teams and players. These methods have brought them innovation in transfers. On a small budget, they began to analyze the performance of players less known to others. Midtjylland President Rasmus Ankersen agrees with Benham that they should follow a data-based player policy. According to Ankersen, their model can be applied in any country, but it requires completely different thinking from management than usual, especially if they want to compete with larger clubs (EU, 2021).

The first column of Table 2 and Table 3 contains the name of the player, then the transfer details of the incoming players (the year of approval, which club they came from and the amount of the transfer fee paid by the team), then the details of the outgoing player (in which year they were sold, to which club he left and how much the team received for it) and the last line shows the profit from the sale of the player.

| Player name | Year | Club | Transfer fee | Year | Club | Transfer fee | Profit |
|---------------|------|-------------|---------------|------|-------------|----------------|----------------|
| Ollie Watkins | 2017 | Exeter City | 7 millions | 2020 | A. Villa | 30.8 millions | 23.8 millions |
| Said Benrahma | 2018 | OGC Nizza | 1.7 millions | 2021 | West Ham | 23 millions | 21.3 millions |
| Neal Maupay | 2017 | St-Étienne | 2 millions | 2019 | Brighton | 22.22 millions | 20.22 millions |
| Chris Mepham | 2016 | Brentford B | for free | 2019 | Bournemouth | 13.6 millions | 13.6 millions |
| André Gray | 2014 | Luton Town | 620 thousand | 2015 | Burnley | 12.4 millions | 11.78 millions |
| Ezri Konsa | 2018 | Charlton | 2.85 millions | 2019 | A. Villa | 13.3 millions | 10.45 millions |
| Scott Hogan | 2017 | Rochdale | 950 thousand | 2017 | A. Villa | 10.5 millions | 9.55 millions |

Table 2: Brentford's highest-profit player sales

Source: Own editing based on transfermarkt.de

| Player name | Year | Club | Transfer fee | Year | Club | Transfer fee | Profit |
|-------------------|------|-----------------|--------------|------|-----------------|--------------|---------------|
| Alexander Sörloth | 2017 | Groningen | 450 thousand | 2018 | C. Palace | 9 millions | 8.55 millions |
| Boubacarr Sanneh | 2018 | Horsens | 200 thousand | 2018 | Anderlecht | 8 millions | 7.8 millions |
| Pione Sisto | 2013 | Midtjylland U19 | for free | 2016 | Celta Vigo | 6 millions | 6 millions |
| Paul Onuachu | 2015 | Midtjylland U19 | for free | 2019 | Genk | 6 millions | 6 millions |
| Rasmus Kristensen | 2016 | Midtjylland U19 | for free | 2018 | Ajax | 5.5 millions | 5.5 millions |
| Andreas Poulsen | 2017 | Midtjylland U19 | for free | 2018 | Mönchengladbach | 4.5 millions | 4.5 millions |
| Mikkel Duelund | 2015 | Midtjylland U19 | for free | 2018 | Dinamo Kijev | 4 millions | 4 millions |

Table 3: FC Midtjylland’s highest-selling footballers

Source: Own editing based on transfermarkt.de

Next up are sports betting. Football is a random game, as there are very few goals, so random plays a bigger role in the game (e.g. a bounce shot). This means that the best teams win less than in a high-scoring sport (e.g. basketball). Because we can extract statistics from a large sample, 10, 20, or even 40 matches are not enough to filter out the role of randomness in these. A professional sports bettor will create equations that show patterns based on which he will place his bets. It doesn’t look at where a team is in the leaderboard, but looks for underground performance metrics that can be used to make a team’s future performance likely. Sports bettors like to look at the goal difference, which is the difference between the goals scored and scored by the team, which is a simple but reliable figure.

The other favorite’s favorite figure is the difference in shots, the difference between a team’s shots and its shots on goal. This is also a reliable figure for sports bettors, as good teams shoot more often than bad teams.

Consider an example (Table 4). Newcastle finished fifth with a negative shot. His opponents try an average of 1.4 more shots in a match than the Magpies (nicknamed Newcastle). This is an extra high scoring efficiency. A positive goal difference is accompanied by a negative shot score (this is also an unsustainable efficiency score). The first column shows the position in the table. Then the name of the team in that position. H is the difference in the shot of the matches of the home court. V away shooting differences. T is the difference for the entire season. Calculation: The difference between the shots fired at home and away matches is added up and then divided by two $[(H+V)/2 = T]$ (I03).

| Place | Team | H | V | T |
|-------|-----------|------|------|------|
| 1 | Man City | 12.3 | 5.3 | 8.8 |
| 2 | Man Utd | 8.5 | -1.2 | 3.6 |
| 3 | Arsenal | 9.5 | 3.1 | 6.3 |
| 4 | Tottenham | 10.4 | 2.1 | 6.2 |
| 5 | Newcastle | 3.5 | -6.3 | -1.4 |
| 6 | Chelsea | 8.8 | 2.8 | 5.8 |

Table 4: Shot edge differences in the 2011/12 season

Source: Own editing based on 21stclub.com

4. Research, results - Use of statistics used in football

In the survey, 2 questionnaires were completed. The first questionnaire was completed by 176 people working in the world of football. The composition of this group is 36% female and 64% male. Fillers can be divided into four age groups based on their age. The oldest among the respondents was 74 years old. The youngest was 14 years old. The respondents included a fan (30%), a footballer (32%), a coach (19%) and a sports manager (19%).

The awareness of the indicators presented earlier was measured with the first professional question (Figure 2). In addition to the expected goals (17.67%) and expected goals (16.73%), the majority of the respondents know the expected goals (14.06%) and expected defenses (13.39%), which is not surprising. their application and use is widespread. The number of passes allowed before the defensive action, the number of passes taken before the defensive action, the hazard and risk indicator are less well known, while only 5.22% of the relative frequency do not know any of the statistical indicators listed.

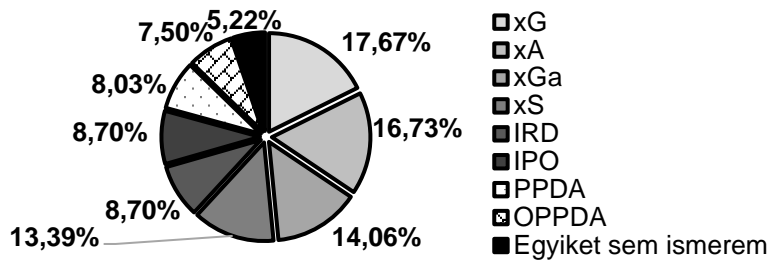


Figure 2: Knowledge of statistical indicators in football

Source: Own editing

It was important for us to look at whether the plethora of statistics and series of numbers are good for football. Two-thirds of respondents to the questionnaire believe that it has a good impact on modern football because conclusions can be drawn from such data. From these, you can find out how much a team can dominate a match or just play a subordinate role. A minority of respondents say they shouldn't deal so much with the data because on the court, the players decide the outcome of the match and not the numbers.

Since the commentator tells data about the players during each broadcast, we also looked at how much it disturbs viewers during broadcasts if the commentator keeps posting data. It can be stated here that almost half of the respondents (48%) are not bothered if the commentator says with data. These respondents believe this is also the job of the announcer. 35 percent of respondents are interested in the data that makes a match more interesting to them. 17 percent of those surveyed are disturbed by the data made during the match (Figure 18).

As half of the respondents are not bothered by the presentation of the data, we asked this group if they would also use different analysis software. Respondents are best acquainted with the InStat Football analysis software, followed by OptaSport, WyScout, and the Global Soccer Network (GSN-Index) (Table 5).

| Softver name | Share (%) |
|---------------------------|------------------|
| InStat Football | 30,38% |
| OptaSport | 22,78% |
| WyScout | 19,49% |
| GSN-Index | 14,94% |
| She/He knows none of them | 12,41% |
| In all | 100,00% |

Table 5: Knowledge of analytics software

Source: Own editing

Because accurate data is important when watching a match, we examined whether respondents would use a football statistics application that provides accurate data for the minute. More than seventy percent of those surveyed answered yes (34.09% of which would even use such an app as a coach).

According to the respondents, the statistical data can be used by the respondents primarily for post-match analyzes / evaluations. This was followed by player monitoring and transfer policy. Few think the team could benefit from this in pre-match preparation (Table 6).

| Ranking | Area of use |
|----------------|------------------------------|
| 1. | Post - match analysis |
| 2. | Player monitoring |
| 3. | Transfer policy |
| 4. | Preparation before the match |
| 5. | Player development |

Table 6: Ranking of respondents in terms of data application

Source: Own editing

In the following, we compared the three major statistical indicators and asked the fillers which indicators they were most interested in about a match. It turned out that people are most interested in the data used for player evaluation (number of runs, number of successful tricks, etc.) and traditional statistics (goal shots, corners, etc.). These two groups were followed by the newly released Xg index et al.

As almost 80% of the respondents also used to participate in sports betting, we also examined this topic in more detail. The group of sports bettors can be divided into 2 parts: one part bets regularly (80%) and the other only occasionally bets (20%). Based on the answers, the respondents most often decide on the outcome of the bet based on the form. This is followed by inference based on bets and in-depth analysis.

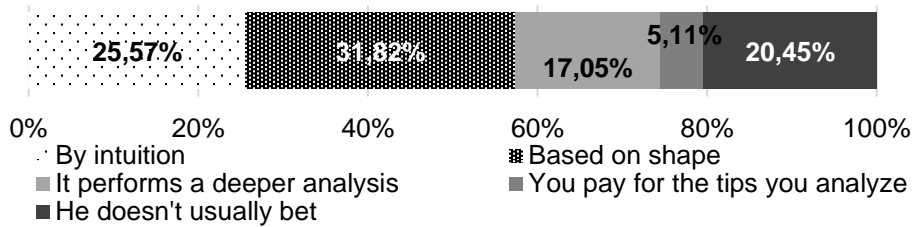


Figure 3: Decision rate of sports betting outcome
 Source: Own editing

The analysis revealed whether the economic situation caused by the epidemic would increase the role of data in the selection of new players. 63% of respondents say the role of data is becoming more valuable in all teams. Buy underrated (high-potential) footballers instead of overrated players. 12% of respondents say the epidemic does not affect transfers in football at all.

In conclusion

The policies of Brentford and Midtjylland presented in our article are very good examples of the value of investing in 2-3 quality player watches instead of a foreign football player. It is advisable to look for scouts who can interpret the data well and use it to discover affordable players with high potential (whether Hungarian or foreign) who are professionally advanced in such a certification. This would benefit clubs and players alike. For players, this is good because undervalued players would be discovered and given the opportunity for continuous improvement. This is good for clubs because they could make a profit from reselling players and later operate on a market basis. With this, the club can stabilize its financial background and certify additional quality players.

Based on the questionnaire survey, it can be concluded that the majority of football professionals, footballers and fans are aware of the importance of statistical indicators. Respondents are familiar with the companies that deal with these. The majority of them know (and use) the newly released statistical indicators in addition to the traditional statistical indicators. The majority of professionals, footballers and fans are happy to use statistics for information, evaluation and analysis (even for sports betting purposes). It is clear from the research that professionals, footballers and supporters agree that due to the economic situation caused by the epidemic, club teams need to rely much more on data-driven player monitoring. Based on these, you need to invest wisely in players (you shouldn't contract overvalued footballers for huge money). Respondents also agreed that it is not possible to predict the outcome of a match with traditional statistical indicators (goal shots, corners, possession of the ball, etc.). These statistics do not reflect the exact position of a match.

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THE ROLE OF ENTREPRENEURSHIP IN ACHIEVING SUSTAINABLE DEVELOPMENT GOALS (AN EXAMPLE FROM EASTERN EUROPEAN COUNTRIES)

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Abstract: *Entrepreneurship has had an indecisive role due to its effects in enhancing living standards for usual people, exploiting opportunities in undiscovered areas, improving sustainability in all fields, and encouraging the process of innovation.*

In this sense, entrepreneurship plays an important role in achieving the Sustainable Development Goals of the United Nations (UNSDGs-2030). The main goal of this research is to study the role of entrepreneurship in achieving sustainable development goals through conducting a qualitative method. Granger causality test was used for selected Eastern European countries (2006 – 2016), data were collected from Global Entrepreneur Monitor and World development indicators. The study concluded through Granger's causality that entrepreneurship causes human development and therefore affects the economic and social dimensions of Sustainable Development. Entrepreneurship is one of the causes of economic growth, and the relationship between entrepreneurship and the extent to which environmental quality is achieved is moving from the environmental dimension to Entrepreneurship.

Keywords: *Entrepreneurship; Social Entrepreneurship; Sustainable Development Goals, Sustainability.*

JEL Classification: Q01; L31; L26

1. Introduction

Entrepreneurs are the answer in a world rich in natural resources but with a shortage of solutions. However, before they can start and succeed, they need to be equipped with the knowledge of entrepreneurship, sustainable development goals (SDGs), and how they all fit together.

Entrepreneurship is the practice of identifying opportunities, managing risk, and seizing new opportunities by identifying the needs in a community and using creativity or ingenuity to create a solution. Entrepreneurship is the force that will spark change in developing countries (Secundo et al., 2015).

Entrepreneurship may take on many different forms, including increasing productivity in existing sectors, exporting services or products from developing countries to developed ones, and creating entirely new markets (Lisboa et al., 2011). The United Nations Sustainable Development Goals (SDGs) are defined as a “new universal agenda” for all countries - developed and developing, small and large - to

poverty ending, Planet protection, and prosperity ensuring for all as a part of Agenda 2030 (Rosa, 2017).

Entrepreneurship plays a key role in achieving these goals because it is a factor that makes sure that economic growth can reach its full potential by creating more jobs (Audretsch et al., 2006).

Entrepreneurs help create new jobs for their communities (they create at least 10% of jobs), help stimulate new industries, communities, and more opportunities for everyone to succeed (Henderson, 2002). Therefore, several entrepreneurs worldwide are helping to achieve the SDGs.

Ever after the launching of the concept of sustainable development by the United Nations, a race between countries has begun implementing this notion in conformity with the kind and framework of their economies. It granted that the routes towards sustainable development are similar as stated by what the UN has set, where the applying mechanism of the strategy, mission, vision of each country is the only way to differentiate in addition to its economic status, where it can be stated that one of the most significant routes of achieving sustainable development is addressed by entrepreneurship.

Certainly, entrepreneurship has witnessed a huge share of attention in the last era, plus the fact that many countries have considered the concept of entrepreneurship with great interest, which is represented in their achievement of sustainable development vision.

Therefore, this study attempts to prove whether there is a direct effect of entrepreneurship on achieving sustainable development goals and whether this effect plays a positive or a negative role in reaching the fulfillment of the three pillars of the SDGs process.

2. Literature Review

In this context, an extensive and expressive presence of entrepreneurship should be accompanied by realizing the SDGs and making its achievement closer than ever, and this is undoubtedly due to its potential to have a significant impact on the global business society, its innovative and developing brand new scope, and its capacity to create real answers for the popping up challenges and difficulties in different economic sectors.

2.1. Entrepreneurship and Economic Growth

Entrepreneurship and innovation are often considered the drivers of economic growth and development. However, there has been a wide debate on whether entrepreneurship is a necessity for economic growth or the driver of economic growth is mainly determined by the nature of institutions (Acs & Szerb, 2007).

However, empirical studies concerning economic prosperity and entrepreneurship around the world showed an important connection in addition to a solid interdependence between them (Carree & Thurik, 2010).

Entrepreneurship can be considered an essential factor in fostering economic growth and development (Alfolabi, 2015).

Many empirical studies have found that entrepreneurship is positively related to economic growth; for example, a study of about 14 developing countries found that entrepreneurial activities are positively related to economic growth (Urbano et al., 2020).

A study of European Union countries found that level of entrepreneurship is highly correlated with economic performance (Linan & Fernandez-Serrano, 2014). Another study has also found that entrepreneurial activities play a critical role in promoting investment and income levels (Ogunalana, 2018)

Considering the significance of entrepreneurship in promoting economic growth and development, promoting entrepreneurial activities would be helpful to boost economic growth and development in developing countries (Acs, 2006).

Modern economics and development are still largely based on the idea of perfect competition, which is purely unobservable (though such a system does have many observable features). Many models, including multinational firms, international trade, and political economy, show the impact of entrepreneurship on development. Studies have shown that demand creation by entrepreneurs generates economic value and economic growth while maintaining social welfare (Audretsch, 2007).

2.2. Entrepreneurship and Human Development

Entrepreneurship's effect on Human development has been abandoned for a long since in economic research papers (Dhahri & Omri, 2018).

The lack of research on this topic is not only a social injustice but can also have serious implications for how future policies are designed to shape the world's economic landscape.

Entrepreneurship has a significant impact on human development in the following ways:

- Entrepreneurship can create jobs and increase incomes for the poor by introducing new avenues for economic growth in regions where traditional farming or other forms of employment have become less viable due to changing market conditions. This leads to higher standards of living, as entrepreneurs can employ more people as they expand their business over time (Castano et al., 2016).
- Entrepreneurs often work in areas where demand for their goods or services is present but cannot be met by existing suppliers, and they expand the overall size of markets. This can lead to better access to goods and services at lower prices, which is particularly important for disadvantaged communities unable to afford them otherwise (Glaeser & Kerr, 2011).
- Entrepreneurship is a source of innovation and growth for less-developed economies, creating new opportunities for goods and services. The growth generated by entrepreneurship frequently leads to the export of goods from

developing countries, generating significant revenues for ‘national coffers’ (Okpara, 2009).

- Entrepreneurship offers some of the most exciting opportunities for social mobility in developed countries, as it allows individuals to pursue their dreams and ambitions outside of bounds set by traditional fields of work. Therefore, they can bring fresh ideas and hope to under-developed areas and create an environment that can foster development in people’s lives through education, health care, and other social services (Gries & Naude, 2011).

2.3. Entrepreneurship and Environment

In the past two decades, a diverse set of theorists has begun to examine the role of entrepreneurship in environmental issues such as climate change, environmental degradation, deforestation, urban growth, and garbage accumulation (Lehmann, 2010).

Entrepreneurship plays a crucial role and contributes to environmental protection. Research in this field showed that entrepreneurial activity had been systematically associated with a positive effect on the environment (Zhu et al., 2019).

The results are supported by prior research that proposes a general positive connection between the size of the firm and air pollution emissions. It is also found that large firms have higher carbon emissions than small firms (Cole et al., 2013). Some studies argue that the increase in entrepreneurial activities leads to higher economic growth, which in turn causes more pollution and waste generation (Saeed et al., 2009).

The more a nation’s economy relies on traditional rather than innovative activities and economies of scale, the greater externalities are likely to be generated by its citizens. Likewise, the more traditional the society is the greater environmental damage that is incurred by its citizens (Tietenberg and Wheeler, 2001). Entrepreneurship can be seen as an attempt to solve these issues.

Considering the threats posed by climate change, global warming, pollution, and resource depletion (or degradation), entrepreneurs worldwide have acted to solve global problems (Markman et al., 2019).

3. Data and Methods

Data were collected from Global Entrepreneur Monitor (<https://www.gemconsortium.org/>) and World development indicators (<https://www.worldbank.org/en/home>) for the following variables.

Total Early-Stage Entrepreneurial Activity (TEA): an indicator that shows the percentage of the 18-64 years old population who are either nascent entrepreneurs or owner-managers for a new business where their business does not exceed three years old.

Human Development Index (HDI): is one of the indicators that measure social and economic dimensions of sustainable development as it is a composite index that considers education, income, and life expectancy, and its value ranges from zero to one, and the higher its value, the higher the level of economic development.

Carbon Dioxide Emissions CO₂ metric tons per capita: are measured in metric tons per capita per year, and the general average is 20 metric tons per year per capita, compared to a global average of 4 tons.

As a measure the environmental dimension of sustainable development and the extent to which environmental quality is achieved, the minimum is 8.5 metric tons per year. Gross Domestic Product Per Capita (GDPPC): constant US dollars 2015, shows how much economic production value can be attributed to each citizen, is also a measure of economic growth that represents the economic dimension of sustainable development.

The chosen countries are (Hungary, Croatia, Slovenia, and Latvia) among all Eastern European countries due to data availability. Only these four countries provided complete data for 2006-2016. Data were gathered from both websites and allocated using a Microsoft Excel sheet.

E-views was used to analyze data and conduct the Granger-Causality test.

4. Results and Discussion

The Granger causality test is a statistical hypothesis test for determining whether one time series is useful for forecasting another. If the probability value is less than any level, then the hypothesis would be rejected at that level.

This test generates an F-test statistic along with a p-value. We can reject the null hypothesis and infer that time series X Granger causes time series Y if the p-value is less than a particular significance level (e.g., = .05).

The test was done for all four countries separately by conducting a Granger causal analysis between the variables to determine the direction of the relationship between entrepreneurship and sustainable development in three dimensions (Hungary, Croatia, Latvia, and Slovenia) during the mentioned period (2006 – 2016) as well as knowing which variables caused the growth of other variables, and the hypothesis was as follows:

- Null hypothesis 1: Entrepreneurship does not cause human development
Alternative hypothesis 1: Entrepreneurship causes human development
- Null hypothesis 2: Entrepreneurship does not cause economic growth
Alternative hypothesis 2: Entrepreneurship causes economic growth
- Null hypothesis 3: Entrepreneurship does not achieve environmental quality
Alternative hypothesis 3: Entrepreneurship achieves environmental quality

It can show the following results from Figure 1:

- Entrepreneurship causes human development since the p-value is 0.0085, which is less than 0.05, therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that TEA granger causes HDI and

therefore affects the economic and social dimensions of sustainable development and therefore affect sustainable development.

- Entrepreneurship is one of the causes of economic growth, Where the p-value was 0.01, therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that TEA granger causes GDPPC and the direction is from TEA towards GDPPC, thus affecting the achievement of sustainable development.
- The relationship between (entrepreneurship and the extent to which environmental quality is achieved) represents the environmental dimension of sustainable development. Where the p-value was (0.64), therefore we accept the null hypothesis, which stated that TEA does not granger cause CO₂.

It can also be noted that the impact is moving from the environmental dimension to entrepreneurship, the extent of the availability of a good environment has the consequence of supporting entrepreneurship in Latvia.

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|--------|
| Date: 02/01/22 Time: 03:23 | | | |
| Sample: 2006 2016 | | | |
| Lags: 2 | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| HDI does not Granger Cause TEA | 9 | 0.02269 | 0.9777 |
| TEA does not Granger Cause HDI | | 19.6577 | 0.0085 |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| TEA does not Granger Cause GDPPC | 9 | 13.4302 | 0.0168 |
| GDPPC does not Granger Cause TEA | | 0.07961 | 0.9249 |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| CO2 does not Granger Cause TEA | 9 | 1.41219 | 0.3436 |
| TEA does not Granger Cause CO2 | | 0.48850 | 0.6459 |

Figure 1: Latvia's Test Results.

Source: Conducted by the author.

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|--------|
| Date: 02/01/22 Time: 03:28 | | | |
| Sample: 2006 2016 | | | |
| Lags: 2 | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| HDI does not Granger Cause TEA | 9 | 0.35236 | 0.7229 |
| TEA does not Granger Cause HDI | | 1.03138 | 0.4353 |

Figure 2: Slovenia's Test Results.

Source: Conducted by the author.

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|--------|
| Date: 02/01/22 Time: 03:33 | | | |
| Sample: 2006 2016 | | | |
| Lags: 2 | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| HDI does not Granger Cause TEA | 9 | 3.33489 | 0.1405 |
| TEA does not Granger Cause HDI | | 0.47468 | 0.6532 |

Figure 3: Croatia’s Test Results.

Source: Conducted by the author.

| Pairwise Granger Causality Tests | | | |
|----------------------------------|-----|-------------|--------|
| Date: 02/01/22 Time: 03:41 | | | |
| Sample: 2006 2016 | | | |
| Lags: 2 | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| HDI does not Granger Cause TEA | 9 | 1.33178 | 0.3603 |
| TEA does not Granger Cause HDI | | 1.04726 | 0.4308 |

Figure 4: Hungary’s Test Results.

Source: Conducted by the author.

Similarly, all three countries, Slovenia, Croatia, and Hungary have p-values (0.722, 0.1405, 0.360), which are more than 0.05 (Figures 2,3,4). Therefore, we accept the null hypothesis, which states that TEA does not Granger cause HDI in all three countries. TEA does not granger cause CO₂, and TEA granger causes GDPPC.

Entrepreneurship affects HDI and represents the social dimension of sustainable development, and this finding is consistent with Dhahri & Omri (2018).

According to Granger, entrepreneurship affects the economic dimension of sustainable development, which represents the GDP per capita, as it causes an increase in GDP per capita. Increasing entrepreneurship also has a role in increasing innovative, productive opportunities in the market, which in turn increases GDP and economic growth, and this is consistent with (Majid & Koe, 2012).

The study found that in the selected countries, entrepreneurship had no effect or reason to increase CO₂ emissions, which supports the environmental dimension, the most important dimension of sustainable development, and this is consistent with (Dhahri & Omri, 2018).

In the end, sustainable entrepreneurship companies must have a plan to balance the three dimensions of sustainable development, which is consistent with (Perrini et al., 2007; Egri & Herman, 2000).

Figure 5 shows the TEA percentage for all countries, and it can be noticed that Latvia had the highest percentage by the end of 2016. Croatia had the highest in 2006, but the percentage started to drop in 2007 till 2010, while it started to recover in 2011 but not at the same rate as in the upcoming years. Hungary started with a relatively low percentage of TEA in 2006 but started to achieve high rates starting from 2009, followed by a drop in 2011 to go back and recover in 2012 and followed by a continuous drop till 2016. Slovenia had the lowest percentage of TEA in 2006, started to increase in 2008, followed by a sharp drop in 2011, then had the chance to increase the rate in the upcoming years with a continuous upward direction.

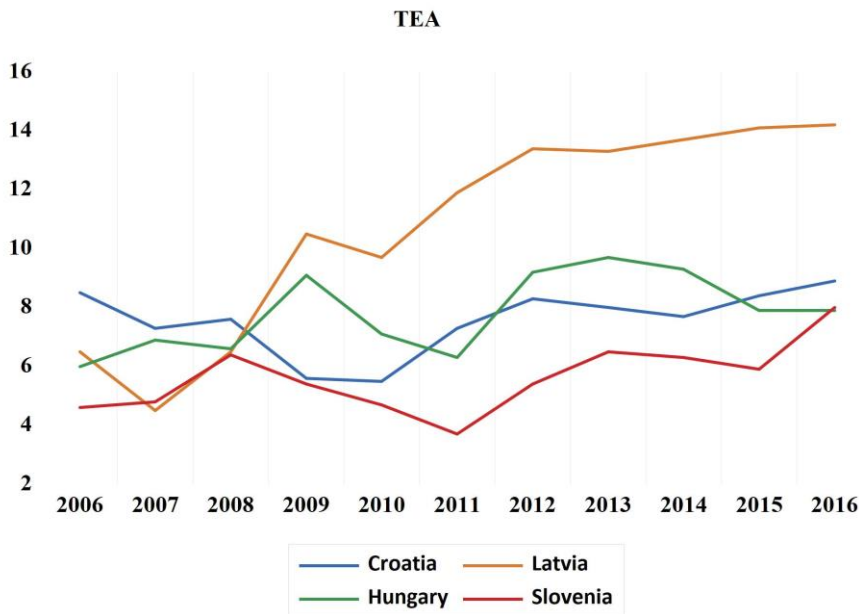


Figure 5: Total Early-Stage Entrepreneurial Activity (TEA) combined in all countries.

Source: Conducted by the author.

Conclusion

This paper showed the bidirectional causality between TEA and other variables such as HDI, GDPPC, and CO₂, by using the Granger causality test, where each variable represents a relationship with one of the sustainable development pillars.

The increase in the TEA percentage can have many positive impacts on achieving the sustainable development dimensions since the higher TEA percentage positively impacted the SDGs achievements. It was noticed in the case of Latvia, starting from the economic dimension, where it positively affects GDPPC—moving to the environmental dimension where the TEA increase did not show any cause with the emissions of CO₂. In general, and lastly, where the social dimension increased in HDI was a cause an increase in TEA percentage.

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COMMUNICATION SKILLS IN BUSINESS ENGLISH

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Abstract: *Business English, as we know it today, is a part of the field of English for Specific Purposes, having two distinct areas: English for General Business Purposes and English for Specific Business Purposes. Both these areas are facing a rapid growth, with an increasing demand for teaching materials and improvement. Nowadays teachers face the challenge of developing not only general speech habits for their students but also rhetoric skills in order for the negotiations to be effective. The complex economic and political scene worldwide requires specific abilities for sophisticated communication. Thus, the teaching of the speaking skill has become increasingly important. Two decades ago, the accuracy of the students' language would most likely tend to be the major criterion whereas nowadays educators and researchers alike have come to the conclusion that communicative competence entails not only grammatical accuracy but also some other factors such as: sociocultural rules of appropriateness, discourse norms, and strategies for a rhetoric approach of the skills. Some applied linguists consider that the communicative competence comprises the following elements: grammatical or linguistic competence, socio-cultural competence, discourse competence and strategic competence. The present paper tries to express some of our ideas regarding the question: How can teachers of Business English improve their students' communication skills?*

Keywords: *teaching Business English; communication; innovation; on-line technologies.*

JEL classification: Z19

1. Preliminary considerations

1.1. From linguistic to communicative competences

A very well documented discussion with respect to communicative competences and its interrelations with the linguistic and the interactional competences was put forward some years ago by two researchers from the British University in Dubai, analyzing and referring to no less than 87 bibliographical titles. Pertinent exploration on the matter can be found in this work that provides not only an extensive historical account on the three notions but also a complex combined review of the literature on them. As the authors remarked from the beginning, and set as a goal for their endeavor, "Although a substantial number of studies have been conducted on these three competences, they have not been conflated for discussion in a single study." (Abdulrahman, Abu-Ayyash, 2019, p.1600).

1.2. Communicative competences in Business English

For the sole objective of what our current study aims at, we deliberately choose to neglect, for this instance, the complex structures and the multitude of purposes that Business English classes encompass and entangle, and to artificially, but not ignorantly, restrict its vast scope, by adopting the following remark of a colleague academic: "The goal of any Business English Course is to allow its users to effectively communicate with others in a business environment, whether that communication is in correspondence, face to face meetings, or other methods. Therefore, a Business English Language may include topics such as business English reading, letters, and resumes, business phrases, or terms of sale, advertising, and marketing" (*Batool*, p.1)

Literature of speciality identifies several strategies and consequently provides some hints on how to approach the teaching of communicational elements in the fields of Business English. Thus, we can enumerate several tips for improving the outcomes of the didactic process, as accurately put together by Margaret O’Keeffe, an experienced author, teacher and course designer specialising in Business English and ESP (O’Keeffe, 2020):

- Focus on high frequency vocabulary for work
- Help students with vocabulary learning
- Maximize student speaking time
- Provide support for speaking tasks
- Practice work skills your students need
- Teach functional language phrases

2. Particularities of business negotiations

2.1. Complex interrelations

Negotiations and the related business meetings are the activities that require the most complex interactions, both from a communicational view point and in what the business English vocabulary is concerned or, as a matter of fact, the human interrelation in itself, from psychological or social levels to intercultural understanding, if the case. Answers cannot not be ready made, questions are not always clear and straight forward, matters are sometimes disguised, information is not completely disclosed. To this strategies of persuasion are added, and sometimes attempts to trick or at least to win over. Disadvantages such as not knowing the specific terminology or even the standard language as a native does, add up to fill the list of difficulties, hence, the complexity of such activities, and the need for a more focused attention on the communicational skills, in this area.

2.2. Good communication skills - a vital asset

Developing and improving Business English learners' communication skills so that they will later be able to participate in a business negotiation is an undoubtedly

intrinsic purpose of the language classes with students in economics, future economists that shall most certainly at a point in their career have to deal with this situation.

Several researchers have looked into the matter and came up with advice and tips on how to improve the communicational skills to cope with bargaining sessions and be able to achieve most of what is desired from the negotiation, especially when it comes to non-native users of a language for this purpose. Guidelines on how to become a good negotiator and strategies to adopt can be found in many articles on the topic and at simple search on the internet as well, provided by several associations or schools of languages.

Several strategies can be identified even from the stage of preparing a negotiation, among which: having a clear objective, understanding your leverage and the other side's expectations, preparing research & data, identifying areas for compromise (*Kalatharan, 2020*), or, similarly, knowing your objectives, separating the people from the issue, asking questions and listening, finding shared interests, looking at creative options (*Britishcouncil). With these already not quite easy to accomplish, the hard part is forth to come, once the economist - learner of business communication in English as a second language - find himself / herself in a face-to-face, formal, sophisticated and lively interaction. Along that focus will have to be kept, reactions controlled, vocabulary mastered, rhetoric accurate, as dozens of conditions and terms have to be established, point are to be clearly and persuasively made, claims to be argued and defended, satisfactory solutions to be spotted and recognised, opportunities *identified and grabbed*, dangers avoided, conflicts settled, agreements reached a.s.o.

3. Improving business negotiation communication skills

3.1. Appropriate design of material

As previously mentioned, internet and published books on the subject are abundant in guidelines and examples. The teacher's mastery intervenes when, after the nevertheless extremely important step of selection of the material, he/she prepares it for introducing it to the class so as the results - acquisition of language, and elements of communication, and ability to make good use of them - are optimal.

What would be a good method? From our experience, maximum involvement of the students in the activity is the key to successful acquisition of lexical elements and development of abilities. Thus, it is of utmost importance to introduce the material through appealing activities, in a highly interactive way, if not through games, at least in some attractive exercises, resorting to the natural human propensity towards, for instance finding logic, restoring order, solving mysteries, arranging things appropriately. This means involving psychological aspects in the creation of the drills for the class, so as to direct and gently 'manipulate' students into even passively learning while actively, at the consciousness level, preoccupying with some activity they enjoy. Learning is then realised through methods such as: own discovery,

repetition, involvement/ struggle to accomplish required tasks, adrenalin rush that enhances senses, perception and cognitive processes. All these together and other mnemotechnical devices employed in the exercises created on the authentic material - templates of standard phrases, useful communication elements for diverse situations etc. - are to assure implementation of information in the students' memory and further ability to make use of it.

3.2. Vocabulary meeting various needs

We shall further exemplify with a few exercises created on some authentic materials containing lexical elements useful in certain situations. The material in the examples of this subtitle - 3.2. - was extracted from a reference title (*Kalatharan, 2020*) and two sites of language learning (*Englishclub, respectively *Englishlesson), was processed by us into a sequence of drills, bound to be perceived as playing, and thus to be seen by the students as interesting and appealing.

For the first mentioned material, the original text - and, consequently, the solution to the following exercises - is as in the paragraph below (*Kalatharan, 2020*):

Establishing terms

“I am excited by the opportunity to work together.”

“I’d like to outline our aims and objectives.”

“Based on my research...”

Negotiating terms

“Is that number flexible at all?”

“I am basing my suggestion on these three ideas...”

“If you can do that, I’m on board.”

Making suggestions

“I just want to be sure I’ve got this straight. Do you mean...?”

“I think the best way is to do this...”

“I’d like to suggest a solution.”

Making a proposal

“Let’s do the following...”

“I propose viewing all scenarios in this context...”

“How do you feel about...?”

Rejecting a proposal

“Prior to rejecting this proposal we need to establish industry consensus and trends, such as...”

“Please bear in mind that one size does not necessarily fit all.”

“Let’s consider some alternatives...”

Closing the deal

“Have we covered everything?”

“Let’s summarize our discussion to see if we’re on the same page...”

“Let’s see how far we’ve come...”

Now let's consider some possibilities of activities on this material.

An option is to create some types of online exercises, if working on a Moodle platform available to students (with their distinct accounts) during the classes, i.e. either

- 1) a drag and drop exercise type with the 6 categories given as headings and each containing the three boxes for the right fragments to be dragged from the list and dropped in the right position, or
- 2) some yes/no or true/false questions in which sentences are given and claimed to pertain to one or another of the categories and, or, maybe,
- 3) a matching exercise type with categories on one column and exemplifying structures on the other.

We are not going to insist on the production and layout these Moodle format exercises as it made the object of a vast previous article of ours, but we are insisting on one aspect: the effectiveness and attractiveness of these types of online drills.

Another option, in onsite classes this time, is to distribute handouts with the separate lines (eighteen students getting a slip of paper each), post or stick on a wall or a board, a big cardboard with separate sections identified by the names of the six categories of activities and invite students to go to the cardboard in turn and position / stick each of the eighteen lines in the corresponding section. Discuss the wrongly positioned slips, if the case.

Two examples of the layout of the cardboard can be seen in Figure 1 and 2 below:

| TERMS | | A PROPOSAL | |
|--------------------|-------------|------------------|-----------|
| Establishing | Negotiating | Making | Rejecting |
| 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 |
| Making suggestions | | Closing the deal | |
| 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 |

Figure 1 Example 1 of negotiation phrases cardboard layout - own design

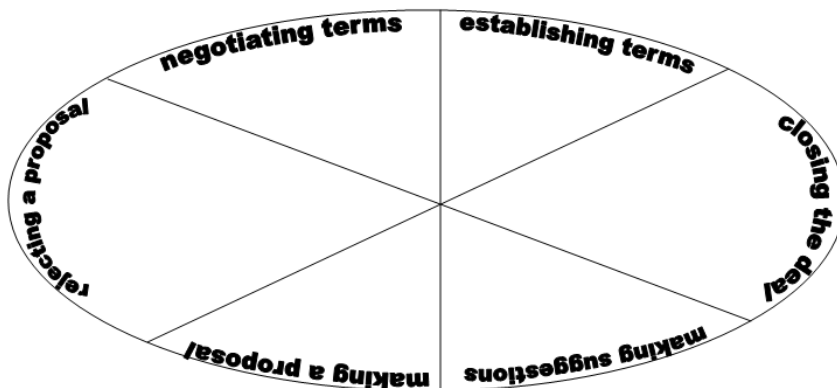


Figure 2 Example 2 of negotiation phrases cardboard layout - own design

The material 'Useful Phrases For Business Negotiations in English' designed by English teacher Harry, on the English learning podcast *Speak Better English* can be

used even in its original design (*Englishlesson) to produce arrangements on columns, lines or other layouts, with directing arrows for instance - differently coloured for identifying various scenarios -, that can then - once the structures are finally arranged and the exercise is solved - represent visual aids for reinforcement o material, such as in the following figure, Figure 3:



Figure 3 Example of final layout of a drill - a further visual aid
Own design - Source of material *Englishlesson

The third material aforementioned, or various fragments of it, can be tackled in several types of matching exercises, as it consists of examples of negotiation sentences with highlighted relevant lexical elements, for which meaning is also provided, in forms of explanations, examples, descriptions or synonyms. Under these categories - or others, at teacher's choice and imagination - can thus several exercises be created on this material (*Englishclub), seen in Table 1:

Table 1. Explained relevant vocabulary in negotiation phrases

| Negotiation sentences with highlighted lexical elements | Meanings of relevant vocabulary |
|---|---|
| We can't offer you the raise you requested, but let's discuss some other alternatives . | other options |
| Could you amplify on your proposal please. | expand; give more information |
| We're better to settle this between us, because a formal arbitration will cost both of us money. | conflict that is addressed by using a neutral third party |
| We bargained on the last issue for over an hour before we agreed to take a break. | try to change a person's mind by using various tactics |
| I'll accept a raise of one dollar per hour, but that's my bottom-line . | the lowest one is willing to go |
| This is a collective concern, and it isn't fair to discuss it without Marie present. | together |
| If you are willing to work ten extra hours a week we will compensate you by paying you overtime. | make up for a loss |

| Negotiation sentences with highlighted lexical elements | Meanings of relevant vocabulary |
|---|---|
| I'd be willing to comply if you can offer me my own private office. | agree |
| We are willing to compromise on this issue because it means so much to you. | changing one's mind/terms slightly in order to find a resolution |
| I think we can offer all of these concessions , but not all at once. | a thing that is granted or accepted |
| It is impossible to engage in conflict resolution when one of the parties refuses to listen. | general term for negotiations |
| I confronted my boss about being undervalued, and we're going to talk about things on Monday. | present an issue to someone directly |
| It would be great if we could come to a consensus by 5:00 P.M. | agreement by all |
| I have appreciated your cooperation throughout these negotiations. | the working together |
| In their counter proposal they suggested that we keep their company name rather than creating a new one. | the offer/request which is presented second in response to the first proposal |
| Before we could start our counterattack they suggested we sign a contract. | present other side of an issue |
| I tried to close the discussions at noon, but my counterpart would not stop talking. | person on the other side of the negotiations |
| In the past I have had little respect for that client, but today she spoke cordially and listened to my point of view. | politely |
| They had some last minute demands that were entirely unrealistic. | needs/expectations that one side believes it deserves |
| When the discussions came to a deadlock we wrote up a letter of intent to continue the negotiations next week. | point where neither party will give in |
| I was hoping to avoid discussing last year's dispute , but Monica is still holding a grudge. | argument/conflict |
| Max has such a loud voice, he tends to dominate the conversations. | have the most control/stronger presence |
| My contract says that I am entitled to full benefits after six months of employment. | be deserving of |
| We have always been flexible in terms of your working hours. | open/willing to change |
| We've been haggling over this issue for too long now. | arguing back and forth (often about prices) |
| I want you to know that we don't have any hostility towards your company despite last year's mixup. | long-term anger towards another |

| Negotiation sentences with highlighted lexical elements | Meanings of relevant vocabulary |
|--|--|
| I'm planning to high-ball my expectations when I open the discussion. | make a request that is much higher than you expect to receive |
| I acted on impulse when I signed that six-month contract. | quick decision without thought or time |
| They were so indecisive we finally asked them to take a break and come back next week. | has difficulty choosing/making a decision (bargaining power) |
| We have a little bit of leverage because we are the only stationary company in town. | something that gives one party a greater chance at succeeding over another |
| After a bit of log-rolling we came to an agreement that pleased both of us. | trading one favour for another |
| I was expecting my boss to low-ball in the initial offer, but he proposed a fair salary increase. | offer something much lower than you think the opponent will ask for |
| They misled us into thinking that everything could be resolved today. | convince by altering or not telling the whole truth about something |
| The decision to call off the merger was mutual . | agreed by both or all |
| My prime objective is to have my family members added to my benefits plan. | goal for the outcome |
| From my point of view it makes more sense to wait another six months. | person's ideas/ thoughts |
| He pressured me to accept the terms by using intimidation tactics. | work hard to convince another of an idea |
| While I listened to their proposal I noted each of their objectives. | argument to present |
| His positive body language demonstrated that he was receptive to our suggestions. | open to/interested in an idea |
| Mary's resentment stems from our not choosing her to head the project. | anger held onto from a previous conflict |
| We didn't expect so much resistance on the final issue. | a display of opposition |
| Before you can resolve your differences you'll both need to calm down. | end conflict, come to an agreement |
| There are certain tactics that all skillful negotiators employ. | strategies used to get one's goals met |
| There was a lot of tension in the room when George threatened to quit. | feeling of stress/anxiety caused by heavy conflict |

| Negotiation sentences with highlighted lexical elements | Meanings of relevant vocabulary |
|--|---|
| Lower payments over a longer period of time sounded like a fair trade-off until we asked about interest charges. | terms that are offered in return for something else |
| His ultimatum was that if I didn't agree to give him the raise he asked for, he'd quit today without two week's notice. | a final term that has serious consequences if not met |
| It's unrealistic to think that we will have all of our demands met. | very unlikely to happen |
| We considered it a victory because they agreed to four of our five terms. | a win |
| The client will only yield to our conditions, if we agree to work over the holiday weekend. | to give in to another's requests |

Source: *Englishclub

3.3. Standard phrases for specific phases

The phases that together form the process of negotiation require, each, specific vocabulary, distinct structures. For each of the main stages of the negotiation we can identify certain expressions that can be useful in producing our communication. [Sweeney, pp.100-117]

The following paragraphs, the template phrases, offer the authentic text [Horea, pp.65-66], and the exercises the students are invited to work on can range from the examples below, the suggestions of activities, and many others created by the language instructor according to the level of the learners:

Suggestions of activities:

- Handouts with separate fragments - standard phrases - cut and given to groups of students to arrange appropriately under the right category represented by the cards naming negotiation stages (e.g. relationship building, preparation for the meeting, bidding a.s.o.)
- Instruction and guidance to forming, out of each line that contains slashes (i.e. several variants), as many separate standard phrases as possible, maybe even followed by imagined examples of situations likely to occur in real life circumstances
- Extracting key/ collocating words/ phrases from the text and asking students to fill in the gaps with the right words/ phrases, given or not

Template phrases for each negotiation step:

First, in the stage of relationship building we may make use of structures such as:

- *Welcome to...*
- *Make yourself comfortable / Please, have a seat / ...*
- *Would you like (a cup of coffee /) ... ?*

- *I'm convinced / sure we will have a useful / productive meeting.*

In the phase of the preparation for the meeting, when we turn to business, the following can be found useful:

- *We would like to reach agreement on ...*
- *We have reached an important stage...*
- *Previously we have agreed on...*
- *Today we have to think about...*

Stating the objectives, preparing for exposing your proposals and bidding, would require linguistic elements such as:

- *I'd like to begin with a few words about ...*
- *We want to / May I clarify / outline our positions / aims / objectives...*
- *There are ... specific areas we would like to discuss.*
- *We have to decide...*
- *It is important for both of us that we agree on...*

Then, when bargaining, in the phase of negotiation proper, there are more structures that can be used:

- *That's not acceptable unless / without...*
- *We can (only) agree to that on condition that / if*
- *Would you be interested in... ?*
- *We could offer... provided ...*
- *If you could / on condition that we agree on / so long as we could agree / consider / accept / offer ...*

Next, there are the acceptations or the refusals that have to be expressed and dealt with.

The positive answers are really unproblematic

- *That's probably all right.*
- *It seems acceptable. We agree.*

and the positive approaches are tactful and considerate

- *We should focus on the positive aspects / look at the benefits / at the points we agree on...;*
- *Could you tell us why you feel like that?/ What do you think is a fair way to resolve that?,*

while the negative ones might go from simple rejection

- *Unfortunately, I don't think it would be sensible / possible for us to .../ I'm afraid we are unlikely to / can't...*

to adjourning or breaking the negotiation

- *It's a pity / I'm sorry / I believe / Unluckily... we couldn't / I don't think we are going / we appear unable to... agree/ reach agreement/ settle....*

Finally, when the negotiation is successful, the stage of confirming and summarising the discussions and the resolutions will come concluding the deal. In this phase, negotiators will probably use phrases like:

- *I'd like to / Can we / Let's summarise / go / run through the main / important points / proposals we've talked about / we've agreed / of our offer...*
- *I think this is a good moment / I'd like to check / summarise the progress we've made / the main points / what we've agreed / said...*
- *It's been a very productive / useful meeting, we look forward to a successful partnership.*

Conclusion

Interactive classes, active involvement of students in various drills and exercises that captivate them are essential to a successful acquisition of vocabulary and conversational structures and to the development of communication abilities.

Be it in virtual or physical classes, with online or, respectively, onsite types of activities, what counts is for them to be really appealing. Whether it is about individual, pair or team/group 'work' it should be preferably such designed as to be felt and seen as a game, to make learners wish to be involved instead of performing the activity just because it was required. From various ways of 'playing' with words, to matching structures or arranging fragments, on handouts or other means, in gaps or in the right positions, on boards or other specially designed materials, the path to most successful performances in language acquisition, even in this field of business communication for negotiation purposes, is active participation of subjects. Being active in an activity one likes can ensure a sort of 'passive learning' of the material contained in that activity. Playing with serious stuff can develop knowledge of the stuff most easily and pleasantly. Eventually, it all most often boils down to the way of introducing the students to the object of their learning, the way of presenting the material to the learners, the attractiveness of the activity, i.e. the ability of the teacher to design and provide the learners with appealing material in any circumstance.

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PERFORMANCE ANALYSIS OF THE ROMANIAN AND HUNGARIAN AGRICULTURAL COMPANIES

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Abstract: *Performance measurement is essential in all sectors of the national economies. Still, it is especially true for agriculture, as more efficient farming is becoming increasingly important to provide the population with adequate food.*

The study examines the performance of Hungarian agricultural companies in Romania. There were selected a total of 5,390 companies for the analysis database, of which 3,789 were from Romania and 1,601 from Hungary. In the performance analysis, the efficiency of companies was examined between 2018 and 2020 using the Data Envelopment Analysis method.

Based on the results, it can be concluded that Romanian agricultural companies operate with statistically significantly lower efficiency. However, it can also be seen that the average efficiency of businesses is very low considering both countries.

Low performance is also observed considering the averages of the sub-sector efficiency coefficients. There is not a single year in which the average efficiency coefficient in any sector exceeds 50%. On the other hand, the Oilseed and Grain Farming sub-sector analysis shows that the proportion of companies with an efficiency coefficient below 50% is very high, especially in Romania. Similar findings can be made for the Poultry and Egg Production subsector.

Further research is needed to explore the causes of low efficiencies of agriculture companies more accurately.

Keywords: *agriculture; efficiency; Data Envelopment Analysis, Romania and Hungary*

JEL Classification: *Q10; R15; C14; C44*

1. Introduction

Competition between economic operators has intensified because of the globalization of markets and the spread of free trade agreements. As a result, the focus has been on achieving the most efficient production possible. The importance of accounting records has changed accordingly over the years. As a result, there has been a growing demand for information from companies to support management decision-making, which must be provided in sufficient quantity and outstanding quality.

There is possible to find a lot of data in the obligatory annual financial statements. Still, they do not always contain information valuable for decision-makers. For example, from which they can be concluded the companies' current financial position, their performance compared to their competitors, or what would make it easier to develop a micro-environmental action plan. However, data from accounting reports can provide an excellent basis for a more in-depth financial analysis of businesses if they are processed. The most appropriate processing method is to calculate the proportions of the various items and develop different financial ratios. By examining the change in the indicators produced in this way over time, we can get the most helpful information.

The key to a business's success is continuous control over the performance and systematic feedback to managers, for which financial analysis is essential. Consequently, the study aimed to use one of the most widely used methods, the Data Envelopment Analysis, to measure and compare the efficiency of Romanian and Hungarian agricultural enterprises.

2. Performance evaluation

2.1. Importance of performance evaluation in agriculture

One of the biggest problems with financial ratios is dimensional valuation because they do not provide an adequate and complex picture of corporate performance for management and shareholders (Abdoli et al., 2011). Therefore, it became necessary to develop an appropriate method to measure efficiency and effectiveness. Globalization and the ever-accelerating market competition pressure every organization, demanding more flexibility and more performance awareness, which essentially requires identifying inefficiencies. The performance evaluation aims to continuously monitor the efficiency and economy of the company's operation and provide information for corporate decisions (Fenyves et al., 2015).

Agriculture and arable farming are becoming more mechanized today and require significant energy inputs at certain stages of the production cycle to achieve optimal yields. Therefore, it would be essential to know which minimal inputs give the highest outcomes determined by various performance and efficiency measurements (Moitzi et al., 2019). The Data Envelopment Analysis (DEA) method can support this activity and measure efficiency in an acceptable and complex way. This method provides opportunities to apply both quantitative and qualitative characteristics. Furthermore, it generates relative efficiency scores, taking multiple inputs and outputs simultaneously into account.

Agricultural activities, particularly soil tillage, have significantly impacted increases in atmospheric CO₂ and greenhouse gases in the last few decades (Lal, 1997; Tilmann et al., 2002). In this respect, mechanization and production intensity play essential roles in energy consumption (Hernanz et al., 1995). For example, in conventional plowing tillage cultivation systems, over 50% of the total fuel consumption is usually only required for soil preparation and sowing (Moitzi et al., 2015). Another example is that Pittelkow et al. (2015) performed 5463 paired

observations using 610 studies that compared non-tillage and traditional tillage practices with 48 crops and 63 countries. They showed that the non-tillage cultivation method reduces yields compared to conventional tillage systems in humid climates.

In contrast, in regions with a dry climate, the yield of a non-tillage cultivation method may be equal to or higher compared to conventional tillage systems. These findings suggest that direct tillage cultivation may become an important strategy for adapting to climate change in the drier regions of the world. However, inefficient production has also led to problems such as the abandonment of arable land. Accordingly, Terres et al. (2015) identified areas at higher risk of abandonment at the EU-27 level in Portugal, Spain, Italy, Greece, Romania, Slovenia, the three Baltic States, Finland, Sweden, and Ireland. The composite indicator at the Member State level shows significant differences in the risk of leaving agricultural areas between regions within a country. The most frequent farm types at risk identified in these regions are 'special permanent grazing livestock', 'special field crops', and 'special permanent crops'. All three types use large shares of land, mainly in an extensive way. Lack of good management in such areas may negatively affect landscape and biodiversity maintenance.

These studies and their results provide critical information for the management of companies to enable them to produce more efficiently. The previous also confirms that it is essential to examine the relationships between input resources and outputs considering corporate efficiency.

2.2. Data Envelopment Analysis

The DEA is a widely used method to analyze several sectors' performance, namely agriculture, using different inputs and outputs. The DEA model was developed by Charnes, Cooper, and Rhodes in 1978 - based on the previous work of Farrell (1957) (Charnes et al., 1978). The primary purpose of developing DEA was to establish a measure based on multiple input and output data. The DEA method does not require special functional relationships between input and output data, and it denotes efficiency by values between 0 (totally inefficient) and 1 (totally efficient). DEA creates a frontier line based on the observed units' (decision-making units) input and output data. All the co-equal units of the examined dataset are benchmarked against the frontier, and it provides a basis to define a relative performance score (Charnes et al., 1995). The DEA is a non-parametric model, so defining any function is unnecessary. DEA models can be input-oriented (objective: minimizing inputs while maintaining the same level of outputs) or output-oriented (objective: increasing outputs with the same level of inputs) (Malana and Malano, 2006).

The DEA has a long history in international literature since its birth in 1978. Tavares (2002) collected more than 3,000 DEA-related publications between 1978 and 2001. Emrouznejad et al. (2008) had been presented in their article on the 30-year history of DEA, and they are listed in more than 4,000 publications. The number of publications related to the DEA has increased year by year.

The selection of inputs is crucial as outputs (production value, labor productivity, etc.) depend on these input uses. Therefore, if an area can reach the current level of outcomes with lower expenditures, it can be assumed that sustainable development of the sector examined will take place (Dalgaard, 2001).

Toma et al. (2015) examined the efficiency of agriculture in Romania using the DEA model. Their results confirmed the usefulness of applying DEA models to judge agriculture areas with similar geographical patterns. Their analysis showed that only 14 counties (5 lowlands, 5 hilly, and 4 mountainous) achieved total DEA efficiency and operated at optimal scales. The other counties could need to change their input mix to achieve greater efficiency or increase output levels through better use of fixed capital and higher returns.

3. Data and methodology

3.1. Data

The data used for the analysis were downloaded from the EMIS database system. The database consists of the data of the financial statements of Romanian and Hungarian agricultural enterprises for three years (2018-2020). Only companies with financial reports for all three years were included in the database and had total revenues of over 50,000 euros. After filtering the data, 3,789 Romanian and 1,601 Hungarian, a total of 5390 companies remained in the database. The distribution of the companies in the database by subsector is shown in Table 1. The study used the NAICS American activity classification system to group the companies by subsector in the two countries. Table 1 shows that twice as many companies are on the Romanian side as the Hungarian one in the database. However, there are significant differences in the number of companies between the two countries for some subsectors.

Table 1: Distribution of the examined agricultural companies by subsector and country

| Sector codes | Sector names | Hungary | Romania |
|---------------------|--|----------------|----------------|
| 1111 | Oilseed and Grain Farming | 834 | 2462 |
| 1112 | Vegetable and Melon Farming | 47 | 71 |
| 1113 | Fruit and Tree Nut Farming | 42 | 106 |
| 1114 | Greenhouse, Nursery, and Floriculture Production | 21 | 18 |
| 1119 | Other Crop Farming | 73 | 277 |
| 1121 | Cattle Ranching and Farming | 141 | 141 |
| 1122 | Hog and Pig Farming | 105 | 160 |
| 1123 | Poultry and Egg Production | 163 | 186 |
| 1124 | Sheep and Goat Farming | 4 | 29 |
| 1125 | Aquaculture | 7 | 60 |

| | | | |
|--------------|--|-------------|-------------|
| 1129 | Other Animal Production | 11 | 14 |
| 1151 | Support Activities for Crop Production | 144 | 253 |
| 1152 | Support Activities for Animal Production | 9 | 12 |
| Total | | 1601 | 3789 |

Source: edited by authors

3.2 Methodology

The analyses were performed by the R statistical system using from the Microsoft Excel spreadsheet. The R statistical system has been chosen as an analytical tool because it is a widely used system and has been helping analysts for nearly twenty years. In addition, the R system is an open-source system and can be used and developed for free.

In the analysis, the decision-making units of the DEA were the 5,390 agricultural companies included in the database, of which efficiencies were compared with each other. It is important to emphasize that the efficiency scores are only valid for the firms examined.

For the DEA-based performance evaluation, there were selected the following variables to evaluate the efficiency of the agricultural companies selected.

Input variables:

- Material costs
- Employee costs
- Other costs
- Fixed assets

Output variables:

- Total revenue
- Operating profit

The input orientation model of DEA was used, which looks for the answer to how it is possible to reduce inputs proportionately while retaining the amount of outputs. Its mathematical form can be expressed as the quotient of input and output. The operating profit was used as one of the output variables because two countries are compared, and different interest rates and taxes can affect net profit.

4. Results and discussion

The DEA method was applied to all companies in the database annually. This complex comparison allows companies in the two countries to be comparable.

Table 2 shows that the efficiency of agricultural enterprises is very low in both countries. Decision-making units with an efficiency coefficient above 0.7 are generally considered acceptable efficiencies. 7.37%, 6.25%, and 5.12% of Hungarian companies fall into this category each year, while in the case of Romanian companies, these counts are 3.4%, 3.43%, and 2.53%. It can also be seen that the proportion of Hungarian companies in the category is almost twice that of Romanians. Based on the t-test, it can also be stated that Hungarian companies

perform significantly better than Romanians, still at this low level. The efficiency of Hungarian companies decreased by almost 30% from 2018 to 2020, which was 26.5% for Romanian companies.

Table 2: Efficiency scores of agricultural enterprises by countries between 2018 and 2020

| Efficiency coefficient intervals | | Hungary | | | Romania | | |
|----------------------------------|-------|---------|--------|--------|---------|--------|--------|
| | | 2018 | 2019 | 2020 | 2018 | 2019 | 2020 |
| | =1.0 | 48 | 39 | 35 | 48 | 57 | 43 |
| >= 0.9 | < 1.0 | 22 | 20 | 10 | 18 | 21 | 11 |
| >= 0.8 | < 0.9 | 17 | 16 | 12 | 24 | 21 | 14 |
| >= 0.7 | < 0.8 | 31 | 25 | 25 | 39 | 31 | 28 |
| >= 0.6 | < 0.7 | 49 | 38 | 27 | 56 | 61 | 39 |
| >= 0.5 | < 0.6 | 84 | 68 | 53 | 88 | 94 | 49 |
| >= 0.4 | < 0.5 | 154 | 88 | 95 | 130 | 122 | 63 |
| >= 0.3 | < 0.4 | 269 | 142 | 138 | 283 | 214 | 127 |
| >= 0.2 | < 0.3 | 400 | 283 | 230 | 640 | 430 | 219 |
| >= 0.1 | < 0.2 | 416 | 557 | 415 | 1496 | 1284 | 597 |
| >= 0.0 | < 0.1 | 111 | 325 | 561 | 967 | 1454 | 2599 |
| Átlag | | 0.3213 | 0.2590 | 0.2253 | 0.2099 | 0.1905 | 0.1282 |

Source: created by authors

In order to have a more accurate picture of the performance of agricultural enterprises, the efficiency of enterprises by sub-sector with larger size is also examined (Table 3). Table 3 shows that companies in the Support Activities for Crop Production sub-sector have the highest average efficiency in Hungary and the Poultry and Egg Production sub-sector in Romania every year. On the other hand, the lowest average efficiency coefficients for the Fruit and Tree Nut Farming sub-sector are found in Hungary and Romania every year. This is probably because the natural exposure to fruit production can be relatively high in both countries.

Table 3: Average efficiencies of larger sub-sectors per year and by country

| Sector code | Sector | Hungary | | | Romania | | |
|-------------|-----------------------------|---------|--------|--------|---------|--------|--------|
| | | 2018 | 2019 | 2020 | 2018 | 2019 | 2020 |
| 11 | Agriculture | 0.3213 | 0.2590 | 0.2253 | 0.2099 | 0.1905 | 0.1282 |
| 111 | Crop production | 0.3121 | 0.2448 | 0.2124 | 0.1940 | 0.1698 | 0.1112 |
| 1111 | Oilseed and Grain Farming | 0.3143 | 0.2419 | 0.2090 | 0.1918 | 0.1661 | 0.1075 |
| 1112 | Vegetable and Melon Farming | 0.3614 | 0.2998 | 0.2682 | 0.2774 | 0.2450 | 0.1569 |
| 1113 | Fruit and Tree Nut Farming | 0.2012 | 0.1334 | 0.0912 | 0.1703 | 0.1436 | 0.1057 |
| 112 | Animal husbandry | 0.3024 | 0.2580 | 0.2201 | 0.2742 | 0.2589 | 0.1945 |

| | | | | | | | |
|------|--|--------|--------|--------|--------|--------|--------|
| 1121 | Cattle Ranching and Farming | 0.2328 | 0.2055 | 0.1931 | 0.2103 | 0.1908 | 0.1319 |
| 1122 | Hog and Pig Farming | 0.2557 | 0.2583 | 0.2424 | 0.2451 | 0.2583 | 0.1887 |
| 1123 | Poultry and Egg Production | 0.4008 | 0.3138 | 0.2419 | 0.3213 | 0.2923 | 0.2390 |
| 115 | Support Activities | 0.4355 | 0.3555 | 0.3250 | 0.2431 | 0.2672 | 0.1695 |
| 1151 | Support Activities for Crop Production | 0.4376 | 0.3559 | 0.3292 | 0.2359 | 0.2594 | 0.1624 |

Source: created by authors

Due to size constraints, only two sub-sectors can be presented in more detail. Therefore, the sub-sectors with the largest number of companies in the database examined are presented. Thus, the first sub-sector presented is the Oilseed and Grain Farming, which includes the highest number of Hungary companies (834) and Romania (2,462).

In Figure 1, the bars relate to the left-side and the line to the right-side frequency values. The figure shows no significant differences in frequency values in the first three categories. However, there are 834 companies in the sub-sector in Hungary and almost three times as many in Romania (2,462). However, there are big differences in the lowest category, showing the difference in efficiency between the two countries. Romanian efficiency values are around 50-60% of Hungarian values. The average efficiency coefficients of the sub-sector are lower each year than those of the whole sector, and the differences are 3-6% in Hungary and 8-13% in Romania. In this sub-sector, Hungarian companies are statistically significantly better than Romanians.

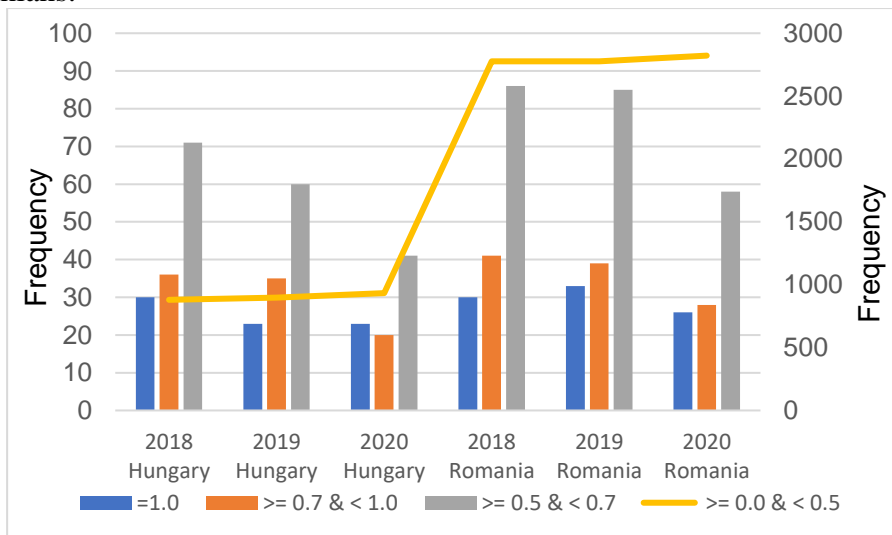


Figure 1: Distribution of efficiency scores in the case of the Oilseed and Grain Farming subsector

Source: created by authors

The second sub-sector to be examined in more detail was the Poultry and Egg Production sub-sector, the main characteristics shown in Figure 2. The number of

companies in this subsector is much lower than in the Oilseed and Grain Farming subsector. At the same time, most of the companies in the livestock sub-sectors are in this sub-sector (163 in Hungary and 186 in Romania). The figure shows that the number of companies with an efficiency coefficient above 50% is relatively low. The Romanian average values in this sub-sector are also worse than the Hungarian ones, although this sub-sector has the highest efficiency coefficients in Romania.

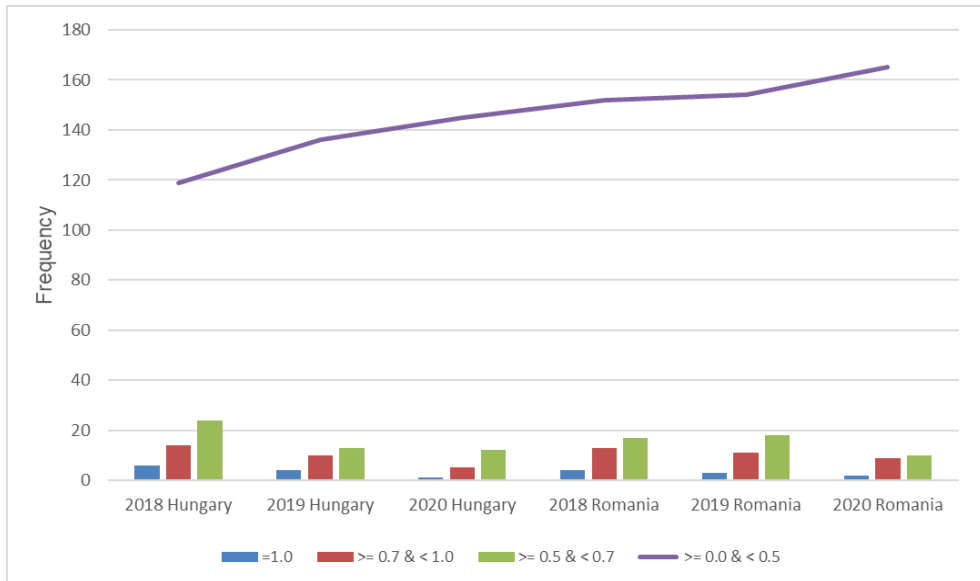


Figure 2: Distribution of efficiency scores in the case of the Poultry and Egg Production subsector

Source: created by authors

Conclusion

The analysis performed using Data Envelopment Analysis clearly showed that the efficiency of agricultural companies is very low in both Hungary and Romania. The analysis broken down by sub-sectors did not show a better result either, but it can be stated that there are significant differences in the case of some sub-sectors. As a continuation of the research, it would be useful to examine the dual solution of the DEA model to determine for which input variables the problems are present.

As there are many companies in the study database, it would be advisable to test the efficiency using stochastic frontier analysis (SFA). It would be useful to use a frontier analysis model that can also consider quality factors such as company size, county, etc. The groupings performed for the DEA group are the efficiency indicators calculated for the entire database, while the SFA can quantify these effects within a model.

The use of several methods will likely make it possible to identify more precisely the factors affecting the efficiency of agricultural companies and to determine the causes of inefficiency.

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CROSS-CULTURAL COMMUNICATION IN MULTINATIONAL COMPANIES

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Abstract: *The communication in an organization involves agreeing on the objectives of the organization by achieving an optimal dosage between internal communication and external communication. Internal communication in an organization is the link that binds its departments, and leads to the smooth running of the business. The relationship between internal communication and external communication within an organization is the result of cooperation between its departments, and the result is the image it transmits externally. In order to have communication within an organization, one must know who is communicating, in what atmosphere, and especially what they are communicating. It is no secret that the importance of knowing a foreign language influences almost every aspect of multinational business. Language can be a barrier in everyday activities, when branches that speak different languages have to communicate with each other. Knowledge of a foreign language can be an aspect that facilitates the flow of communication, both internally (within the same department) and externally (between several departments). The employees with language skills who know one or more foreign languages have more opportunities to work with people from different departments and can keep in touch without effort. Also, speaking the same language, both employees and managers can more easily maintain relationships with other affiliates, not depending on each other and thus saving valuable time. In the same time, as a result of the many cultural contexts, the workplace faces additional communication issues and even when employees in different locations or offices speak the same language, there are some cultural differences to consider in order to improve communication between the two parties. An effective communication strategy begins with the recognition that the message sender and recipient come from different cultures and backgrounds. Thus, this adds a layer of ambiguity to conversations, making them much more difficult. Therefore, this paper considers to demonstrate that without diving into cultures and subcultures, it is perhaps most crucial for individuals to grasp that cultural variety is the key to success.*

Keywords: *business communication; cross-cultural communication; foreign languages; multinationals*

JEL Classification: Z19

1. Introduction: Organization and Communication

Communication is the critical flow that enables an organization's performance. Its quality and functionality are determined by how resources are employed and objectives are met.

Organizations rely entirely on communication, which is described as the spoken, nonverbal, or written exchange of ideas, messages, or information. Organizations

cannot function without communication. The entire organization suffers when communication is restricted or impeded. The organization tends to be dynamic and effective when communication is full, accurate, and timely.

Managers can better accomplish their tasks and responsibilities by communicating. All pertinent information must be given to management, who must then communicate the plans in order to put them into action. Similarly, in order to achieve team goals, leaders and managers must communicate effectively with their employees.

2. Organizational communication. Characteristics and Types

2.1. Functions of Organizational Communication

In the book *Organizational Communication: Challenges of Change, Diversity, and Continuity*, William Neher (1997) identifies the five primary functions of business communication:

1. Leading - defining roles, assigning power, and assigning responsibilities.
2. Rationalizing - serving as a foundation for making judgments.
3. Problem-solving - allowing for effective combined action.
4. Conflict management
5. Compliance gaining - allowing for the expression of emotions, etc.

The specialization of functions at the level of compartments and individuals, as well as the complementarity of these functions, determines an organization's efficiency.

The requirement for information flow between compartments, between people, and between the organization and its socio-economic environment arises from these essential aspects of organizational action. According to Graham and Bennett (1995:121) each organization comprises of "premises, workers, management, equipment, supplies, and cash." Therefore, to accomplish performance, organizational work necessitates coordinating the actions of participants. Employees are informed of management's decisions, and management oversees their execution. Decisions are based on the flow of information mentioned above.

2.2. Types of Organizational Communication

2.2.1 Formal and Informal Communication

Interpersonal, intra-organizational (between parts of the same organization), and extra-organizational communication are all forms of communication (with people or organizations functionally related to the activity of the organization: suppliers, customers, public etc.). Each of these levels varies in complexity and includes limits on organizational roles (superior/subordinate, decision/execution divisions), specific regulations, and organizational structure.

The information travels through communication networks made up of multiple people, organizations, and compartments that serve as both sender and recipient.

Organizational communication can be formal (conducted through channels imposed by the structure of the organization, existing rules and functional relationships between individuals, groups, compartments, according to explicit and sometimes

implicit rules) and is mainly related to joint activity. The organization chart, a document that depicts the functional organization of operations as well as the nature of subordination and coordination relationships between departments and individuals, specifies formal communication networks. The content (what kind of information is transmitted), responsibility (who issues and controls and signs - in the case of written messages), form (oral / written, how the message is structured, the content of the identification part, the addressing formulas), the moment (occasions, deadlines), and the destination of the messages are all governed by a set of implicit and explicit rules.

And then there is the informal communication (information not directly related to the activity, with a strong emotional touch). The channels used are other than the formal ones, the communication rules are less strict. Informal communication networks emerge over time, depending on affective characteristics such as sympathy or aversion, mutual interests connected (or not) to the organization; the channels used are not formal, and the communication norms are less stringent.

Formal and informal communication networks coexist and sometimes interfere, in the sense that informal ones can block the flow of information in the formal network, distort it according to the relationships and interests of those involved, or, on the contrary, can make formal communication more flexible and improved.

2.2.2 Cross-Cultural Communication

Culture is a style of thinking and behaving in which people adopt a set of attitudes, values, conventions, and beliefs that are taught and reinforced by their peers. This shared system of basic assumptions and solutions to the world's issues is passed down from generation to generation in order to ensure survival.

Also, a culture is made up of unwritten and written rules and laws that govern how people interact with the rest of the world. The fact that the members of a culture are similar might be used to identify them. Religion, location, race, and ethnicity may bind them together. People's cultural perspective of the world and everything in it has an impact on their communication style since individuals pick up cultural habits about the same time they learn to communicate. Thus, the culture has an impact on the language people use and the way they act.

Browaeys and Price (2008) state that cross-cultural communication is a "sub-domain" of intercultural communication and has to do with "the comparison of the various ways people communicate across cultures" (p. 233). Lustig and Koester (1998) define it as "the presence of at least two individuals who are culturally different from each other on such important attributes as their value orientations, preferred communication codes, role expectations, and perceived rules of social relationship" (cited in Harris and Moran, 1999:48). Therefore, cross cultural communication refers to communication between people who differ in any of the following: working styles, age, nationality, ethnicity, race, gender, sexual orientation, and so on. Cross-cultural communication can also refer to the use of words, gestures, and body language to exchange, negotiate, and mediate cultural

differences. It is the means by which people from many cultures connect with one another.

Working in a business setting with people from diverse cultures is a typical occurrence in today's global world. A firm's suppliers could be halfway around the world, the partners could have recently relocated from another country, and the consumers could be speaking a different language than the language of the organization. Businesses must be able to negotiate cross-cultural communication in order to develop in the today's global environment.

Organizations can demonstrate to their consumers and stakeholders that they comply with their connections by employing tactics to thrive in cross-cultural commercial ventures while overcoming obstacles.

3. Cross-cultural Communication in Multinational Companies

3.1 What is a Multinational Company?

In recent decades, the universe of multinational companies has continued to attract the interest of many specialists, representing the theme of symposia, studies, congresses and many publications. In the issue of Jan. 29, 2000, the British magazine *The Economist* published an article concluding that multinational companies are one of the most representative factors of contemporary economic progress.

Theories regarding multinational corporations are not at all unitary, being customized according to their object of study. There are a large number of definitions in the literature, many of which are contradictory. One of the first definitions to be widely used belongs to R. Vernon (1996) who stated that "a multinational corporation is a large company with industrial subsidiaries in at least six countries." Subsequently, due to the fact that smaller companies also appeared in the international landscape, the number of subsidiaries considered reached two or even one. Investopedia defines a multinational company as being "a corporation that has its facilities and other assets in at least one country other than its home country. Such companies have offices and/or factories in different countries and usually have a centralized head office where they co-ordinate global management. Very large multinationals have budgets that exceed those of many small countries." (<http://www.investopedia.com/terms/m/multinationalcorporation.asp>)

From the definitions of multinational corporations given above, the first conclusions can be drawn regarding the main characteristics of the internationalization strategies adopted by them on the host national markets. First of all, it is very clear that multinational corporations are true global economic and financial operators. Thus, giant corporations today form what can be called the "global oligopoly", continuously expanding their field of activity, entering into strategic alliances with their direct competitors and thus establishing new networks of oligopolies. Globalization has led to a redefinition of the universe of corporations, considered by the proponents of globalization as alternative authoritarian structures, which compete more and more successfully with the state ones in determining the direction of the global political economy.

Cross-cultural understanding is critical in a multinational corporation. It is critical to learn how to deal with cross-cultural differences in advance of communicating with people from different cultures in such an organization. Everyone benefits from greater bandwidth, institutional knowledge, and competitive advantage when communication is effective. Ineffective communication, on the other hand, can offend, confuse, or deliver the wrong message, resulting in strained relationships with customers, partners, vendors, and staff.

Building trust with business partners is the best approach to communicate. This can be accomplished by researching and being aware of cross-cultural communication differences. In the same time, this proactive attitude demonstrates to prospective partners that a business person cares about the success of their collaboration.

Also, communication is essential for effective work management. In an ideal world, each employee would comprehend the exact meaning of what the manager wanted to say and would effortlessly follow their directions. However, to ensure comprehension, managers may need to clarify, elaborate, or rewrite.

Barriers to cross-cultural communication can cause problems for organizations, particularly if they are unprepared for the nuances that come with interacting with people from various countries.

One strategy to encourage more efficient communication is to be aware of the many sorts of language obstacles that exist in the workplace. It is also crucial to understand the dos and don'ts of their interactions. Businesses will succeed in cross-cultural communication if they are adequately prepared. Understanding these differences before a conversation can help a company succeed when interacting with people from different cultures. Investing in the appropriate tools and assistance can also help. Some companies use foreign language consultants to assist them in bridging the gap between cross-cultural communication. Others hire communications professionals in the country where they do business, such as marketing copywriters, to guarantee that their marketing message is delivered authentically in the language of the locals.

Types of Language Barriers in the Workplace

It is no secret that understanding a foreign language has a significant impact on practically every element of multinational business. Knowledge of a foreign language has become the essence of international business, according to Welch, Welch, and Piekari's paper "Speaking in Tongues : The Importance of Language in International Management Processes".

In 1997, Kone, a Finnish firm, conducted a study. The company had been expanding internationally for decades and had adopted English as its primary language since 1970. The investigation discovered several ways in which standardization has impacted the company: at a high level, all managers were fluent in English and could readily converse with one another, despite the fact that their workforce did not. Non-English-speaking staff relied on department managers' knowledge at lower levels, transforming them into "communication nodes." The employees' incapacity to

communicate in English obviously caused them to ignore English-language e-mails and demands, or caused misunderstandings and wrong responses.

According to this study, a company's level of foreign language competence can be seen from three perspectives: a barrier, an advantage, or a source of power.

1. Barrier

When branches that speak different languages must communicate with one another, language can be a hurdle in ordinary activity. The majority will most likely use Google Translate, and the results will be perfect. Yet, a reader not knowing the language will become insensitive to its nuances, the subtleties of a sentence, or the numerous meanings of a word, thus the understanding of the entire context and reception of the message is compromised. As a result, simple communications will become ambiguous, making the entire process more complicated.

Obviously, the situation may also be regarded from a different perspective: corporate central communications departments use the company's standard language to the exclusion of the local language, causing operational delays. Additionally, insufficient language abilities can prevent employees from developing relationships inside the team, relationships that could have been built peacefully within the firm, to the benefit of the company as a productive work environment is one in which employees can easily understand their colleagues and superiors.

2. Advantage

Knowing a foreign language can help with communication both internally (inside a department) and externally (between several departments). People who are fluent in one or more foreign languages have greater opportunity to work with people from various departments and can communicate more freely. Furthermore, by speaking the same language, employees and managers can more readily maintain ties with other affiliates, reducing their reliance on one another and saving time.

Learning another language can also help an employee better appreciate and accept other people's cultures and traditions. This capacity distinguishes between failure and success in a multicultural group, between a balanced work atmosphere and a stressful, problematic one.

3. Source of power

For people who have the target language baggage, knowing a foreign language can be a source of strength. Department managers with this talent operate as translators for their superiors, giving them access to confidential information that they would not otherwise have had access to due to their position with the organization. They also have the authority to transmit when and how much information they want to those in the communications channel, making them a valued employee and resource inside the firm.

Learning and mastering a foreign language is critical to a company's internal operations as well as its exterior success. Companies, after all, do not speak any language; the people who make them up do. Every employee of a firm is its business card, a representative of the company's value system and beliefs, but a well trained employee with strong language skills is a valued employee.

3.2 Business English – the cultural lien in multinationals

Graddol (1999: 57) anticipated that English will increasingly be used as a second language in multilingual settings and for non-native speaker communication in the future. This forecast looks to be coming true now, with speakers of various languages using English as a contact language in a variety of circumstances. As information density grows, people will want tools to interact and participate more quickly, as well as the ability to accommodate different cultures.

English is the quickest language in human history, with 1.75 billion people speaking it at a usable level. There are almost 385 million native speakers in countries like the United States and Australia, approximately a billion fluent speakers in historically colonial countries like India and Nigeria, and millions of others who have studied it as a second language all over the world.

English is increasingly being mandated as the common corporate language by global corporations. There is no denying that unlimited multilingualism is wasteful, preventing vital exchanges and impeding the achievement of key objectives.

The necessity to closely coordinate duties and collaborate with customers and partners around the world has expedited the adoption of English as the official business language, regardless of where businesses are headquartered.

In terms of language and style, business English is distinct from normal English.

This distinction is attributable to a variety of factors, including differences in language context and usage. Business English has a long history of adhering to specific rhetorical rules, according to Hutchinson and Waters (1996), which include "stylistic devices, language usage, vocal delivery, and other notions." As a result, business English discourse differs from everyday English discourse in that it is targeted at a particular audience and serves a defined objective.

Business English's linguistic context may or may not be relevant or appropriate in every sociolinguistic setting, and professional communication in English will involve language that is neither as rich in vocabulary and expression nor as culturally relevant as that used by native English speakers. It is based on a core of the most valuable and basic word patterns, unlike social communication. Corporate communication is well-organized, formal in comparison, and goal-oriented.

The adoption of English as a corporate standard is being driven by three main factors: competitive pressure, globalization, and integration across national boundaries. The employees of a multinational must be able to speak with a wide range of clients, suppliers, and other business partners if they want to acquire or sell. Companies which do not develop a language strategy are effectively limiting their expansion potential to markets where their language is spoken, putting them at a distinct disadvantage to competitors who have chosen English-only policies.

When geographically scattered employees must work together to fulfill company goals, language difficulties can create a slowdown. An employee from Romania may require assistance from a company in the USA or Russia. Communication will struggle if there is no common ground. Employees with better language

understanding have access to more firsthand information, which is critical for making excellent decisions.

Negotiations regarding a merger or acquisition are complicated enough when everybody speaks the same language. But when they do not, nuances are easily lost, even in simple e-mail exchanges. Also, cross-cultural integration is notoriously tricky. When non-native speakers have to communicate in English, regardless of their proficiency level, they may feel that their value to the firm has been diminished. "The hardest part is admitting that one's worth as an English speaker overshadows one's true worth," a Romanian employee of a multinational explains. Yet, lately more and more multinational corporations have offered their employees the opportunity to improve their foreign-language skills. Employees who are subjected to one-language regulations, due to their inadequate English language skills, frequently worry that the top jobs will be provided only to those who have excellent English abilities, regardless of content knowledge. When organizations just announce a new policy and offer language training rather than implementing the change in a systematic fashion, such attitudes are prevalent. Employees frequently underestimate their own skills or overestimate the difficulty of gaining sufficient fluency. Also, non-native speakers frequently revert to their native tongue at the cost of their English-speaking colleagues, typically because conducting meetings in their mother tongue is faster and easier. Others may take more extreme tactics, such as scheduling meetings at inconvenient times, to avoid speaking English. When they feared their relatively poor language abilities would become obvious and have career-related ramifications, many multinational employees simply ceased contributing to general dialogue. They are frightened of making mistakes, therefore they will not say anything at all. Yet, in spite of all barriers and difficulties encountered by multinational employees, the single language policy, more than a practical tool, is a reasonable answer to the realities of business. And having English as a common business language appears to be a feature of a real worldwide corporation.

In conclusion

In the last decades, English has quickly become the lingua franca of worldwide business, and multinational firms are straining to keep up with the rate of globalization. Organizations have tried and failed to impose across-the-board corporate language policies that mandate a designated corporate language (usually English) as the corporate lingua franca in order to manage the turmoil produced by different languages within one multinational company.

Implementing a common English policy does not solve all of the leadership problems that come with global communication. The use of English as a business language can harm employee morale, create unfavorable divides between native and non-native speakers, and reduce team members' total efficiency. Managers must prevent and mitigate these risks by creating an atmosphere in which employees can easily accept a global English policy. Companies must overcome linguistic hurdles to survive and

succeed in a global economy, and English will virtually always be the common ground, at least for the time being.

In the end, it is people who speak languages, not organizations. The success of multinational companies is ultimately dependent on their employees, demonstrating that language plays a significant role in influencing corporate decisions.

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TYPES DE RÉMUNÉRATION DU TRAVAIL INDÉPENDANT (ÉTUDE COMPARATIVE FRANÇAIS-ROUMAIN) / TYPES OF COMPENSATION OF INDEPENDENT WORK (FRENCH- ROMANIAN COMPARATIVE STUDY)

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Abstract: *The article offers a contrastive analysis of the terms referring to the compensation for work performed by people who obtain income from the liberal professions, highlighting the complexity and diversity of these terms in French, a consequence of a legal system with a long tradition. The affinities related to the common origin of the two languages (French and Romanian), the legal systems based on Roman law, the cultural influence that France has always exercised, the fact that Romania adopted the French Civil Code in the 19th century are just as many reasons why there is an important number of equivalent terms in Romanian language. Based on a corpus of examples extracted from the civil code, the labor code, the commercial code and the deontological codes of the different categories of freelancers (lawyers, notaries, accountants, doctors, architects) and their translation into Romanian we will indicate possible equivalences and show that the selection of the appropriate term is made according to several factors, such as the level of language (legal / common) or the professional categories involved.*

Keywords: *compensation, fee, income, legal vocabulary, profession, remuneration, salary, social category.*

JEL classification: Z19

1. Introduction

Cet article se penche sur les divers types de rémunération, une question qui concerne principalement le droit du travail. Nous nous proposons de mettre en évidence la complexité de ce champ lexical dans une perspective contrastive (domaine français – roumain). Les deux langues disposent de nombreux termes, dont certains sont propres à la langue juridique, d'autres relèvent du registre familier, mais en français la gamme de termes spécifiques à la rémunération est sensiblement plus large et il est parfois difficile de choisir l'équivalent le plus adéquat.

Selon Terral (2004 : 887), « le problème majeur de la traduction juridique est de pouvoir transmettre un message non seulement d'une langue à une autre mais aussi

– et surtout – d’un système juridique à un autre et ce problème apparaît, à la base, au niveau terminologique ». Nous adhérons à la conception de Terral (2004 : 887), selon laquelle « le droit est avant tout une science sociale et, à ce titre, une science profondément influencée par le contexte sociohistorique dans lequel elle évolue », c’est pourquoi la recherche des correspondances terminologiques doit prendre en compte des facteurs tels que « le contexte sociopolitique » et « la finalité attribuée à la traduction ».

Comme l’écrivait Honová (2016 : 164), « une des principales tâches à accomplir par le traducteur juridique consiste donc à retrouver un juste équilibre en ce qui concerne l’équivalence entre le texte source et le texte cible ».

En français, chaque type de revenu a un nom précis. La prédilection du français pour la concision et la précision a été signalée par Scavée et Intravaia (1979) dans leur *Traité de stylistique comparée*. Ils ont postulé l’existence d’un « style collectif », à savoir un mode de sensibilité particulier d’une communauté linguistique, qui traduit une manière spécifique d’utiliser les ressources de la langue.

Alors que les employés d’une entreprise touchent généralement des « salaires » et les fonctionnaires publics des « traitements », les notaires perçoivent des « honoraires », les artistes des « cachets », les militaires des « soldes » etc. « Le lexique français des rémunérations [...] varie en fonction de différentes professions » et sa « richesse est historiquement déterminée ». (Brouland, Priesolova, 2016 : 71)

En roumain, la relation entre le type de rémunération et la catégorie professionnelle existe, mais certains termes français que l’on peut associer à une profession donnée n’ont pas d’équivalent distinct. Par exemple, en Roumanie, les fonctionnaires publics, tout comme les autres types de salariés, touchent un salaire (*salariu*). Il n’y a pas d’équivalent pour le mot *traitement*.

Entre le système juridique français et le système juridique roumain il existe de multiples affinités, dues à l’origine latine des deux langues et à l’influence que la France et sa culture ont toujours eue sur l’histoire et la société roumaine. Cela explique le fait qu’entre les deux langues il y a beaucoup de similarités au niveau de la terminologie spécialisée. Pourtant, nous allons montrer que même s’il y a des correspondants roumains pour beaucoup de termes relatifs à la rémunération, ils ne sont pas nombreux.

2. Corpus et méthodologie

Il y a très peu d’études contrastives consacrées au lexique de la rémunération. Nous signalons l’article de Brouland et Priesolova (2016), dont l’objectif est de recenser cette terminologie du point de vue juridique, linguistique, historique, au niveau de la forme et du contenu. Les deux linguistes proposent une liste d’équivalents en tchèque, insistent sur « la diversité de la terminologie française » et sur « la présence d’un grand nombre de termes propres à une profession ». (2016 : 57) Ils expliquent les différences entre la richesse lexicale du français et le nombre restreint de termes en langue tchèque par le fait que certains instituts juridiques n’ont pas de

correspondant dans la langue cible (le statut de fonctionnaire), pour certaines notions il y a plusieurs termes (*voiture de fonction / voiture de service*), des termes identiques peuvent avoir des significations qui ne se recouvrent pas entièrement (*traitement, salaire, rémunération*).

En utilisant des exemples extraits du code commercial et des codes déontologiques de diverses catégories professionnelles (avocats, notaires, médecins, architectes), nous allons analyser les équivalents de certains types de rémunération, toujours dans une perspective contrastive. Nous allons traduire en roumain les paragraphes où apparaissent ces termes car, comme l'indiquent Binon et Verlinde (2004 : 272), il ne s'agit pas de « réduire le vocabulaire à l'étude de mots isolés ou à des problèmes de terminologie », mais de l'utiliser correctement dans le discours.

Nous avons consulté le Trésor de la Langue Française, le dictionnaire Larousse, le Nouveau Petit Robert, des dictionnaires bilingues (français-roumain), des dictionnaires juridiques et des dictionnaires économiques et financiers.

3. La rémunération

La *rémunération* (du latin *remuneratio* – la récompense) est un terme général, qui désigne « le prix d'un travail fourni ou d'un service rendu » (*Trésor de la langue française*). Par métonymie, ce terme désigne la somme d'argent correspondante ; son synonyme est *rétribution*.

Les mots indiqués comme synonymes dans le dictionnaire Larousse sont *paiement, rétribution, salaire*. Il faut mentionner que ces termes ne sont pas interchangeables dans tous les contextes. Pour ne donner qu'un exemple, seuls les travailleurs subordonnés touchent des salaires. Dans le cas des professions libérales il vaut mieux parler de rémunération du travail.

La *rémunération* c'est le mot le plus utilisé dans le Code du travail et son sens englobe la signification de tous les autres termes de ce champ lexical. Les correspondants roumains sont *remunerare* (*politiques de rémunération - politici de remunerare*), *remunerație* (*rémunération brute – remuneratie brută*). Dans le Code du travail roumain on trouve le terme *remunerare* avec une occurrence et le terme *remunerație* avec trois occurrences. Le roumain utilise davantage les termes *salariizare*, respectivement *salariu*, mais, comme précisé ci-dessus, ceux-ci impliquent l'existence d'une relation de travail subordonné. Les dictionnaires bilingues français-roumain donnent aussi comme équivalents les mots *retribuție, plată*.

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| Tout employeur assure, pour un même travail ou pour un travail de valeur égale, l'égalité de rémunération entre les femmes et les hommes. (Article L3221-2 du Code du travail) | Orice angajator asigură, pentru aceeași muncă sau pentru o muncă de valoare egală, <i>salariizare egală / salarii egale</i> pentru femei și bărbați. (Articolul L3221-2 din Codul muncii) |
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La rémunération comprend le *salair de base (salariul de bază)* et les *avantages et accessoires (alte drepturi : sporuri, adaosuri, indemnizații)*. C'est une notion beaucoup plus large que celle de salaire.

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| <p>Constitue une <i>rémunération</i> au sens du présent chapitre, le <i>salair ou traitement ordinaire de base ou minimum</i> et tous les autres <i>avantages et accessoires</i> payés, directement ou indirectement, en espèces ou en nature, par l'employeur au salarié en raison de l'emploi de ce dernier. (Article L3221-3 du Code du travail)</p> | <p>Constituie o <i>remunerație</i> în sensul prezentului capitol, <i>salariul</i> obișnuit de bază sau minim și toate celelalte <i>drepturi / avantaje și accesorii</i> plătite, direct sau indirect, în numerar sau în natură, de către angajator salariatului ca urmare a angajării. (Articolul L3221-3 din Codul muncii)</p> |
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Quant au terme *rétribution* (du latin *retributio*), qui signifiait à l'origine *récompense* dans le langage ecclésiastique, il est aujourd'hui moins employé que le terme *rémunération*. Selon Mangiante (2002 : 29), la rétribution suppose un rapport entre « force de travail-valeur du travail ». Il y en a très peu d'occurrences dans le Code du travail, dans le Code de procédure civile ou dans le Code pénal.

Dans le dictionnaire de la langue roumaine DEX, la définition du terme *retribuție* est « prix du travail » et les synonymes signalés sont : *remunerație, salariu, leafă*. Dans le Code du travail roumain il n'existe aucune occurrence du terme *retribuție*.

En plus des correspondants *retribuție, retribuire*, les dictionnaires bilingues indiquent les mêmes équivalents que pour le terme rémunération, plus précisément : *plată, salariu, salarizare*.

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| <p>Aucune <i>rétribution</i>, directe ou indirecte, ne peut être exigée des personnes à la recherche d'un emploi en contrepartie de la fourniture de services de placement, sous réserve des dispositions : 1° De l'article L. 7121-9, relatives aux conditions de placement, à titre onéreux, des artistes du spectacle ; 2° De l'article L. 222-6 du code du sport, relatives aux conditions d'exercice de l'activité d'agent sportif. (Article L5321-3 du Code du travail)</p> | <p>Nicio <i>remunerație/retribuție</i>, directă sau indirectă, nu poate fi cerută persoanelor aflate în căutarea unui loc de muncă în schimbul prestării de servicii de plasare a forței de muncă, sub rezerva dispozițiilor: 1° Articolului L. 7121-9, privind condițiile de plasare, cu titlu oneros, a artiștilor interpreți; 2° Articolului L. 222-6 din Codul sportului, privind condițiile de exercitare a activității de agent sportiv. (Articolul L5321-3 din Codul muncii)</p> |
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Le terme *salair* (du latin *salarium – la solde pour acheter le sel*) a été employé d'abord pour désigner le prix du travail des soldats. Il a été ensuite utilisé comme synonyme de *rémunération*, à savoir une « somme ou tout élément perçu en rémunération d'un travail, d'un service » (*Trésor de la langue française*). À partir du XVIII^e siècle il désigne la contrepartie du travail effectué par une personne dans le cadre d'un contrat de travail. Les synonymes signalés dans le dictionnaire Larousse sont : *appointements - émoluments - gages - mensualité - paie - prix - rémunération - rétribution - solde - traitement*. L'équivalent *salariu* est le terme le

plus employé dans le Code du travail roumain. Les synonymes indiqués par le dictionnaire DEX sont *leafă, retribuție, simbrie, hac, nafaca, năiem*, les trois derniers étant des mots vieilliss.

Dans le Code du travail français on le trouve dans la partie dédiée à certaines professions et activités, à savoir dans la section concernant les travailleurs à domicile (Septième partie, Livre IV) :

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| Lorsque le <i> salaire horaire </i> fixé par l'autorité administrative pour servir de base au calcul des tarifs d'exécution est inférieur au montant cumulé du <i> salaire minimum de croissance </i> et des indemnités, primes ou majorations susceptibles de s'y ajouter, les tarifs d'exécution sont complétés dès la date d'entrée en vigueur du texte modifiant le salaire minimum et sans attendre la publication de la décision administrative. (Article L7422-8 du Code du travail) | Atunci când <i> salariul orar </i> stabilit de autoritatea administrativă pentru a servi ca bază de calcul a tarifelor de execuție este mai mic decât cuantumul cumulat al <i> salariului minim pe economie </i> și al indemnizațiilor, primelor sau sporurilor susceptibile de a se adăuga la acesta, tarifele de execuție se completează de la data intrării în vigoare a textului de modificare a salariului minim și fără a aștepta publicarea deciziei administrative. (Articolul L7422-8 din Codul muncii) |
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Le mot *salaire* entre dans de nombreuses expressions, qui mériteraient une étude à part entière (par exemple : *salaire brut ou réel, salaire de base, salaire différé, salaire d'inactivité, salaire de réservation, juste salaire, éventail des salaires, etc.*) Le principe « à travail égal, *salaire égal* » pourrait être traduit par « *plată egală pentru muncă egală* ».

Nous pouvons aussi mentionner le terme *chenzină* (du français *quinzaine*), qui représente le salaire pour quinze jours de travail.

De plus, la traduction des termes représentant les avantages et accessoires n'est pas toujours une opération simple car, d'une part les systèmes de rétribution de pays différents ne se recoupent pas exactement, d'autre part chaque entreprise accorde la préférence à un terme ou à un autre. Il s'agit de termes tels que *prime, indemnité, bonus, gratification, 13^e mois, étrennes, voiture de service ou de société / de fonction, etc.*

En plus du salaire, les cadres (dirigeants, directeurs, managers) bénéficient d'un *intéressement aux bénéfices* de l'entreprise (*participare la profiturile întreprinderii*). Les agents de commerce et les vendeurs reçoivent un salaire fixe et des *commissions* (*comisioane*), à savoir un pourcentage des ventes.

Outre le salaire minimum prévu par la loi, certaines catégories de travailleurs (les serveurs et serveuses, les femmes de chambre) reçoivent des *pourboires* (de *pour* et *boire*). Le correspondant roumain, *bacșiș* , provient de la langue turque (*bahșiș*). Il s'agit d'une somme d'argent versée par les clients. En français, le synonyme *bakchich* est employé seulement dans le registre familier.

Il est très important de signaler le fait que certains salaires ont un nom spécifique, en fonction de la catégorie du salarié. Comme l'écrivait Mangiante (2002 : 28-29) dans son étude sur le rôle du lexique spécialisé dans les discours de français commercial et économique, « les différents types de revenus ne sont assimilables que si la position des bénéficiaires est clairement définie ».

C'est le cas du mot *traitement*, à savoir le salaire d'un fonctionnaire de l'État. Mangiante explique le fait que ce terme s'inscrit dans une « série de critères administratifs liés au statut du fonctionnaire » et que ce type de rémunération « n'a pas la valeur économique habituelle du contrat du travail ». Le traitement est calculé « non pas en fonction du marché mais des besoins pour vivre évalués par l'autorité administrative ». Le roumain n'a pas forgé un équivalent spécifique, c'est pourquoi l'on traduit toujours par *salariu, salarizare*.

En ce qui concerne les synonymes indiqués par le dictionnaire Larousse, *appointements, émoluments*, le premier terme se réfère plutôt au salaire des employés et le second est utilisé surtout pour désigner la rémunération des officiers ministériels (huissiers, commissaires-priseurs). Le dictionnaire DEX indique le mot *apuntament* (du français *appointements*), qui signifierait le salaire d'un fonctionnaire, mais le terme n'est pas utilisé dans les documents officiels. Le mot *salariu* fonctionne toujours comme correspondant.

Le salaire d'un militaire et de certains fonctionnaires assimilés s'appelle *solde* (du latin *solidus* – sou, pièce d'or, ducat), terme qui remplace le plus souvent celui de *traitement*. Les militaires reçoivent également des indemnités complémentaires, à savoir *la solde à l'air, la solde en mer*. Le roumain emploie le terme *soldă*. Les syntagmes suivants relèvent de la même sphère sémantique : *solda de funcție, solda de grad, solda de merit, indemnizația de comandă, gradații, indemnizația de dispozitiv*.

La solde des capitaines et des matelots s'appelle *gages*. En roumain, on utilise une expression périphrastique, comprenant une explication du terme : *salariul unui marinar*.

Le mot *gages* (n.m.pl.) désigne également la rémunération des employés de maison et des ouvriers agricoles. Un équivalent roumain est le substantif *simbrie*, mais il a un caractère obsolète.

Les ouvriers touchent des salaires, mais dans les textes plus anciens l'on peut trouver des termes tels que *paye* ou *mois*. Le correspondant roumain serait *leafă* – terme populaire.

4. Le cas des professions libérales

En France et en Roumanie, certains professionnels ont la possibilité d'exercer leur activité à titre individuel ou en qualité d'associés d'une société civile professionnelle ou d'une société d'exercice libéral. On parle toujours de *rémunération* comme notion générale.

4.1 Le terme le plus utilisé pour désigner la rémunération d'une personne exerçant une profession libérale est celui d'*honoraires* (du latin *honorarium* – rétribution d'une charge, cadeau). Il s'agit en général de prestations intellectuelles. Le synonyme indiqué par le dictionnaire Larousse est *émoluments*. Ces termes s'emploient généralement au pluriel. Les catégories professionnelles qui perçoivent des honoraires ou des émoluments sont les avocats, les experts, les notaires, les médecins, les architectes, les traducteurs. Le mot *honoraires* est utilisé davantage.

4.1.1 Les honoraires peuvent être fixés de gré à gré ou tarifés. Les avocats ont la liberté de décider le montant de leurs honoraires (*onorariu avocațial*). Il n'y a pas de barème imposé. Les avocats tiennent généralement compte de la nature, de la nouveauté et de la complexité de l'affaire, du temps qu'ils y consacrent, du travail de recherche, de l'importance des intérêts (grosses sommes d'argent, valeurs immobilières), des résultats obtenus au profit du client, de leur notoriété, ancienneté et expérience, de la situation financière du client.

Il y a plusieurs types d'honoraires :

- les honoraires au temps passé, calculés selon un tarif horaire (*onorariu orar*);
- les honoraires forfaitaires (ou globales), fixés lors du premier entretien (*onorariu fix/forfetar*);
- les honoraires de résultat/de succès, calculés en fonction des gains que le client obtient à l'aide de l'avocat (*onorariu de succes*);
- l'abonnement, dans le cas du recours fréquent à un même avocat ; cette modalité est souvent choisie par les personnes morales (*onorariu periodic/abonament/onorariu « pachet firme »*).

Dans le Code du commerce, la partie relative à certains tarifs réglementés, on trouve les termes *droits et émoluments* (*drepturi și remunerații/onorarii*) s'appliquant aux avocats, mais aussi aux commissaires-priseurs judiciaires, aux greffiers de tribunal de commerce, aux huissiers de justice, aux administrateurs judiciaires, aux mandataires judiciaires et aux notaires. En droit procédural, *l'émolument* désigne « la partie des dépens représentant la rémunération des avocats et des officiers ministériels dont le montant est fixé par un décret ». Les émoluments des avocats sont inclus dans les dépens. (www.dictionnaire-juridique.com)

Le roumain emploie soit le terme générique *remunerație*, soit le terme *onorariu*. Le correspondant roumain *emolumente* existe, mais il est très rarement employé. Au singulier il signifie profit, avantage, gain, au pluriel il est synonyme du mot *salaire*.

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| <p>[...] Sont également régis par le présent titre les <i>droits et émoluments</i> de l'avocat en matière de saisie immobilière, de partage, de licitation et de sûretés judiciaires [...]</p> | <p>[...] De asemenea, sunt guvernate de prezentul titlu <i>drepturile și remunerațiile/onorariile</i> avocatului în materie de executare silită, partaj, licitație și garanții judiciare. [...]</p> |
| <p>(Article L444-1 du <i>Code du commerce</i>)</p> | <p>(Articolul L444-1 din <i>Codul comercial</i>)</p> |

En plus des honoraires, le client doit verser à l’avocat une *provision* (en roumain *avans*), c’est-à-dire une avance sur les honoraires et sur les frais.

Les *débours* ou *déboursés* (en roumain *cheltuieli*) sont les avances que font les avocats, les officiers ministériels, et les mandataires pour le compte du client et qui devront être remboursées par celui-ci. Ces sommes ne sont pas incluses dans les honoraires comme « les frais de copie, le coût de délivrance d’actes, les frais de transport ou de correspondance, la rémunération de tierces personnes, le règlement d’impôts ou de taxes et frais ou de publicité légale ». (www.dictionnaire-juridique.com)

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| <p>[...] L’avocat informe également son client de l’ensemble des <i>frais, débours et émoluments</i> qu’il pourrait exposer. [...] L’avocat conclut par écrit avec son client une <i>convention d’honoraires</i> [...]</p> <p>(Article 11 du <i>RIN</i>)</p> | <p>[...] Avocatul își informează, de asemenea, clientul cu privire la toate <i>costurile, cheltuielile avansate pentru acesta și onorariile</i> pe care le-ar putea suporta [...] Avocatul încheie în scris cu clientul său o <i>convenție de onorariu/un contract de asistență juridică</i>. [...]</p> <p>(Article 11 du <i>RIN</i>)</p> |
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4.1.2 Les experts, les interprètes, les personnes chargées des enquêtes sociales perçoivent des honoraires.

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| <p>Chaque expert psychologue régulièrement requis ou commis perçoit une <i>rémunération</i> ou <i>des honoraires</i> calculés par référence aux tarifs conventionnels d’honoraires fixés en application de l’article L. 162 [...]</p> <p>(Article R120-2 du <i>Code de procédure pénale</i>)</p> | <p>Fiecare psiholog expert solicitat sau angajat în mod corespunzător primește o <i>remunerație</i> sau <i>onorarii</i> calculate prin raportare la tarifele convenționale ale onorariilor stabilite în temeiul articolului L. 162 [...]</p> <p>(Articolul R120-2 din <i>Codul de procedură penală</i>)</p> |
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4.1.3 La somme que l’on verse au notaire, « *frais de notaire* » (*taxe notariale*), comprend les *taxes* (qui vont être versées à l’État), les *débours* (sommes acquittées pour le compte du client : le coût de certains documents, frais de déplacement, etc.) et la *rémunération* du notaire (*émoluments, honoraires*). Dans le cas du notaire, on parle plutôt d’émoluments que d’honoraires.

Les émoluments du notaire (du latin *emolumentum*), en roumain *onorariu notarial*, peuvent être fixes (pour les formalités) ou proportionnels à la valeur sur laquelle porte l’acte.

D’autres officiers ministériels, tels que les huissiers ou les commissaires-priseurs perçoivent eux aussi des *émoluments*. Le correspondant roumain est toujours *onorariu*.

4.1.4 Il y a des médecins qui pratiquent leur métier dans un hôpital. Dans ce cas, ils ont signé un contrat de travail, ont le statut de salariés et reçoivent une rémunération appelée salaire, indépendamment du nombre d’actes médicaux.

Pourtant, de nombreuses catégories de médecins exercent leur profession à titre libéral et sont payés à l'acte. C'est une « profession qualifiée d'honorable », comme celle de magistrat ou avocat, c'est pourquoi la rémunération s'appelle *honoraires*. Le montant des honoraires varie en fonction de plusieurs facteurs : la législation, la nature de l'acte effectué, les ententes entre le médecin et le patient.

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| <p>Les <i>honoraires</i> du médecin doivent être déterminés avec tact et mesure, en tenant compte de la réglementation en vigueur, des actes dispensés ou de circonstances particulières.</p> <p>Ils ne peuvent être réclamés qu'à l'occasion d'actes réellement effectués même s'ils relèvent de la télémédecine.</p> <p>Le simple avis ou conseil dispensé à un patient par téléphone ou par correspondance ne peut donner lieu à aucun <i>honoraire</i>. (Article R.4127-53 du <i>Code de la santé publique</i>)</p> | <p><i>Onorariul</i> medicului trebuie stabilit cu tact și moderație, ținând cont de reglementările în vigoare, de procedurile efectuate sau de circumstanțe particulare.</p> <p>Acesta poate fi revendicat doar pentru procedurile efectiv realizate, chiar dacă țin de telemedicină.</p> <p>Numai opinia sau sfatul dat unui pacient prin telefon sau prin corespondență nu poate da naștere niciunui <i>onorariu</i>.</p> <p>(Articolul R.4127-53 din <i>Codul de sănătate publică</i>)</p> |
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Les chirurgiens-dentistes sont eux aussi payés à l'acte, directement par les patients.

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| <p>Les principes ci-après énoncés, traditionnels dans la pratique de l'art dentaire, s'imposent à tout chirurgien-dentiste, sauf dans les cas où leur observation serait incompatible avec une prescription législative ou réglementaire, ou serait de nature à compromettre le fonctionnement rationnel et le développement normal des services ou institutions de médecine sociale.</p> <p>Ces principes sont :</p> <p>Libre choix du chirurgien-dentiste par le patient ;</p> <p>Liberté des prescriptions du chirurgien-dentiste ;</p> <p>Entente directe entre patient et chirurgien-dentiste en matière d'<i>honoraires</i> ;</p> <p>Paiement direct des <i>honoraires</i> par le patient au chirurgien-dentiste.</p> <p>(Article R4127-210 du <i>Code de déontologie des chirurgiens-dentistes</i>)</p> | <p>Principiile enumerate mai jos, tradiționale în practica medicinei dentare, sunt obligatorii pentru orice medic stomatolog, cu excepția cazurilor în care respectarea lor ar fi incompatibilă cu o dispoziție legislativă sau de reglementare, sau ar fi de natură să compromită funcționarea rațională și dezvoltarea normală a serviciilor sau instituțiilor de medicină socială.</p> <p>Aceste principii sunt:</p> <p>Libera alegere a medicului stomatolog de către pacient;</p> <p>Libertatea medicului stomatologului de a prescrie;</p> <p>Acord direct între pacient și medicul stomatolog cu privire la <i>onorariu</i>;</p> <p>Plata directă a <i>onorariului</i> de către pacient către medicul stomatolog.</p> <p>(Articolul R4127-210 din <i>Codul deontologic al medicilor stomatologi</i>)</p> |
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En France, le chirurgien-dentiste doit tenir compte des tarifs fixés par l'assurance maladie. Les *dépassements d'honoraires* ne sont pas remboursés.

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| Le chirurgien-dentiste doit répondre à toute demande d'information ou d'explications sur ses <i>honoraires</i> ou le coût d'un traitement. (Article R4127-240 du <i>Code de déontologie des chirurgiens-dentistes</i>) | Medicul stomatolog trebuie să răspundă oricărei solicitări de informații sau de explicații privind <i>onorariul</i> său sau costul unui tratament. (Articolul R4127-240 din <i>Codul deontologic al medicilor stomatologi</i>) |
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4.1.5 Les architectes peuvent travailler pour une société ou bien ils peuvent exercer leur profession en toute indépendance.

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| <i>La rémunération de l'architecte</i> doit être calculée en fonction des missions qui lui sont confiées. Elle peut revêtir les formes suivantes : • pour les architectes salariés de personnes physiques ou morales de droit public ou privé : <i>salaire ou traitement</i> correspondant à la qualité d'architecte ; • pour les architectes exerçant sous forme libérale et les sociétés d'architecture : <i>honoraires ou droits d'auteur</i> , dans le cas d'exploitation d'un modèle type ou d'un brevet d'invention. (Article 46 du <i>Code de déontologie des architectes</i>) | <i>Remunerația arhitectului</i> trebuie calculată în funcție de misiunile care îi sunt încredințate. Poate avea următoarele forme: • pentru arhitecții angajați de persoane fizice sau juridice de drept public sau privat: <i>salarium</i> corespunzător calității de arhitect; • pentru arhitecții care exercită sub formă liberală și firme de arhitectură: <i>onorarii sau drepturi de autor</i> , în cazul exploatarea unui model standard sau a unui brevet de invenție. (Articolul 46 din <i>Codul deontologic al arhitecților</i>) |
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4.1.6 Les créateurs reçoivent en général des *droits d'auteur* ou *honoraires d'auteur* (*drepturi de autor*) pour leurs œuvres littéraires, artistiques, dramatiques ou musicales. Il s'agit d'un droit moral et patrimonial.

4.1.7 Sous l'Ancien Régime, le roi ou un mécène versait aux artistes une indemnité nommée *pension* (du latin *pensio*).

De nos jours la rémunération des artistes (acteurs, musiciens) s'appelle *cachet*, à savoir une somme d'argent payée par concert ou par représentation. Brouland et Priesolova (2016 : 64) expliquent qu'au début du XVII^e siècle, le terme désignait « la carte qu'un élève remettait à son professeur pour qu'il y mette son cachet afin de décompter les leçons ». On a utilisé par la suite ce terme pour désigner les leçons, puis la rémunération des artistes. L'équivalent roumain serait toujours *onorariu*.

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| La rupture unilatérale du présent contrat, avant son exécution, par l'Artiste entraînera l'obligation de verser à l'Opéra des dommages et intérêts. Le montant de cette | Rezilierea unilaterală a prezentului contract, înainte de executarea lui, de către Artist va avea ca rezultat obligația acestuia de a plăti Operei daune-interese. Valoarea |
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| indemnisation est fixé comme suit : en cas de rupture - plus de 6 mois avant le début du contrat : 10 % des cachets prévus - entre 3 et 6 mois : 20 % des cachets prévus. (extrait d'un contrat authentique de travail) | acestor despăgubiri se stabilește după cum urmează: în caz de reziliere - cu mai mult de 6 luni înainte de începerea contractului: 10% din onorariile prevăzute - între 3 și 6 luni: 20% din onorariile prevăzute. (extras dintr-un contract de muncă autentic) |
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Alors qu'en français les termes concernant la rémunération des professions libérales (*honoraires, émoluments, cachet*) ne sont pas interchangeable, le roumain emploie un terme général, à savoir *onorariu*, pour désigner le prix des services fournis par les professionnels.

4.2 Au cas où les avocats, les notaires, les comptables, les architectes créent des sociétés, on parle de *salair* (dans le cas de ceux qui signent un contrat de travail) et de *bénéfices* (pour ceux qui ont le statut de dirigeant ou de propriétaire).

La forme juridique la plus appropriée est celle de la société d'exercice libéral à responsabilité limitée (Selarl), une société de capitaux qui a au moins deux associés et qui fait la différence entre patrimoine personnel et professionnel.

Depuis 2017, les avocats ont la possibilité de créer des sociétés pluri-professionnelles d'exercice (SPE), ayant pour objet d'exercer deux ou plusieurs des professions juridiques (avocat, avocat au Conseil d'État et à la Cour de cassation, commissaire-priseur judiciaire, huissier de justice, notaire, administrateur judiciaire, mandataire judiciaire, conseil en propriété industrielle et expert-comptable).

Conclusion

Le lexique de la rémunération est historiquement déterminé. Il évolue en fonction des changements apparus au fil des siècles dans un certain contexte socioculturel. Certains termes résistent à l'épreuve du temps et sont utilisés de l'Antiquité à nos jours (*salair/salariu*), d'autres deviennent obsolètes (*appointements/apuntament*).

Les types de rémunération peuvent être différents d'un pays à l'autre et dépendent des règles inscrites dans les codes du travail.

Entre le droit français et le droit roumain, respectivement entre la langue française et la langue roumaine il y a plus de convergences que de différences. Le droit français a eu une influence significative sur le droit roumain, ce qui explique les similarités existantes aux niveaux juridique et terminologique.

La relation entre *types de rémunération* et *position des personnes (ou professions)* existe dans les deux langues, mais nous avons montré qu'il n'y a pas de correspondance complète des notions relatives à la rémunération. Dans le cas où il n'existe pas d'équivalent qui possède tous les traits notionnels du mot français, le traducteur recourt à un terme plus général ou à un terme analogue. On peut également opter pour l'explication du terme.

Nous devons signaler le degré plus haut de spécialisation du lexique français par rapport au lexique roumain, surtout dans le cas de la rémunération des professions libérales (*honoraires, émoluments, cachet*). En Roumanie, lorsqu'une profession libérale assure une prestation pour une autre, elle lui facture des honoraires (*onorariu*).

Le traducteur des textes juridiques n'a pas une tâche facile, car « le droit est un phénomène social, qui entraîne une variété de systèmes notionnels et, par conséquent, de terminologies ». (Honová, 2016 : 174) Il doit aussi avoir de solides connaissances d'économie, car entre les deux domaines il y a tout un réseau d'interrelations. Le but est de pouvoir déchiffrer les systèmes notionnels et de rédiger un texte correct dans le système du droit cible.

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*MANAGEMENT, MARKETING, ECONOMIC INFORMATICS
AND CYBERNETICS*

THE LEADERSHIP STYLES OF PRINCIPALS AND TEACHERS' JOB SATISFACTIONS IN BEDOUIN SECTOR IN ISRAEL

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Abstract: *The purpose of the research is to examine the relationship between the principal's leadership style and teachers' job satisfactions in Bedouin schools. The researcher constructed questionnaires assessing variables of interest, completed by 303 teachers in 36 Bedouin Primary schools, Junior High schools and High schools in the Negev in south of Israel. The results indicated that there was a significant positive moderate association between level of teacher satisfaction and transformational leadership. Also, the researcher found a significant positive weak association that can be concluded between level of teacher satisfaction and transactional leadership. The results further indicated a significant strong positive association between level of teachers' satisfaction and laissez-fair leadership.*

Keywords: *Bedouin; principal's leadership style; teachers' satisfaction.*

JEL Classification: *M12.*

Introduction

Job satisfaction has been described as "a positive or enjoyable emotional state that results from a person's appreciation of his/her work experience" (Demirtao, 2010). A high-quality teaching staff is the cornerstone of a successful educational institution and the educational system in general. The critical factor is teachers' job satisfaction because it is related to teachers' effectiveness and influences students' achievement (Anastasiou & Papakonstantinou, 2014). High level of teachers' satisfaction at work positively affects educational goals and leads students to success (Demirtao, 2010). In addition, an understanding of teachers' satisfaction may increase teachers' commitment to job performance and their attitudes toward work that directly lead to higher educational outcomes (Tien, 2018), since the teachers' satisfaction was also associated with the relationship with the principal's leadership behavior. Skakone et al.,(2010) claim that satisfaction with leadership behaviors has resulted in employees' happiness and job satisfaction. In addition, teachers who see school principals

exhibiting "servant" leadership behaviors are more likely to be satisfied with their work (McManmon, 2006; Fischer and Jong, 2017). In contrast, leadership behaviors that are perceived as negative have caused employees' anxiety, burnout and job dissatisfaction (Skakone et al., 2010). Therefore, the present study focuses on the relationship between principal's leadership styles and teachers' job satisfaction in Bedouin schools.

2. Leadership Style

2.1 Transformational leadership

Leithwood (1992) defines transformative leadership as a type of leadership that enables people to redefine their mission and vision, renew their commitment, and rebuild their systems to achieve a goal. Burns (1978) claims that it is a process through which leaders and followers can change the results in an institution when they work with high values.

According to Bass (1985) transformational leadership is the leadership that highlights the importance of the vision to increase the professional and organizational commitment of the team and motivate them to act. The transformational leader is able to encourage his subordinates to perform high beyond the expectations they had set before embarking on their task. Such a leader is characterized by charisma, inspiration, consideration for others, and has the intellectual stimulation ability of his subordinates. This leadership includes four dimensions of leadership behaviors with a high ability to motivate subordinates to action. First, idealized influence, which is the component that represents the highest level of transformational leadership. It is a leadership that sets a moral and behavioral model, which causes followers to identify with the leader and emulate his ways of doing things. The second component in Transformational leadership is inspirational motivation.

2.2 Transactional Leadership Style

The concept of transactional leadership was coined in the 1960s by social psychologist Hollander (1992) who saw the phenomenon of leadership as social interaction. According to this approach, a person gives something and receives something, based on this leadership. According to Burns (1978) who referred to the concepts of transformational leadership and transactional leadership, and saw in them two dichotomous leadership styles that are not in one continuum, that is, a leader with a transactional style cannot be a transformational leader. This leadership is based on constructive rewards and presents to his followers for the goals to be achieved through both rewards and punishments (Odumeru, 2013).

2.3 "Sit and wait" leadership style

This leader's style is compared with dissatisfaction, unproductiveness, and ineffectiveness (Limsila and Ogunlana, 2008). According to Bass (1985) this leadership represents the lowest level of leadership. The most prominent characteristic in the behavior of a leader who presents such a style is the avoidance of taking a stand, making decisions and in fact any action. Laissez-faire leadership, known as "lack of leadership", is one of the ineffective leadership styles and is considered the most destructive style of leadership, and undermines confidence in organizations (Ayfuret et al., 2016). Laissez-faire leadership is based on the absence of a deal in leadership such as the leader avoids making decisions, disclaims responsibility and does not use his authority as a leader (Gul, 2018).

2.4 School principal in the Bedouin sector

Successful leadership improves learning and teaching indirectly and powerfully, through its impact on motivating teachers, their commitment, and working conditions (Leithwood et al., 2008). Another factor that directly affects the organization is the leadership style (Anwar, 2013). Currently, there are very few studies that have investigated the subject of management and leadership in the schools of the Bedouin sector in Israel. Bedouin schools in Israel are owned by a certain family in the village, especially when the principal or faculties are from that tribe. The hierarchical relationship within the organization between the employees of the education system is rigid, which limits the movement and initiative of the school principal, making him at risk and unable to withstand the external pressures of the society that penetrate the organization and affect the entire atmosphere. In addition, clan competition for school management affected the relationship between the teacher and principals, creating teacher-based disputes and increasing tensions between different groups (Alkshaala, 2008; Abu-Saad, 2010). As a result of these stresses, studies have shown that the leadership style in the Bedouin sector is the main factor that affects the school climate. For example, in Abu-Saad (2010) the main factor affecting the organizational climate in Bedouin schools in Israel is the principal's leadership style, on the one hand. This may reflect the influence of political appointment and non-qualified principals and teachers alike.

On the other hand, these political appointments created an organizational climate of obedience and submission (Abu-Saad & Hendrex, 1995). Bedouin principals typically demonstrate the power and the discipline of work, innovation and involvement (Alkshaala, 2008; Abu-Saad, 2010). In addition, tribal family traditions produce a patriarchal style of leadership (Abu-Saad, Hendrex, 1995). In this style, according to Gelfand et al., (2007) paternalistic leaders are viewed professionally and the lives of their subordinates in a similar way to their parents. It means that the leader is acting like a father who follows him (Anwar, 2013). Max Weber (1968) invented parenting as one type of legal authority. Max distinguished three types of Shari'a oversight: critical, charismatic, and traditional (Weber, 1968). Parental

leadership relies on values such as the leader's personal loyalty and unquestionable obedience (Pellegrini & Scandura, 2008). As a result of changes in the Bedouin community, such as the establishment of modern schools, there was a change in the perception of principals in the Bedouin schools, and principals had to adapt to the new requirements of work while maintaining traditional values and standards (Abu-Saad & Hendrex, 1995).

3. Job satisfaction

Today, the study of organizations and leadership on the issues of job satisfaction is considered one of the important issues, because it directly affects the employees' sense of role, commitment and belonging in the workplace (Wang et al., 2018). In the literature, there are large numbers of definitions related to job satisfaction. Job satisfaction can be defined as "a pleasurable or positive affection state resulting from the appraisal of one's job or work experiences" (Locke, 1976, in Wang et al., 2018). Job satisfaction has also been described as "a positive or enjoyable emotional state that results from a person's appreciation of his/her work experience" (Demirtas, 2010). Behavior of the management staff toward teacher staff at work is another major cause of the faculty dissatisfaction. Accordingly, principals' lack of respect for teachers, and that of some teachers towards their colleagues, reduce teachers' status and make them less satisfied in their careers. Many teachers reported encountering abusive, arbitrary, or unsupportive school principals (Tien, 2018). In addition, Styliani (2017) found that teachers indicated that partiality is the weakest personal trait found in a school principal, and many of them determined that fairness is the best skill in a school principal.

3.1 Teachers' job satisfaction

A high-quality teaching staff is the cornerstone of a successful educational institution and the educational system in general. The critical factor is teachers' job satisfaction because it is related to teachers' effectiveness and influences students' achievement (Anastasiou & Papakonstantinou, 2014). High level of teachers' satisfaction at work positively affects educational goals and leads students to success (Demirtas, 2010). In addition, an understanding of teachers' satisfaction may increase teachers' commitment to job performance and their attitudes toward work that directly leads to higher educational outcomes (Tien, 2018). The research literature pointed to factors of teachers' dissatisfaction at work. According to Gu (2016) the heavy workload reduces the job satisfaction of the teachers. Studies have indicated that factors that lead to job satisfaction are related to content at work, and factors that contribute to job dissatisfaction are related to the context at work (Tien, 2018). Also, teachers face unexpected situations such as reforms, classroom conditions, and new educational conditions that affect their careers, which are challenges that reduce their job satisfaction (Hee et al., 2019). In addition, teachers' satisfaction is influenced by external and internal factors. External factors are advancement, political pressure,

and salary. Internal factors include school climate, students and teacher achievement, school leadership, and teacher participation in decision-making (Oloude, 2006). The impact of school principals on teachers' satisfaction is very important. According to Skakone et al., (2010) they claim that satisfaction with leadership behaviors has resulted in employees' happiness and job satisfaction. Teachers who see school principals exhibiting "servant" leadership behaviors are more likely to be satisfied with their work (McManmon, 2006; Fischer and Jong, 2017).

4. Methodology

The results of this research were completed by 303 teachers from 36 Bedouin schools in Primary school, Junior High school, and High schools in the Negev in south of Israel. The research included two questionnaires. The first, MLQ-X5, Multi-Factor Leadership questionnaire was developed by Avolio and Bass (1995), and is based on a previous research work by (Alasad, 2017). The second, "Teacher satisfaction questionnaire was adopted by Alsahli (2017). Additionally, the researcher added items in teacher satisfaction questionnaire to adapt it to the study population in this study.

5. The research hypotheses

H1. There are positive relationships between transformational leadership and teachers' satisfaction.

H2. There are positive relationships between transactional leadership and teachers' satisfaction.

H3. There are negative relationships between laissez-fair leadership and teachers' satisfaction.

6. Findings

The research examines the relationship between principal's leadership style and teachers' satisfaction in Bedouin schools in south of Israel. The research found important results about the relationship between the principal's leadership styles and level of teachers' satisfaction in Bedouin schools.

6.1 Background variables:

Three hundred and three (303) teachers responded to both of leadership styles and teachers' satisfaction questionnaires; 50.2% of them were females; and, the majority of them (47.2%) worked in junior schools. Regarding the educational level, the respondents were 45.2% of bachelor degree, 49.8% of masters degree educational level, and 5% of them had PhD degree. As table three shows, about 59% of the respondents were from south of Israel, while the rest of them were from north of Israel. As for the age of teachers, the respondents, 23.8% were of ages less than 30 years old, 22.1% between (31-40) years old, 33% of them were between (41-50)

years old, and the rest were more than 50 years old. Regarding the years of experience, about 38% of the respondents had less than 10 years of experience, and 34.7% of them had more than 20 years of experience in education.

According to table 2 the majority of teachers (45.7%) were student educator, 32.1% were educator, and about 22% were teacher coordinator. As for the school size (number of students), 39.6% of the respondents worked in (300-500) students schools; 24.4% worked in (500-700) students schools; 20.8% worked in (700-1000) students schools; and the rest of them worked in schools of less than 300 students. This exploratory study did not show the leadership style applicable to the principals of Bedouin schools in the Negev.

According to table 1 below the mean score of the leadership styles level was 2.21 (55.25%), SD=0.53. The mean score of the three subscales were, 2.16 (54%), 2.27(56.75%), 2.28 (57%) for transformational, laissez fair, transactional leadership styles, respectively.

Table 1: mean scores and standard deviations of leadership styles scales

| Scale | Mean Score | Percentage | Std. Deviation |
|---------------------|------------|------------|----------------|
| 1. Transformational | 2.16 | 54 | .66 |
| 2. Transactional | 2.28 | 57 | .81 |
| 3. Laissez fair | 2.27 | 56.75 | .83 |

Results of the Pearson correlations, summarized in table 2, indicated that there was a significant positive moderate association between level of teacher satisfaction and transformational leadership, ($r(301) = .583, p = .000$). A significant positive weak association can be concluded between level of teachers' satisfaction and transactional leadership, ($r(301) = .0151, p = .004$). The results in the table indicated a significant strong positive association between level of teachers' satisfaction and laissez-fair leadership ($r(301) = .616, p = .000$).

Table 2: Relation between principals' leadership styles and level of level of teachers' satisfaction

| Scale | | Transformational leadership | Transactional leadership | Laissez-fair leadership |
|---------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|
| Level of teachers' satisfaction | Pearson correlation | .583 | .151 | .616 |
| | p-value | .000 | .004 | .000 |
| | N | 301 | 301 | 301 |

Differences in teachers' satisfaction level and leadership styles according teachers' demographic characteristics.

This section will compare the mean scores of teachers' satisfaction level and leadership styles according to a number of demographic variables represented by: teacher gender and original domicile.

According to table 3, the satisfaction level mean score is higher for males than for females, but the difference was not significant (p-value=0.262). The transformational leadership mean score was significantly higher for males (p-value=0.026), while the transactional leadership mean score was significantly higher for females, (p-value=0.006). Regarding laissez-fair mean score, the female teachers mean score was higher but the difference was not significant, p-value=0.304).

Table 3: Differences in teacher satisfaction and leadership styles according to gender

| Scale | Gender | N | Mean | Std. Deviation | P-value |
|-----------------------------|--------|-----|------|----------------|--------------|
| Teachers' satisfaction | Male | 151 | 3.29 | .74 | 0.262 |
| | Female | 152 | 3.20 | .66 | |
| Transformational leadership | Male | 150 | 2.24 | .67 | 0.026 |
| | Female | 151 | 2.07 | .64 | |
| Transactional leadership | Male | 150 | 2.15 | .78 | 0.006 |
| | Female | 151 | 2.40 | .81 | |
| Laissez fair leadership | Male | 150 | 2.23 | .86 | 0.304 |

Table 4 compares teachers' satisfaction level and leadership styles mean scores between teachers from south of Israel and teachers from north of Israel. The mean score of teachers' satisfaction level for teachers from south of Israel was significantly higher than that of the teachers from North of Israel (p-value=0.000). Leadership styles mean scores were higher for teachers from south of Israel but the differences were not significant for each of the transformational, transactional, laissez fair leadership styles

Table 4: Differences in teacher satisfactions, leadership styles according to original domicile place

| Scale | Original domicile place | N | Mean | Std. Deviation | P-value |
|-----------------------------|-------------------------|-----|------|----------------|---------|
| Teachers' satisfaction | South of the Israel | 178 | 3.38 | .74 | 0.000 |
| | North of Israel | 122 | 3.04 | .61 | |
| Transformational leadership | South of the Israel | 176 | 2.20 | .67 | 0.250 |
| | North of Israel | 122 | 2.11 | .64 | |
| Transactional leadership | South of the Israel | 176 | 2.31 | .82 | 0.464 |
| | North of Israel | 122 | 2.24 | .80 | |
| Laissez fair average | South of the Israel | 176 | 2.33 | .88 | 0.126 |
| | North of Israel | 122 | 2.19 | .75 | |

6. Discussion

This pioneer study is the first to investigate the relationship between principals' leadership style and teachers' satisfaction in Bedouin schools in Israel. The study

tested the hypothesis which expects a significant positive moderate association between level of teacher satisfaction and transformational leadership. Testing the hypothesis which expects a positive relationship between transformational leadership and teacher satisfaction had been accepted; and hypothesis that expects a positive relationship between transactional leadership and teachers' satisfaction have been accepted too. Furthermore, negative relationship between laissez-fair leadership and teachers' satisfaction has been rejected. Also the study found that satisfaction level of teachers from south of Israel was significantly higher than that of the teachers from North of Israel. In addition, the transformational leadership mean score was significantly higher for males, while the transactional leadership mean score was significantly higher for females.

The research indicated that there was a significant positive moderate association between level of teachers' satisfaction and transformational leadership. This finding is in line with numerous studies which pertain to the relationship between teachers' satisfaction and transformational leadership (Maheshwari, 2021; Faddul & Dănăiață, 2019; Alasad, 2017; Nyenyembe et al., 2016). According to Bass (1985), the transformational leader is able to encourage his subordinates to perform high beyond the expectations they had set before embarking on their task. According to Bolger (2001) he found that principal's transformative leadership influenced teachers' satisfaction directly and indirectly through teachers' professional perceptions. Transformational leaders better meet expectations of job satisfaction (Chiles, 2015). Also, results of Kouni et al., (2018) survey showed that teachers are very satisfied when the school principal acts as a transformative leader. Job satisfaction acts as a mediating variable between the principal's leadership style and the teachers' performance (Maheshwari, 2021). These types of principals help and support teachers to increase and enhance teachers' intrinsic motivation (Alasad, 2017). These outcomes bring up the need to select the organizational theories of an effective school through the selection of effective and correct educational leadership methods in the Bedouin sector.

The teachers in the Bedouin schools face many problems that are related to the specialty of the Bedouin society (Alasad, 2017). Bedouin principals typically demonstrate the power and the discipline of work, innovation and involvement (Alkshaala, 2008; Abu-Saad, 2010). The teaching staff in the Bedouin sector is an important human resource in the organization, especially, for school success. However, the behavior of the principal is the main factor that affects teachers' feelings, such as respect, satisfaction, psychological pressure, morale, organizational commitment, self-ability, or deterioration (Lambersky, 2016). Therefore, the principal must be transformative to deal with these challenges (Alasad, 2017). This leadership style is very important for the success of the school in the Bedouin sector and especially for the practice of schools' principals in the Bedouin sector, so that high performance can be achieved, and the teaching staff experiences high values and job satisfaction.

The second hypothesis, that expects that there is a positive relationship between transactional leadership and teacher satisfaction have been accepted. This leadership

is based on constructive reward and presents of the leader's followers for the goals to be achieved through both rewarding and punishment (Odumeru, 2013). According to Riaz & Haider (2010), transactional leaders focused more successfully on achieving goals at work rather than job satisfaction. Nevertheless, a type of transactional leader utilizes the system based on rewarding his followers and thereby motivates them on the basis of rewarding.

This finding is in line with the studies of (Maheshwari, 2021; Sagala & Safrijal, 2018; Henry, 2018; Nazim & Mahmood, 2016). Based on this finding, these behaviors contribute to teachers' satisfaction in the Bedouin sector. As the leadership style of the principals in the Bedouin sector is rewarding, the satisfaction of the teachers increases. It can be concluded, that the school principals can not punish for negative results and poor performance. The main reason related to the Bedouin culture is a minority in the State of Israel that is characterized by a patriarchal culture. This minority has its own protective laws that manage schools. As a result, local teachers have a special status that cannot be punished for low achievement and behaviors, which limits the behaviors of school principals to deal with Bedouin teachers that work under the laws of Bedouin culture. On the other hand, the limited principal's role is related to the working conditions of teachers determined by the policy of the Ministry of Education. According to Aalasd (2017) the role of the school principals in the education system in Israel is limited because the working conditions of teachers are determined by the Ministry of Education in Israel through agreements with teachers' unions. Hence, principals will not be able to punish or reward teachers. In view of the above, the leadership style of the school principals in the Bedouin sector is influenced by the Bedouin culture as compared to other cultures. Satisfaction of teachers at work is influenced by this style of leadership, which affects the performance of the school. Meanwhile, the transactional leadership style is perceived as a negative effect and stress at work.

The third hypothesis, which expects that there is a negative relationship between laissez-fair leadership and teachers' satisfaction, has been rejected. The results indicated a significant strong positive association between level of teachers' satisfaction and laissez-fair leadership. According to Bass (1985), this leadership represents the lowest level of leadership. This finding is in line with the finding of Dahie & Sheikh (2015) who found that the teachers are like a leader who has allowed them to make their own decisions about their work; and the laissez-faire leadership style gives more space of freedom. On the one hand, the Bedouin school principals use the laissez-faire leadership style because they rely on the teachers who feel independent in their work, and who delegate them responsibility. This can be interpreted as a lack of skill to deal with the management challenges, so that teachers work under independence and become satisfied in their work.

On the other hand, this may reflect the influence of political appointment and non-qualified school principals in the Bedouin sector. Political appointments include lack of skills and training, and poor management and performance among school principals included in this category, which affect teachers' satisfaction in the Bedouin sector. The managerial skills that principals possess are very important in

determining the quality of a school in the Bedouin sector. Therefore, they require principals with sufficient managerial competence (Hartati et al., 2018). There is no doubt that school leaders are important to school success (Mukherjee, 2013). A large number of studies in recent decades have linked high-quality leadership with positive outcomes at school, including students' achievement (Leithwood et al., 2008; Angus et al 2009; Mukherjee, 2013). Study of Mukherjee (2013) clearly reveals a strong link between school performance and the administrative effectiveness of the principal, as the latter is the driver of the former. One of the means to respond to these findings is the teachers' participation in decision-making (Oluode, 2006), and motivating them to high performance.

Another finding is that there are differences in teachers' satisfaction and leadership styles according to teachers' demographic variables. The transformational leadership mean score was significantly higher for males. Meanwhile, the transactional leadership mean score was significantly higher for females. This result can be interpreted and understood in several ways. The transformational leadership has more impact on males than females in the Bedouin sector. Bedouin culture is a minority in the State of Israel; therefore, school principals trust males more. Men handle all tasks more than females. In addition, most of school principals are males, and very few are females in the role of principals.

However, the transactional leadership was significantly higher for females. The reward is more important for females than for males; most teachers in the Bedouin sector are females. According to Abu Nasra (2019) the women in the Israeli Arab education system constitute a high ratio of workers.

The reward is very important to them because they support their families and children. Males in the education system feel more values of autonomy, and females emphasize values of rewards. As a result, the tribal family traditions produce a patriarchal style of leadership (Abu-Saad, Hendrex, 1995). Paternalistic leaders are viewed professionally and the lives of their subordinates in a similar way to their parents (Gelfand et al., 2007). These differences continue till now and are influenced by the minority as well as by Israel's social and economic structure and Bedouin traditions.

Another finding according to the teachers demographic variables is that the teachers' satisfaction level for teachers from south of Israel was significantly higher than for teachers from North of Israel. According to Alsad (2017) the problem becomes more difficult for teachers who come from the north and have different cultures and different Arabic accent, which causes problems in communicating with the Bedouin students in the schools. Teachers from the south are defined as local teachers and enjoy working under rewards and roles at the school. Non-local teachers from North of Israel are approximately 2000 teachers, who work in the Bedouin sector in the south.

These teachers are defined as working in schools in the south of the country in difficult conditions such as: traveling every day from the north to the south of the country, working for long hours; most of them are females, and a majority of them are wives and mothers. According to Innstrand et al., (2008) he found that the

interaction of work, family, and mutual fatigue affect each other. In addition, the more time spent at work, the less time you can expect to spend on personal and family life (Frone, 2003; Jaiyeoba and Jibril, 2008). Teachers from the North are also responsible to come daily to the South to work in the school and responsible for the family in the North; this leads to conflict, imbalance and dissatisfaction with work.

Conclusion

The research indicated that there was a significant positive moderate association between level of teachers' satisfaction and transformational leadership. Also, it found a significant association positive between teachers' satisfaction and transactional leadership. The results further indicated a significant strong positive association between teachers' satisfaction and laissez-fair leadership. In addition, the transformational leadership mean score was significantly higher for males, while the transactional leadership was significantly higher for females. Principals must learn transformational leadership style and apply it in their daily work with teachers. This leadership is very important to the satisfaction of teachers in the Bedouin sector. In contrast, transformation leadership is less important and causes gaps in organization and dissatisfaction among teachers, especially, between genders. It is also important to combine female teachers into school management roles as they are considered a very important resource because the school employment rate of females in the Bedouin sector is higher than that of males. The same is true for teachers from the North to integrate them into school and management roles so that they feel satisfied with their work. According to the findings of the study, a transformational leadership style can lead the school together with principals and teacher satisfaction with high performance. The findings of this research also will be helpful to the Ministry of Education in Israel and school leaders in Bedouin sector, to bring about the necessary changes in the school environment and leadership practices to improve teacher satisfaction and performance.

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CORRELATIONS BETWEEN SERVICE QUALITY MANAGEMENT AND SATISFACTION OF LOCAL PUBLIC ADMINISTRATION EMPLOYEES: A COMPARATIVE STUDY BETWEEN ROMANIA AND REPUBLIC OF MOLDOVA

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Abstract: *Local public administration must ensure the general well-being of the community. In fulfilling this prerogative, local authorities are organising, providing and delivering public services to ensure a good environment for every citizen in the community. Recent findings in neuroeconomics have shown that in order to provide a quality public service, the people involved in this process must themselves feel safe and comfortable in their working environment. In this regard, we considered it necessary to analyse the level of satisfaction of employees in local public administration in Romania - as a member state of the European Union, and the Republic of Moldova as a post-Soviet state taking steps to join the big European family. Based on the premise of the latest findings in the field of neuroeconomics, we considered it appropriate to highlight in this research the correlations between public service quality management and the level of employee satisfaction. In this context, we identified the aspects that need to be improved at the level of local public administrations in order to ensure quality services and employees involved in carrying out in good faith all their functional tasks, in an environment conducive to making the right decisions. The present research is a quantitative research in which we analyse the perception of public service providers in a comparative form. The findings can form the basis for further research on the correlations between the quality management of services provided by public administrations in general.*

Keywords: *public services, quality, employee satisfaction, local public administration.*

JEL Classification: *A13, H83, Z13.*

1. Introduction

Public services are directly addressed to the population of the administrative-territorial unit, and their effects are always judged in terms of human values, not only in instrumental terms, because they have moral consequences for individuals, families and communities (Neamtu, 2003, p.49).

When talking about services it is important to emphasise that they must meet certain conditions to be considered of quality. The general conditions are related to human

rights and to the respect of those quality standards, so it is the quality of the provision that is important and not the quantity. The purpose of local government is to ensure social and economic well-being at community level. In this context, public administrations are increasingly directed to identify those indicators that can measure the performance of public services but also to develop a strong structure within the entity to correctly identify the needs of citizens and to deliver quality public services. Certainly human resources play an important role in identifying the need for a service, developing it, and delivering it in the interest of the citizen.

The latest findings in neuroeconomics have shown that public servants can be influenced by a number of factors when making decisions. A first approach concerns their remuneration and working environment. Some research shows that subjects prefer present consumption to future rewards (McClure et. al. 2004). This in itself is not unreasonable, as all "people's best laid plans often go awry" and future events pose a greater risk than immediate consumption (Stuphorn, 2005).

In this connection, we identify that in making decisions, those responsible must themselves be satisfied in all points of view in order to make the right decisions. The implications of the above-mentioned study highlight firstly the need to create a good environment for employees, and secondly the need to involve them in decision-making about the public services provided.

The organisation of the decision making process at the level of public administrations by public managers is an important indicator to understand the cycle of processing a decision on service provision. In this respect, several researches have been carried out which highlight that a manager will never be able to fully observe the behaviour of all his employees. Therefore, smart managers choose a bonus contract related to the comfort of each employee, and save monitoring efforts. Mohnen experimentally shows that managers can rely on another potential compensation for their lack of control within a group of employees, based on employees' aversion to inequity (Mohnen et. al. 2007). When their contributions are observable, peer pressure within teams of employees increases work efficiency.

Economic theory is by no means the only contribution to public management theory. However, it is an important one. Therefore, the public community should not ignore the development of economics. At a time when the public sector is facing increasing demand for its output and fewer employees, a motivated workforce becomes even more critical to success. In turn, public management theory could be fruitfully enriched. Or, to put it in the words of F. A. Hayek: "... an economist who is nothing but an economist cannot be a good economist" (Proeller, 2006).

The findings of neuroeconomics, specifically the level of employee satisfaction, are very important in identifying an environment that is conducive for the employee to be encouraged to make the best decisions about the public services provided.

2. Research methodology

To achieve the research objectives we will apply several research methods. The documentation method is one of the methods through which we will review the

literature on service quality management and service provider satisfaction in local government.

In order to identify those factors that are important for employee satisfaction in local public administrations, we applied a questionnaire to two local administrations in Romania and the Republic of Moldova. The international character is highlighted by the analysis of the literature but also the questionnaire applied to the employees of the two public administrations in Romania - as a member state of the European Union, and the Republic of Moldova - as a post-Soviet state.

The interdisciplinary approach is highlighted by the multidimensional approach that involves the areas of management, public services, human resources and neuroeconomics.

3. Literature Review

The theoretical terminology of the personnel field has recently been enriched with the concepts of management, performance and human resources. In the course of the development of organisations, these emerge, develop fruitfully, and then disappear due to poor management foresight but also to the strategic non-use of the most important resource in an organisation, namely staff.

The U.S. was the country where the concept of management first emerged in the early years of the last century. Management in essence involves practical work in any field, but it also presents itself as an indicator of the decision-maker who influences the productivity of the firm. At the same time researchers in the field have presented arguments that highlight the fact that management becomes a science because it involves the ability to systematically analyze any practical problem from the perspective of knowledge and objectives set by theorists to generate good management practice.

"Management is a type of work in the intellectual field whereby those who practice it get others to do something that needs to be done. Management is also usually understood to mean a group, team or person vested with the authority, competencies and responsibilities of leadership in an organisation" (Ursachi, 2001, p.10). The same author also presents us with another notion which concludes that management becomes an art: "Management is an art and can also be qualified as a science, in order to make others influence in such a way that the objectives of the organization are achieved; it is the process by which in essence the objectives are achieved, by performing basic, concrete functions in directing and using the human, sometimes material, and financial capital available to the organization" (Ursachi, 2001, p.11). Most importantly, management involves an organisation's most valuable resource - its people. This is where the concept of human resource management comes from. The right direction for the staff involved can bring unexpected financial gain to the company.

Nowadays, knowledge and science-based management is taking shape. Researchers in the field consider that "scientific management is the current, contemporary stage in which many of the rationales that emerged in the first half of the 20th century have been refined to such an extent that they can be identified and integrated into a general

concept of a comprehensive management process. Advances in science and technology in general, in communications technology, in computer and information technology and in systems theory in particular, both encourage and require management to be carried out on a purely scientific basis" (Ursachi, 2001, p.25).

People management has developed fruitfully in recent times, which leads us to believe that it is no less important a resource than an organisation's financial or other resources. Setting the direction of staff development as an important line of work for the management of the organisation will be to its benefit. Human resource management can be applied in any field of activity, as every business leader wants a developed and prosperous team whose intellectual and work capabilities will work towards achieving the objectives set by the leader of the organisation. "The employer-employee relationship requires the formulation of a clearly established mechanism." Lack of mechanism can lead to failure for the firm.

"Public management studies the set of management processes and relationships that are generated between and within the components of the administrative system in order to substantiate and use theoretical and methodological tools to increase the degree of satisfaction of the public interest in the context of the exercise of management functions" (Abrudan, 2010, p.46). This way of defining public management brings some novel aspects that influence the way public administration makes decisions. With the shaping of this notion, a broader research of the management relationship in the whole administrative system is observed, as well as a theoretical-methodological tool for the management of all resources in the local administration is proposed. Through all these measures mentioned above, the aim is to identify the right levers to increase satisfaction with the services offered not only at local level but also at national or international level.

From a managerial point of view, public administration performance means efficiency, effectiveness, economy and ethics (Doherty, 2002, p.343). In this approach we can speak of a quality based on four pillars. Another approach emphasizes that the performance of an entity depends on employees and a manager who participates in training programs (Chiriac, 2014, p.78). As a complex concept, performance shows the position of an entity in a competitive environment. It can be measured with certain economic and financial indicators (Hada, 2010, p.38). In the same vein, performance represents economic, financial and administrative security for any public authority.

Quality can be appreciated, in Joseph Juran's (2013, p.127) conception, by the characteristics of the service and the lack of deficiencies (the lower the deficiencies, the better quality). The dynamic nature of quality derives from the dynamism of needs and usefulness and is determined by a number of factors, such as: technical and scientific progress, the growing demands of consumers, technical competitiveness which represents the emergence of better services that provoke competition between providers.

Absolutely all organisations and human resources involved in the service delivery process are concerned with service quality. Quality is important for both the

beneficiary and the carers, for the staff, at the same time it can help to reduce costs and provide a better service within the same budget.

There is an interdependence between the quality of services and the resources used. Better quality services can reduce the costs of poor quality services. An example of this is the placement of a child in a family that does not correspond to the child's needs can cause a social developmental break and also an emotional barrier between the child and society. "Good quality may not always save money, but poor quality always costs and wastes money" (Bodi, 2007, p.111).

4. Case study

4.1. Perceptions of employee satisfaction with local executive activity in two Local Public Administrations in Romania and the Republic of Moldova

Local Public Administration both in Romania and in the Republic of Moldova are those state structures that must exercise local power in good faith and provide quality services to citizens. This means analyzing and monitoring all citizens' problems, and after having an overview of the community's problems, it must channel all its efforts to successfully solve them.

When analysing the management of human resources, one of the best indicators of research is found in the level of satisfaction of the employee in the organisation. Local public administrations include a high degree of influence for the decision-making process that emanates from several areas within territories. If their main objectives are to solve a large number of problems, it is clear that the main levers behind these institutions are the human resources working in the field. Although the number of employees in the municipality is not large, the implementation of strategic management should be a main vector.

Another factor in the analysis of administrations is the problems identified in the optimal functionality of the functions. If there is a lack of coherence in these institutions, the decision-making process cannot function optimally. The transparency of public acts and the integrity of services must be guided towards satisfying the needs of citizens, as administrations orient their activity towards efficient and sustainable development based on quality and performance standards. Thus, when considering best practices and quality of services, the proportionality between the strategic management of human resources in institutions and their outcome on the services provided by the administration is followed.

As most of the institutions face a high degree of bureaucracy and corruption or lack of management or human resources strategy, there is a perceived low level of practices and services offered by the institutions to the community. In accordance with the proposed objectives, following the research we want to answer the following questions:

1. What are the main dysfunctional issues in the two local governments in relation to the problems identified in the analysis of employee work efficiency?

2. What is the degree of satisfaction of the human resources within the institution in terms of professional promotion?
3. What is the relationship between the work experience of employees and the work skill development requirements for human resources in the two local governments?

These research questions aim to identify the similarities and differences between the two systems in general, but also to highlight the level of satisfaction of employees in local public administration in Romania, as a member state of the European Union, and in local public administration in the Republic of Moldova, as a state that wants to join the big European family, but whose legislative framework and practices need to be strictly revised.

The applied questionnaire increases the credibility of the research, as the employees of the municipality, respectively, the subjects of the research, will answer the questions regarding the quality of the services, the internal environment of the institution and their level of satisfaction.

The study population consists of a sample of 51 participants, employees of a municipality in the Republic of Moldova and a municipality in Romania. Of these 51 participants, 25 were from the Republic of Moldova, i.e. 14 civil servants and 11 contractual employees. In Romania, the questionnaire was administered to a sample of 26 employees, including 15 civil servants and 11 contract staff. Before answering the questions in the questionnaire, we identified the gender, age, level of education, and length of service of the employees. All these variables help us to understand whether they contribute to the formation of an interdependent relationship with the degree of employee satisfaction or dissatisfaction in certain areas that tend to be institutional practices. For example, overall, it should be noted that employees are in the 35-65 age range. There are only four employees in the municipalities who are recent graduates.

4.2. Data interpretation

Both the employees of Town Hall X in the Republic of Moldova and the employees of Town Hall Y in Romania want to promote within the organization a correct organizational culture based on promotion, eligibility, continuous learning and active involvement in all existing projects. We have to note that City Hall Y, as a municipality in a European Union Member State, manages to implement many more projects but also to promote transparency in decision-making.

Following the analysis of the legal framework both in Romania and in the Republic of Moldova, we must confirm that in certain situations, even if the legal framework clearly provides for transparency of acts related to local administration, the Republic of Moldova does not have a high degree of transparency in decision-making. We believe that one of the reasons for this is the continuous politicization of local public administration, as well as the political pressure placed on the shoulders of the town hall employees.

As far as the application of the questionnaire is concerned, we were aware that the employees of the City Hall of the Republic of Moldova came with an openness following the guarantee of anonymity, which raises many questions about the way things are organised in the City Hall.

The sociological research was based on the satisfaction questionnaire applied to the employees of a town hall in Romania and the Republic of Moldova. Thus, as follows:

Table 1 : Respondents Gender

| | Town Hall X from Republic of Moldova | Town Hall Y from Romania |
|-----------|--------------------------------------|--------------------------|
| Nr. Part. | 25 | 26 |
| M | 8 | 10 |
| F | 17 | 16 |

We can see that 8 men from Municipality X and 10 men from Municipality Y participated in the questionnaire, compared to 17 and 16 female participants respectively. What should be pointed out is the fact that in the Local Public Administration both in Romania and in the Republic of Moldova, there are more women working.

According to the table above we can see that there is no major gender difference between the two municipalities. Thus, 32% men and 68% women work in Town Hall X and 38% men and 62% women work in Town Hall Y. We note that in both town halls the number of women is predominant, from this we can conclude that a higher number of women work in the local public administration.

We note that in the institutions we identify a high degree of female employees. Also, most of them have a higher education level and have been working for more than 16 years.

Research question number one was examined through the lens of methods to boost work output. In order to provide quality services to citizens, human resources in local government must be subject to favourable working conditions. If an employee is motivated, then the services they provide should be of good quality. When asked about satisfaction with working conditions, quality of training, organisational culture and communication with line managers, most HR were either partly or very satisfied. However, when employees were asked what methods they thought would boost work efficiency, they differed.

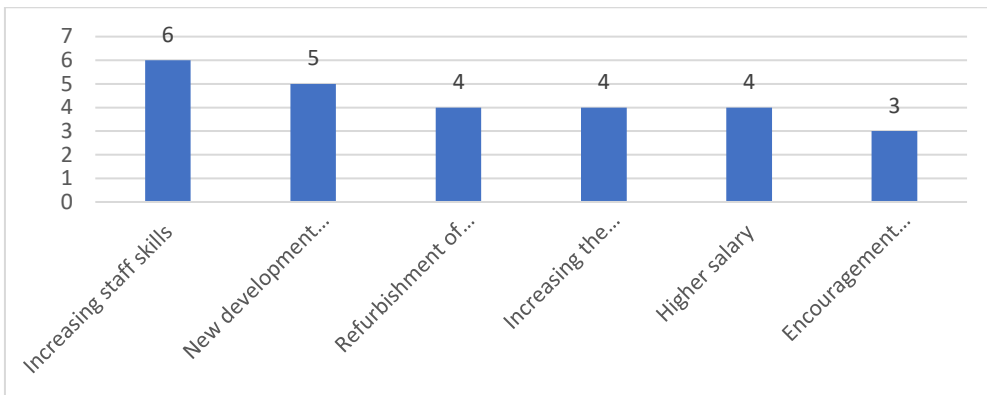


Figure 1: Methods to boost employee work performance (Romania)
Source: own projection based on collected date.

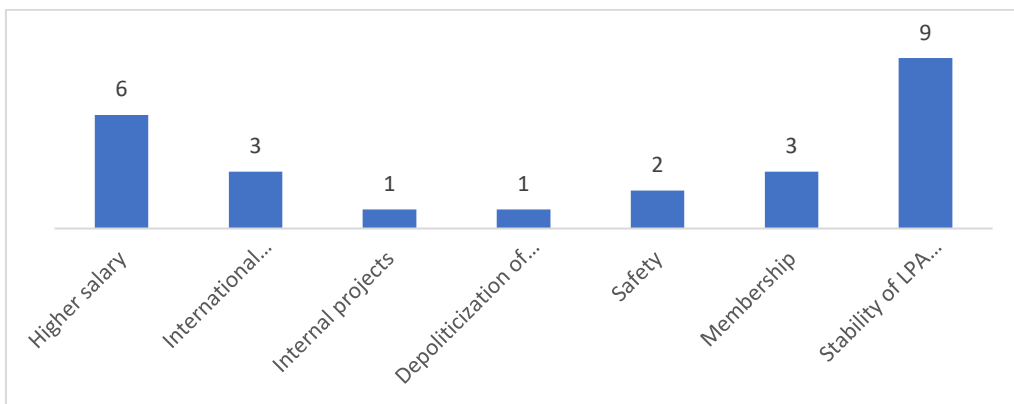


Figure 2: Methods to boost employee work performance (Republic of Moldova)
Source: own projection based on collected date.

As can be seen in the figures above, most employees in the Romanian City Hall have chosen as a method of boosting work efficiency to increase the skill level of staff and to engage in new strategies and development plans. These choices are explained by the low level of satisfaction with the institution's capabilities for promotion and professional development.

In the case of the Moldovan City Hall, most of the human resources in the institution consider that one of the most effective methods of stimulation is the creation of stability in the legislation of the Republic of Moldova in the field of local public administration. This aspect is very important for the smooth running of things for the benefit of citizens. Local government specialists can commit certain horrors in the implementation of acts because they have not been sufficiently trained or are not up to date with legislative changes. With these changes, employees see the pay rise as a good way of motivating human resources to provide better services. Despite the fact that salary, according to theorists, represents only 30% of job satisfaction, in a society where there is a lack of travel culture and full provision for people's needs, they are only concerned with the financial side.

In order to improve the quality of work in the two local public administrations, human resources presented some aspects that can be interpreted as good indicators of practical applications for the future. These features are related to a change in the internal environment of the institutions, in the methods of staff organisation, but also changes in the state structures.

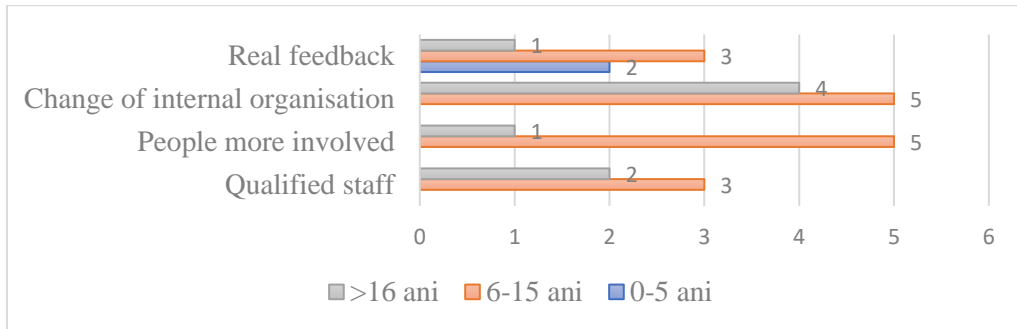


Figure 3: Issues to be improved from the perspective of LPA employees distributed by seniority (Municipality Y in Romania)

Source: own projection based on collected date.

In line with the figure above, HR staff with 0-5 years of seniority believe that more real feedback needs to be present in the internal practices of the institutions. The majority of employees with 6-15 years' seniority believe that more involved people and a change in internal organisation are needed for optimal functioning. For internal change, people with more than 16 years of working experience are also mostly in favour.

We believe that young employees experience a lack of communication within the institution, which means that the institution itself does not have proper human resources management and does not promote communication. And people with 6-15 years of experience want to have people who are more involved in carrying out their duties.

In interpreting this data, we reiterate that all these issues, which differ from one generation to another, can be overcome through communication. Thus, an audit of personnel management and the involvement of employees in several group activities is one of the situations that could unblock existing misunderstandings. In the same way lack of feedback, not necessarily positive feedback, often employees of a public institution are not properly trained how to give negative feedback without attacking the person.

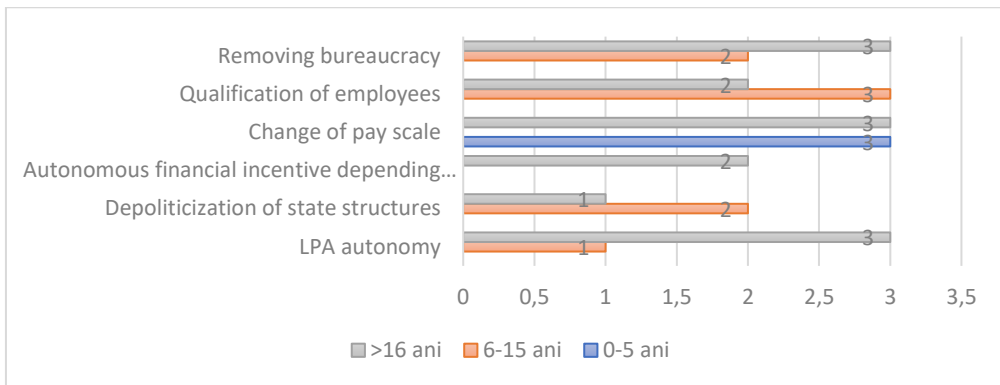


Figure 4: Issues to be improved from the perspective of LPA employees distributed by seniority (Municipality X in Republic of Moldova)
Source: own projection based on collected date.

For Moldova's City Hall, the human resources with the least work experience are in favour of changing the salary scale as an aspect to be improved in the future. Those with between 6 and 15 years of experience believe that more qualified employees are needed to increase the quality of services provided. And those with the most professional experience are in favour of eliminating bureaucracy, changing the pay scale and creating a proper local government autonomy.

The second research question which refers to the satisfaction of human resources in the institution from the perspective of career advancement. Following the analysis of the answers, we identified the following dysfunctional issues:

Choose which in your opinion is the best method that would support your professional development?

| <i>Value Label</i> | <i>Value</i> | <i>Frequency</i> | <i>Percent</i> | <i>Valid Percent</i> | <i>Cum Percent</i> |
|---|--------------|------------------|----------------|----------------------|--------------------|
| Advanced courses | 1 | 9 | 34,62 | 34,62 | 34,62 |
| Practical applications In the interpretation of legal rules | 2 | 2 | 7,69 | 7,69 | 42,31 |
| Motivation and professional incentives | 3 | 9 | 34,62 | 34,62 | 76,92 |
| Exchange of experience with other LPAs | 4 | 5 | 19,23 | 19,23 | 96,15 |
| Thematic seminars at national level | 5 | 1 | 3,85 | 3,85 | 100,00 |
| <i>Total</i> | | 26 | 100,0 | 100,0 | |

Figure 5: Methods that would support the promotion of professional development
Source: own projection based on collected date.

The employees of the City Hall of the Republic of Moldova are not satisfied with the institution's capacities to promote professional development, as well as with the quality of the professional training courses offered by the institution, but they are satisfied with the degree of information they are subjected to regarding internal prospects for professional promotion. From this we conclude that employees in the

local public administration in Moldova have the opportunity to develop professionally but they refuse it or treat it with indifference.

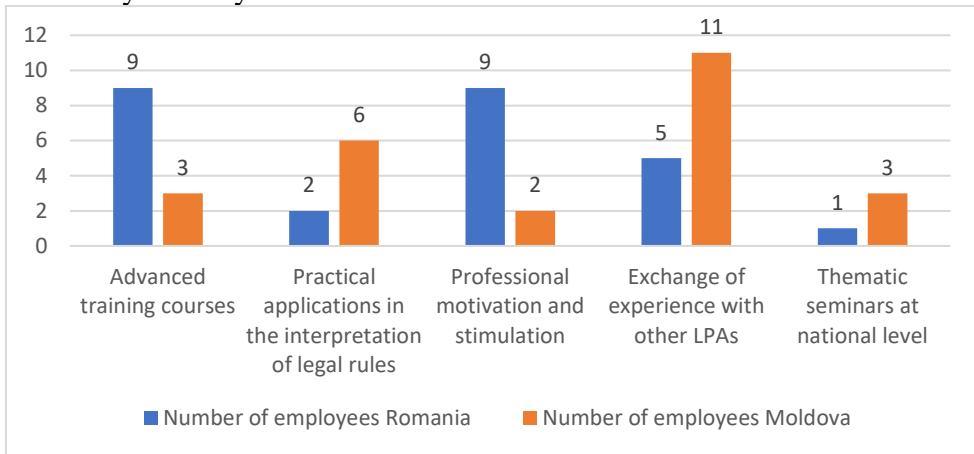


Figure 6: Methods that help promote professional development from the perspective of LPA employees

Source: own projection based on collected data.

From another perspective, employees from Y City Hall are also not satisfied with the prospects offered for professional development, but in the same way they consider that they are not informed about these aspects. Another aspect analysed is that the employees of this town hall are satisfied with the quality of the courses offered.

We can see that most of the employees in the City Hall with higher education prefer professional motivation and stimulation and further training courses as a method of promoting professional development. Those in X Town Hall opt more for an exchange of experience with other local authorities. The difference can be explained by the fact that in Town Hall Y, employees in the public institution are dissatisfied with the capabilities of the town hall for professional promotion compared to those in Town Hall X. Although in both local public administrations human resources show satisfaction with the degree of information for internal career advancement prospects, the dissatisfaction comes from the internal capacity of the town halls. The proposed methods for promoting professional development of human resources should be a guideline for achieving a quality of service, but also an example of good practice of some local governments.

Research question number three. We conclude that an advantage of institutional practice is the effective preparation of the workforce through continuous skills development. In the figure below we can see that in the bivariate correlation between the satisfaction of the employees in the municipality Y for the experience gained in the municipality and that related to the development of job skills over the years there is a positive influence relationship.

| Correlations | | How satisfied are you with your experience in the mayor's office | How satisfied are you with the development of your work skills over the years |
|---|----------------------------|--|---|
| How satisfied are you with your experience in the mayor's office | <i>Pearson Correlation</i> | 1,00 | ,49 |
| | <i>Sig. (2-tailed)</i> | | ,012 |
| | <i>N</i> | 26 | 26 |
| How satisfied are you with the development of your work skills over the years | <i>Pearson Correlation</i> | ,49 | 1,00 |
| | <i>Sig. (2-tailed)</i> | ,012 | |
| | <i>N</i> | 26 | 26 |

Figure 7: Pearson coefficient of the relationship between work experience and work skill development requirements for human resources in the two LPAs
Source: own projection based on collected date.

Due to the fact that the Pearson r coefficient is $+0.49$, we conclude that the more positive the employees' experience in City Hall, the more development will be observed for their skills. However, in the Moldovan town hall, this phenomenon is the opposite. The Pearson r coefficient is $+0.01$, which means that although the employees are partially satisfied with the experience gained in the town hall, they are not satisfied with the progress achieved for their job skills.

5. Conclusions

In conclusion, the research has identified both differences and similarities between the two local public administrations from the perspective of employee satisfaction. We reiterate that the importance of services is directly proportional to the level of employee satisfaction but also to the management team's ability to organize the smooth running of the institution. A public institution is meant to provide services to citizens but also to ensure their quality through the problems solved and the policies adopted over the years.

We cannot talk about job satisfaction when the central administration does not develop strategies that are centred on the best interests of citizens and the best interests of employees. In this sense, in order to ensure quality services, it is necessary to ensure a high level of satisfaction among employees so that they can make correct decisions regarding the services provided.

6. Limitations of the research

The present research shows the situation in the local public administrations where the questionnaire was applied. Certainly for a broader picture of the level of satisfaction of employees involved in the provision of public services, the sample should be extended to more municipalities

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QUALITY MANAGEMENT IN THE HEALTHCARE INDUSTRY – A CONCEPTUAL ANALYSIS

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Abstract: *Quality management has evolved in business for already a century. It was a continuous development; new concepts have emerged and have been used without giving up on previously developed constructs. For example, Shewhart has used the PDCA cycle under an initial form in 1939, but it is still widely used as a core construct of the ISO 9000 quality management family of standards. The question we address within this article is how quality management has been adopted within the healthcare industry, probably one of the most reticent industries when it comes to adopting new technologies and solutions. In order to answer this question, we firstly review the quality management concepts developed within the healthcare industry. Secondly, we detail a framework for the adoption of quality management initiatives (QMIs) in other industries, as a reference for managers working in the healthcare industry to guide their actions. In the third part, a review of the most relevant quality management initiatives within the healthcare industry are presented. The fourth part is a presentation of the most common issues related to process management in the healthcare industry, one of the most important areas related to quality management these days. The fifth part concludes with some advices for healthcare industry managers who are to further adopt quality management in their organizations.*

Keywords: *quality management; healthcare industry; process management; quality management initiative.*

JEL Classification: *L15; M10.*

1. The development of quality management concepts within the healthcare industry

Healthcare quality management research and practice have evolved somehow in parallel with other business quality management. The quality management practices and concepts promoted in industry by Shewart, Deming, Juran, Crosby, Garvin, and others, are rarely mentioned in healthcare quality management papers, as the ones provided by Donabedian (Donabedian, 1966, 1988). Quality in industry has been defined in many ways, by referring to Parasuraman's meeting or exceeding customer

satisfaction, Crosby's "conformance to requirements", Demings' continuous improvement never ending cycle, Feigenbaum's value, Peters and Waterman excellence, Juran's fitness for use (Mosadeghrad, 2013; Zabada, Rivers and Munchus, 1998). Quality management is usually defined as "an approach to achieving and sustaining high quality output" (Flynn, Schroeder and Sakakibara, 1994), the process realized within organizations for attaining the quality goal, whichever is established from the above mentioned.

In healthcare, quality definitions have considered the existence of multiple stakeholders who have different interests and value different outcomes. Patients value their health and the degree of recovery, tiers payer consider cost containment, while medical practitioners value job satisfaction and other perceptions related to their activity (Zabada, Rivers and Munchus, 1998). (Donabedian, 1988) details the levels at which quality could be assessed in healthcare: the first one is related to the performance of practitioners, which itself can be detailed as technical and interpersonal performance, the second refers to the amenities or the desirable attributes in which healthcare is provided, the third level is concerned on the involvement of the patient and of his family, since healthcare is by nature a service and customer involvement is important, the fourth level being related to the quality received at the level of the community, this being related to the contributions in time of multiple healthcare service providers. The quality at these levels can be assessed by considering three areas (Donabedian, 1966, 1988): structure (including material resources, human resources, and organizational structure), process (patients' and practitioners interaction), and outcome (the effect of care on the health of patients and communities).

2. Quality management initiatives in other industries

Quality management is so diverse, and still evolving. The existing literature concerning QMIs in different businesses can be divided in two different types of contributions: the first ones are related to simple categorizations, and they refer to different practices implemented in SMEs, while the second are quality management maturity models (QMMM) built with the purpose to be used by practitioners in their self-assessment activities. This review is valuable for healthcare managers to understand the evolution of quality management practices in other industries.

There are many papers concerning SMEs which analyse and categorize their QMIs practices. While analysing the impact of quality management initiatives on Australian SMEs performance, (O'Neill, Sohal and Teng, 2016) use a classification of QMIs which considers three categories: formal quality programs developed in-house (extended and visible for the whole organization), informal quality systems (rather minor organizational improvements), and quality management systems driven by external agencies (the use of consulting companies in implementing such programs).

An analysis concerning Iranian hotels quality management practices (Mardani et al., 2016) groups QMIs in four different categories, related to: people (leadership,

employee involvement, employee fulfilment, employee empowerment, and customer focus), organization (process management, organizational trust, organizational culture, team working, strategic planning and continuous improvement), environment (market focus, external cooperation, social and environmental responsibility, communication, and suppliers), and technological (quality assurance, ISO 9001, benchmarking, housekeeping and quality function deployment). Technological practices were ranked as the most important category, while quality assurance was recognized as the most important out of all practices.

For QMMMs, there are fewer papers exploring this subject. Maturity models are recognized for their capacity to offer a predictable journey for organizations which target different objectives (Pullen, 2007), by providing a set of characteristics related to the different stages similar organizations have also performed. They are useful for both strategic planning, and operational implementation as long they can be viewed as alternative future paths of an organization concerning different aspects. When it comes to QMMMs, they tend to be developed as successors of previous models defined by quality management gurus, as Crosby or Garvin, few models being developed and validated by the use of empirical research.

In the search for a self-assessment tool for SMEs, (Sturkenboom, Van Der Wiele and Brown, 2001) have used the model previously described by Garvin, which considers five levels: capacity (no concern on quality, but on resource availability), activity (activities are managed by procedures and rules), process (the activities related to a product are all considered together, defects are observed all over the process - quality control stage equivalent in Garvin terminology), system (the focus is no longer only on the process, but on the prevention and customer focus – quality assurance), and the organization (quality management practices throughout the organization – strategic quality management). This model is also an evolutionary one, establishing that QMIs are related to how widely they are implemented across companies. Their maturity model is built to analyze the adoption of each of the main three principles of quality management: customer focus, participation and teamwork, and continuous improvement.

One analysis among UK manufacturing SMEs (Kumar and Antony, 2008) reveals that quality management initiatives have a natural evolution from non-existing quality management methodology, to quality management being the responsibility of production departments, then ISO certification associated practices, and more complex practices such as Six-Sigma. The main reasons for not passing to the more evolved stages is the lack of knowledge and resources. However, the main drivers of adopting QMIs are increased profitability, better quality, and lower costs expectancies.

By considering the two main alternative approaches for adopting quality management in organizations, ISO 9000 certification and TQM introduction, (Prajogo and Brown, 2006) define multiple quality adoption typologies: minimalist approach is the one chosen by companies when interested only in obtaining ISO certification without the introduction of TQM practices, converts is the approach when companies which are forced by external forces to obtain ISO certification

discover the benefits of quality management, committed are the companies which see ISO as a mean for improving business processes and they have not external determinants for ISO certification, simultaneous are companies which implement both TQM and ISO in order to maximize the tangible benefits related to ISO and the more general approach regarding the organization which TQM brings, and first are the companies which implement TQM before ISO and are later forced to adopt ISO certification due to customers' demands. In their empirical analysis concerning this adoption, they conclude that only companies which are long-term committed in implementing TQM programs really adopt adequate quality management practices and obtain visible improved performance.

In an analysis regarding the evolution of Lean Six Sigma (LSS) implementation in manufacturing-based SMEs in the UK, (Thomas et al., 2014) identify three categories of approaches: category A doesn't implement LSS though some general business process improvement measures such as product cost down are in place, category B refers to companies which have implemented LSS or Six Sigma practices in some form, with practices as value stream mapping or SIPOC diagrams in place, but with few LSS practitioners in place, and category C - in this category companies have implemented advanced LSS programs, with statistical analysis undertaken, but also with trained practitioners in place. Their analysis reveals that there is a natural trend for companies to advance into their LSS development. However, the belonging to a specific category is related to multiple aspects: activity field, strength of supply chain relationships, or size. It was observed that A category companies were primarily design oriented companies or companies operating in niche markets, category B companies are companies aware of the benefits related to LSS implementation but lacking the resources for adequate implementation, while category C companies are more profitable companies, part of larger supply chains, which have both the knowledge and the resources for extended LSS adoption. Few changes have been observed in time from one category to another, and these were observed especially for companies from B category to C category.

Moschidis considers the maturity model previously identified by Crosby in 1980 – the Quality Management Maturity Grid (QMMG) and presents the next phases which could be used by managers while implementing quality management initiatives in their organizations (Moschidis, Chatzipetrou and Tsiotras, 2018), with details concerning quality costs awareness: uncertainty (no knowledge regarding quality management – usually associated to disorganized management team), awakening (quality management initiatives are related to quality testing and inspection, no long-range solutions are seriously considered, quality costs initiatives are developed), enlightenment (organization team members recognize the problems and themselves as causes of the problem, they are involved in solving the problems and also preventing it in the future), wisdom (problems are handled effectively and changes are permanent, quality costs initiatives are widely implemented), and certainty (quality management has become part of the organization, all practices are translated in all departments).

One of the most recent analyses on quality management practices adoption for SMEs (Yang, 2018) considers a five-stages framework which explains SMEs approaches: product quality (product related quality control and process inspection practices), process quality (process standardization practices), system quality (quality management system such as ISO practices), total quality (much emphasis is given to customer focus and a quality culture across the organization), and business quality (quality becomes a matter of business strategy, being related to strategic management, human resource management, or business performance). It is observed that SMEs are mainly positioned as the first stage considering their QMIs, this being related especially to their low capabilities.

3. Healthcare quality management initiatives in other industries

The implementation of quality management initiatives from other industries in the healthcare industry is a great challenge since the context is different. For example, the introduction of Total Quality Management (TQM) has been affected by the existence of the physicians' subcultures and the reduced role of management in healthcare organizations. Physicians tend to be oriented on performing the procedure in the right way, diminishing the importance of customers, management, and the role of the organizational system. This product focus should be replaced with market-in focus, where customer satisfaction should be the target. Secondly, the heroism and human factors involved in health-care decision making affects the prediction and standardization of processes, which is mandatory in TQM initiatives (Zabada, Rivers and Munchus, 1998).

The implementation of different quality management initiatives in healthcare organizations has been analysed in different papers as recently quality has surpassed in importance the costs of the service in this area (Ferlie and Shortell, 2001). We have identified different levels for approaching QMIs in healthcare. While initially QMIs were observed in healthcare by considering a more general approach (Ferlie and Shortell, 2001), lately the field diversified and more narrow research areas have emerged.

The adoption of quality management models such as the Malcolm Baldrige Quality Award (MBQA) criteria, the European Foundation Quality Management (EFQM) Excellence model (Excellence award models) and the Chronic Care Model, has been an important approach especially for hospitals, as it can be observed in (Minkman, Ahaus and Huijsman, 2007). Each model considers that healthcare organizations should improve different enabler categories in order to obtain better performance. In these cases, the effort and QMIs are rather extensive and they affect the whole system, the results of these interventions being rather limited (Minkman, Ahaus and Huijsman, 2007).

The adoption of specific quality management methodologies in healthcare has been more widely analysed in literature. TQM is probably the best-known quality methodology in other industries, the implementation of this methodology in healthcare being analysed in different papers. While initial papers present the

difficulties in adopting TQM in healthcare organizations (Zabada, Rivers and Munchus, 1998), a more recent review concerning its adoption in healthcare organizations (Talib, Rahman and Azam, 2011) confirms that several TQM practices have been adopted by healthcare organizations as top-management commitment, teamwork and participation, process management, or customer focus. Another quality management methodology, which was proven successful in industry, and has been adopted by healthcare organizations, is Six Sigma. One paper which has analysed the initial use of Six Sigma in healthcare (Taner, Sezen and Antony, 2007) concludes that it can lead to good results which can refer to different outcomes as costs, satisfaction, and resource utilization. More recently, reviews make comparisons concerning the adoption of different methodologies. One paper which analyses the use and the effectiveness of quality management methodologies in surgical healthcare (Nicolay et al., 2012) concludes that the most used ones are: continuous quality improvement (nine studies identified in the review), Six Sigma (six), TQM (five), Plan-Do-Study-Act or Plan-Do-Check-Act (five), statistical process or quality control (five), Lean (four) and Lean Six Sigma (one). Another paper (Henrique and Godinho Filho, 2020) performs a detailed analysis of Lean and Six Sigma research in healthcare, two of the most preeminent continuous improvement techniques from healthcare. They observe that though Six Sigma, which is a more detailed and consistent continuous improvement enhancement, has been reported earlier in literature, lean techniques have been more often found in literature (74,63%), in comparison to Lean Six Sigma (22%), and Six Sigma (18,15%). They also perform a more detailed analysis to observe which other operations management techniques have been used in the healthcare industry, VSM (visual stream mapping), Standardization of Work and Visual Management being the most used techniques.

Other papers deal with the adoption of specific quality management tools in the healthcare industry. Materla et al. (2019) conclude that the simple Kano model is very hard to be used in healthcare since there are many variations regarding customer needs and preferences concerning different types of care provided by healthcare providers. The use of SERVQUAL in healthcare services for assessing their quality has been also tested, revealing the importance of promptness of response received by patients, cleanliness and hygiene, and empathy of doctors and employees, as main areas of quality perceived by patients (Crisan, Covaliu and Chis, 2021; Tripathi and Siddiqui, 2018).

An interesting approach is the collaborative implementation of quality improvements, one approach which is probably linked to the low competition which exists between healthcare organizations in comparison to the one which exists between industry competitors. Though these collaborative interventions are not standardized, they mainly suppose the existence of multidisciplinary team approaches for quality improvement, the use of knowledge from other organizations which have previously developed new methods or models, the use of data-based decision making, or helpful collaborative processes (Nadeem et al., 2013).

As it could be observed in this short literature analysis, it is obvious that quality management research and practice in healthcare have evolved from initial wider approaches and the adoption of different quality management practices from industry, to more specific methodologies and their adoption for healthcare services. All these interventions, though previously used in other industries, need to be carefully adapted, the consideration of the multiple constraints specific to the healthcare systems being recommended. A specific focus of healthcare quality management is customer orientation, this area being well documented in literature. This is linked to the importance of customers in evaluating the quality of medical services (Materla, Cudney and Antony, 2019), the measurement of quality itself being rather made by the use of patients satisfaction (Duggirala, Rajendran and Anantharaman, 2008). However, the traditional approach of identifying a single constraint, as customer satisfaction, and resolving it, can result in sub-optimal behaviour regarding other constraints, such as resource utilization (Rich and Piercy, 2013).

The results of quality management adoption in healthcare are still debated. Though these quality management practices have been proven to affect healthcare organization performance (Duggirala, Rajendran and Anantharaman, 2008), medical professionals are not necessarily well trained or even the right persons for launching such quality management initiatives (Esain et al., 2012), and the adoption itself has failed in many organizations (Jackson, 2001). Contextual factors such as leadership, organizational culture, data infrastructure and information systems, experience in QMI implementation (Crisan, Covaliu and Chis, 2021; Kaplan et al., 2010), but also human resources involvement and their knowledge (Leggat et al., 2015), are recognized as important factors affecting the success of quality management implementation in healthcare. The lack of a systemic approach and the dominance of rather narrow interventions in implementing these organizational improvements has been regarded as a source of the lack of success of quality management interventions in healthcare (Crisan, Covaliu and Chis, 2021; Rich and Piercy, 2013).

4. Alternatives for process management and improvement in the healthcare industry

Process management is one specific approach included within the wider quality management efforts. A process is a group of coordinated activities carried out in a technical and organizational environment in order to achieve a certain goal. They can be established and identified at different levels of detail - there can be a generic process, just as it can identify several processes (which can be called subprocesses) (Combi, Pozzi and Veltri, 2017). Process representation is important for better resource allocation, service improvement, and standardization of daily procedures. Process management involves all the methods and tools used to model, manage, analyze and improve business processes (Combi, Pozzi and Veltri, 2017; Ferreira et al., 2018). There are conventions on process representation, using these conventions

will make the process diagram. Representation aims to represent causality, temporality, documentation, process control and their analysis (Combi, Pozzi and Veltri, 2017). The most widely used convention used for processes is the one proposed by the Object Management Group, namely BPMN (Business Process Model and Notation). In the medical field, there is research to create forms that can only be used for this purpose (Combi, Pozzi and Veltri, 2017).

Applying process management in the medical field is one of the biggest challenges, as medical treatments become more and more multidisciplinary, incorporating social elements and the daily life of patients. Given the complexity of medical processes, they are suitable for a process management approach (Combi, Pozzi and Veltri, 2017; Ferreira et al., 2018). In this context, of the complexity and often of the individuality of medical processes, it can be seen that process management must be incremental (Combi, Pozzi and Veltri, 2017). The results of business process management adoption in healthcare have been analyzed, these initiatives generating positive results at operational level in terms of patient satisfaction, increased employees' motivation, reduced length of hospitalization, but also increased adoption of organizational change practices, increased understanding the end-to-end process. Few studies have prove problems in adopting business process management practices (Ferreira et al., 2018).

The perspectives affected by process management are three: organizational perspective (resource perspective - agencies and their roles), procedural perspective (refers to the actual processes, information used, created, defined roles), and informational perspective (administrative and procedural information created with the development of processes - often organized by the entity-attribute type) (Combi, Pozzi and Veltri, 2017).

Medical processes have a high degree of unpredictability, so flexible computerization of processes is important. Moreover, the automation of medical processes has not been carried out to a particular level precisely because of the inability of information systems to ensure flexibility in use. For example, changing a standard treatment and implementing an alternative treatment should be relatively easy to do in a healthcare setting (Combi, Pozzi and Veltri, 2017). The flow management system helps the allocation and tracking of operations by both functions (people involved in the process) and the computer. Thus, it is established how and who performs each task, what is communicated automatically or what another operator has to do (computer or human). A flow management system ensures the monitoring of all flows in the system, can quantify the number of operations, their status (completed, in progress, not started), and can include measures to correct / unblock processes (launching emails, alerts, text messages). to different categories of users (Combi, Pozzi and Veltri, 2017). The implementation of the flow management system is done with the help of a flow coordination engine, which coordinates and connects several systems / individuals. It can connect several categories of software (modules such as CRM, ERP, KMS), respectively it can ensure the entry of data by people, respectively the management of information at the general level. The best-known reference framework for designing a flow

management system is the Workflow Reference Architecture, proposed by WfMC (Combi, Pozzi and Veltri, 2017).

A major challenge in medical systems is the extremely high variation and the existence of some cases that are not found in the anticipated model created from a computer point of view. From this point of view, it is recommended to have a support for the continuous adaptation of the processes, and this in accordance with the continuous needs and the new cases identified. The introduction, deletion or relocation of an activity in the process will thus have to be done by people who provide this type of support. The robustness of a medical information system will only be ensured if the exceptions can be treated appropriately (Combi, Pozzi and Veltri, 2017).

5. In conclusion

By considering the analyzed sources, more strategies are proposed for healthcare organizations to implement in the process management area. Regarding process management strategies, representation conventions should be established at organizational level. According to the previously established conventions, it is possible to proceed to establish the level of detail of the processes at organizational level, in the sense of representing the process diagrams. Strategies to deal with the evolution of processes, respectively the inaccuracy of medical processes in general, must be developed, in accordance with the recommendations of (Combi, Pozzi and Veltri, 2017), so that the entire medical act is under control, even if it does not have an extremely high level of standardization.

Concerning the adoption of quality management initiatives in the healthcare industry, managers should consider maturity models and other similar approaches already established in other industries. Maturity models are useful for establishing a pathway for improving the organizational quality management level, starting from a reduced use of quality management instruments and advancement to complex methodologies such as business process management, Six Sigma or ISO 9000.

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STUDY ON THE NEED TO USE SEVERAL UNITS OF MEASUREMENT FOR A PRODUCT IN THE COMPANY'S INVENTORY MANAGEMENT

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Abstract: *This paper is a case study on the need to use several units of measurement for a product in inventory management system. Following this case study, it was agreed on the form of parameterization of the units of measurement and the cases that this parameterization covers. The conversion of the stock from one unit of measurement to another can be done by means of a conversion factor between the specific units of measurement of a product. The existence of this conversion factor leads to conversion errors depending on the number of decimals with which it is defined. Using multiple units of measurement for one product does not solve all the problems, but it does help to simplify certain operations that are performed at the management level.*

Keywords: *measurement unit; products; inventory management*

JEL Classification: L86

1. Introduction

In the inventory's management of a company, the calculation of product stocks is done according to a unit of measurement, which we will call the main unit of measurement.

“A **unit of measurement** is a definite magnitude of a quantity, defined and adopted by convention or by law, that is used as a standard for measurement of the same kind of quantity.” (International vocabulary of metrology — Basic and , 2022)

There are situations in practice in which we want the stocks of products expressed in another unit of measurement, which we will call a secondary unit of measurement. The conversion to a secondary unit of measurement is done by means of a conversion factor. This conversion factor applied to the storable quantity expressed in the main unit of measurement, converts the stock to the secondary unit of measure.

An Oracle article also mentioned some cases when for some products more than one measurement unit is needed. (Dual Units of Measure, 2022)

Purposes of the Study and Research Methods

This paper will present a case study. During this research we analyzed the practical situation within a company regarding the need to use several units of measurement in which to express certain reports or even the quantities sold on invoices.

The following objectives have been defined for the IT solution

- Converting stocks for certain products and expressing them in a secondary unit of measurement
- Conversion of stocks according to a unit of measurement defined by the supplier
- Conversion of stocks according to a unit of measurement negotiated with the customer

Discussions were also held with the users of the IT solution, which led to the appearance of some concept changes during the implementation.

Requirements analysis and concept realization

At the level of a company there is a product catalog, which contains all the products you work with inside the company. Here we discuss raw materials, consumables, packaging, finished products, goods, etc. For each product you can define certain characteristics such as an internal code, a name, an interpretation from an accounting point of view as well as a unit of measurement. The decision regarding the placement of the main unit of measurement at company level has as motivation the achievement of an easy centralization of the information regarding the situation of stocks at company level. It is often necessary to see if the request received from a customer can be satisfied from another store than the one to which the request arrived. Each store has its own product management.

Converting stocks for certain products and expressing them in a secondary unit of measurement

The first requirement to express the stock of products in a different unit of measurement than the main unit of measurement implies that for each product another unit of measurement can be defined. The existence of several units of measurement for a product has implications, because at this moment it is necessary to establish the main unit of measurement, the one in which the stocks will be expressed at the level of all the company's management. In our research we have identified products for which more than two units of measurement are needed, which are used inside the company. As it is not possible to establish a maximum number of units for these products to work with and will work in the future, it was necessary to provide for the existence of several units of measurement, so that the user can always intervene and - define new units of measurement, their number being unlimited. The existence of several units of measurement also implies the existence of a conversion ratio between them. A possibility to define these conversion ratios would be achieved by the existence of a conversion matrix, so that we know exactly the conversion from one unit of measurement to another.

Let's take the following example: We have a product whose main unit of measurement is the linear meter, and which has a width of 1 meter and for which we need 3 units of measurement: linear meter, square meter and kilogram.

| | | | | |
|------------|--------------|--------------|----------|--------------|
| Conversion | | 1 | 1 | 1 |
| | | Linear Meter | Kilogram | Square Meter |
| 1 | Linear Meter | 1 | 0.5 | 1 |
| 1 | Kilogram | 2 | 1 | 2 |
| 1 | Square Meter | 1 | 0.5 | 1 |

How would we interpret the data in this matrix?

1 linear meter = 0.5 Kilograms

1 kilogram = 2 linear meters

1 square meter = 1 linear meter for a product with a width of 1

1 linear meter = 1 square meter for a product with a width of 1

The main drawback of this method is that the conversion matrix has a variable number of lines and columns in this organization. In the situation presented above, it can be noted that certain conversion factors are repeated. We ask ourselves the problem that of these conversion factors to keep only one and to interpret the data by reading from left to right or from right to left. Elimination of this shortcoming can be achieved with a transposition into a tabular structure as follows, with the elimination of the transposition in the same unit of measurement:

| | First measurement unit | Second measurement unit | |
|---|------------------------|-------------------------|-----|
| 1 | Linear Meter | Kilogram | 0.5 |
| 1 | Linear Meter | Square Meter | 1 |
| 1 | Kilogram | Linear Meter | 2 |
| 1 | Kilogram | Square Meter | 2 |
| 1 | Square Meter | Linear Meter | 1 |
| 1 | Square Meter | Kilogram | 0.5 |

How data should be interpreted?

1 linear meter = 0.5 kilogram

1 linear meter = 1 square meter

It can be seen that the entire matrix with variable number of columns and lines could be correctly transposed into a table with a fixed number of columns, which implies a static structure of the table regardless of the number of units of measurement defined for a product.

We'll take the next example. We have a product for which we have the following properties: variable length, fixed width of 0.6 and a weight of 0.15 kg for 1 linear meter with a width of 0.6 m. We aim to represent this data through the conversion table.

| | First measurement unit | Second measurement unit | |
|---|------------------------|-------------------------|----------------------------------|
| 1 | Linear Meter | Kilogram | 0.15 |
| 1 | Linear Meter | Square meter | 0.6 |
| 1 | Kilogram | Linear Meter | $100/15 = \mathbf{6.6}$ |
| 1 | Kilogram | Square meter | $6.6666 * .6 = \mathbf{39.9996}$ |
| 1 | Metru Square meter | Linear Meter | 1.6666 |

| | | | |
|---|--------------|----------|---------|
| 1 | Square meter | Kilogram | 0.24999 |
|---|--------------|----------|---------|

In such a situation we have a problem with the representation of these numbers, because keeping the conversion factors in the form of numbers produces errors of specifications, as can be seen in the upper table where we have an accuracy of 4 decimal places. In order to compact the number of recordings we will be able to organize the table with two conversion factors, one for the reading from left to right and another for reading from right to left

| First measurement unit | Second measurement unit | | |
|------------------------|-------------------------|----------------|----------------|
| Linear Meter | Kilogram | 0.15 | 6.6666 |
| Linear Meter | Square meter | 0.6 | 1.6666 |
| Kilogram | Square meter | 39.9996 | 0.24999 |

The interpretation of the information in the sheets would be the following, if we look at the first line 1 linear meter = 0.15 Kilograms and 1 kilogram = 6.6666 linear meters We intend to achieve the compaction of the information by keeping a single conversion factor, so that for all the units of measurement we will relate with a conversion factor to the main unit of measurement. In order to organize the information in this form we would have the information presented as follows:

| Measurement unit | |
|------------------|---------------|
| Linear meter | 1 |
| Square meter | 1.6666 |
| Kilogram | 6.6666 |

The interpretation of the data in this table would be done as follows:

1 square meter = 1.6666 linear meters

1 kilogram = 6.6666 linear meters

And if we want to convert from linear meters to square meters then we will say that

1 linear meter = $1/1.6666 = 0.6000$ square meters

1 linear meter – $1/6.6666 = 0.15000$ kilograms

We will interpret as the main unit of measurement the unit of measurement next to which the number 1 is placed. When we are talking about a catalog of products with thousands of items, we would like the stock situation to be displayed simultaneously in the main unit of measurement and a secondary unit of measurement. In order to achieve the automatic conversion in the secondary unit of measurement, it is necessary to mark one of the secondary units as a reporting unit of measurement, so that the user will not have to establish each time he accesses the stock situation which is the secondary unit of measurement in which it is desired to report the stock of products. In order to signal it, a new column was introduced through which the secondary unit of measurement of reporting will be specified.

2.1. Conversion of stocks according to a unit of measurement defined by the supplier

Because the transfer of documents is made between the supplier and the customer, often the unit of measure specified next to a product on the supplier's invoice is different from the main unit of measure used in its own management. There are even situations in which the unit of measurement used by the supplier for a product does not even exist between the units of measurement specific to that product defined in the customer's computer system. The operator of that invoice will have to calculate a conversion factor and transpose the invoice to the supplier according to the products and units of measurement defined for them in the computer system.

The use of a different unit of measurement for inventory records also involves a conversion of the purchase price of that product according to the same conversion factor. Let's take the following situation as an example. A customer will buy juices from a supplier. Because the supplier is a wholesale supplier, the unit of measurement it uses is the box. One box contains 6 bottles. Because the customer is a grocery store where these juices are sold by the piece, it is necessary to perform a conversion between the two units of measurement, so that the reception of the products will be done in the unit of measure Piece, where the product stock will be calculated at the customer. Since the value is calculated by multiplying the quantity by the price, we notice that the two values are not always identical, as can be seen in the following figure.

| | Procut | Measurement unit | Quantity | Price | Value | VAT | VAT Value |
|---|----------|------------------|-----------|----------|-------|----------|-----------|
| 1 | juices | Box | 2 | 16 | 32 | 9% | 2.88 |
| | | | | | Total | | 34.88 |
| | Produsul | Measurement unit | Cantitate | Price | Value | VAT | VAT Value |
| 1 | juices | Piece | 12 | 2.66 | 31.92 | 9% | 2.87 |
| | | | | | Total | | 34.79 |
| | | | | Variance | 0.08 | Variance | 0.01 |

Since the value of the two invoices must be identical, this problem can be solved by introducing differences of values without VAT and a difference of values for VAT. The two differences can be kept at the invoice line level or at the document level, only their total values can be kept.

Let's take a drink from a bar as an example. The sale of a whiskey to the customer is done in 50 ml portions. The purchased product is packaged in several types of bottles of 750 ml, 1000 ml, etc. How can we proceed in such a situation, because the invoice received from the supplier will appear on the glass unit of measurement, and the purchase price will be specified for one bottle. On some invoices I bought 750ml bottles, on other invoices I bought 1000ml bottles.

In the absence of multiple units of measurement for a product, we will have to have three distinct products in the product catalog, a 750 ml whiskey product, a 1000 ml

whiskey product, and a 50 ml whiskey product (serving for sale to the customer). At the time of purchase it will be purchased on one of the two product codes of 750 or 1000 ml, followed by a conversion into portions.

The existence of several units of measurement associated with a product will allow us to use a single product code with three units of measure: 50 ml serving, 750 ml bottle, 1000ml bottle. Next to each unit of measurement we will have a conversion factor.

| | | | |
|------------------|----|-----|--------------------------------|
| Measurement unit | | | |
| Portion 50 ml | 1 | | |
| Bottle 750 ml | 15 | Yes | One bottle contains 14 portion |
| Bottle 1000ml | 20 | | One bottle contains 20 portion |

| | Product | Measurement unit | Quantity | Price | Value | Variance | VAT | VAT Value | Variance |
|---|---------|------------------|----------|-------|-------|----------|-----|-----------|----------|
| 1 | Whiskey | Bottle 750 ml | 1 | 70 | 70 | | 19% | 13.3 | |
| | Whiskey | Portie 50 ml | 15 | 4.66 | 69.9 | 0.01 | 19% | 13.28 | 0.02 |

The stock will be able to be expressed in the main unit of measurement portion of 50 ml and in bottles of 750 ml, the secondary unit of measurement.

| Product | Measurement unit | Stock | Secondary measurement unit | Secondary stock |
|---------|------------------|-------|----------------------------|-----------------|
| Whiskey | Portion 50 ml | 15 | Bottle 750 ml | 1 |

2.2. Conversion of stocks according to a unit of measurement negotiated with the customer

The commercial relations between the partners also involve the negotiation regarding the unit of measurement and the price at which the transaction will be concluded. Let's take as an example a simpler case such as the sale of juices in two units of measure: glass and box. The stock at the management level can be kept in the bottle, but the price negotiated with the client will be defined as a low price.

| | Product | M.U. | Quantity | Price | Value | Variance | VAT | VAT Value | |
|---|---------|-------|----------|-------|-------|----------|-----|-----------|------|
| 1 | Juice | Bax | 2 | 16 | 32 | | 9% | 2.88 | |
| | Juice | Piece | 12 | 2.66 | 31.92 | 0.08 | 9% | 2.87 | 0.01 |
| | | | | | | Total | | 34.88 | |

The discharge is performed in the Piece unit of measurement, which means that 12 pieces have left the inventory's management. The calculation of the gross addition made involves the calculation of a difference between the sales price without taxes and the purchase price without taxes.

For example, fuel transactions are made in tons, even if they are sold to the final consumer in liters. One explanation would be the fact that the volume of the product

may undergo relatively larger changes during transport than the change in weight. Changing the volume leads to a change in density but not in weight. Another problem is in the field of agriculture the use of parameters that influence both the stock and the selling price, such as foreign body, moisture, gluten, etc

In situations where other parameters that influence the sale price in the contract occur, a conversion is first made from the quantity and parameters specified by the buyer and the quantity and parameters existing in management, following that after normalizing this quantity to sell the ready normalized quantity. This process involves an additional step before the actual sale and it is necessary to perform because it results in a document called analysis bulletin, which comes to certify the quality and parameters of the products sold.

Conclusion

The conversion of the stock from one unit of measurement to another can be done by means of a conversion factor between the specific units of measurement of a product. The existence of this conversion factor leads to conversion errors depending on the number of decimals with which it is defined.

The possibility to define several units of measurement for a product, has the effect of reducing the number of items that are used in the product catalog.

Using multiple units of measurement for one product does not solve all the problems, but it does help to simplify certain operations that are performed at the management level.

There are situations in the sale when in order to be able to make the sale at the parameters specified by the customer it is necessary to go through an intermediate step regarding the conversion of the products according to the parameters requested by the buyer. The existence of several units of measurement does not help us in this situation.

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IMPROVING THE PERFORMANCE OF THE MANAGEMENT OF GENETIC SCREENING AMONG ARAB WOMEN IN ISRAEL

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Abstract: *This study examined the management of the performance of genetic screening tests by Arab women in Israel, the rate of responsiveness to genetic screening tests among Arab women in Israel, and the link between socioeconomic status, education, and religion, and the responsiveness to performing genetic screening tests among the research population, and the factors that influence Arab women's decision to perform genetic screening tests prior to pregnancy. The study addresses existing opinions and perceptions regarding Arab women's level of adherence to pre-pregnancy genetic screening tests. This is an empirical quantitative research and its findings related to the responses given by Arab women, considered the most important stakeholder, the clients of the genetic screening test system. The main findings are that women have a great deal of support for a binding law mandating the performance of tests as well as the requirement to predicate marriage on tests, and for enforcing its application.*

Another finding is that there is a strong influence of religion and Muslim clerics on the willingness to perform tests among the population. . A special contribution of the study is a change in religious policy by the Chairman of the Muslim Court in Israel, who issued a fatwa (religious order) that commands and directs the Muslim population to perform the tests. Recommendations are made concerning the development of a national program that promotes genetic health and directly influences responsiveness to pre-pregnancy tests aimed towards the main stakeholder group that is Arab women in Israel.

Keywords: *management performance; genetic screening; Arab women, Israel.*

JEL Classification: *H75, I18, D73.*

1. Introduction and background.

One of the most important resources in human life is health. The very availability of health is associated with one's ability to reach self-fulfilment, to fulfil one's most basic needs, and to develop in society (Behjati, 2014). To provide this resource, an

organization is required. This organization, by its very definition, must be aimed at the design, production, distribution, and maintenance of the product (Samuel, 2006). The structure of the healthcare system includes a government representative as the head of the organization, most often the Minister of Health, although in the last Knesset (Israeli parliament) this was a deputy minister who acted as a minister (Knesset, 2019), a CEO, and 6 divisions that include:

- The Health Division, which managing and deals with coordination between the various bodies, health promotion and preventative medicine.
- The Medical Division, which sets professional standards and policies and oversees their implementation.
- The Medical Technologies, Information and Research Division, which promotes innovation, with an emphasis on managing equal treatment.
- The Professional Headquarters, which deals with legal questions, budget management, budgeting and pricing, and the Information Department.
- The Government Medical Centers Division, which deals with accreditation, work processes and human resources of government hospitals, including general hospitalization, mental health, and geriatric care.
- The Regulatory Division, which deals with managing the health funds, but also includes the Ombudsman and the Information Systems Department. (Ministry of Health, 2019).

The various divisions have multiple management powers or special associations. For example, control of government hospitals managing is not under the Medical Centers Division, but rather the Professional Headquarters, while the Information Systems managing are associated with the Regulatory Division and not with the Technologies Division (Ministry of Health, 2019).

The functioning of the Israeli healthcare system management is limited by many laws, such as the National Health Insurance Law - 5754-1994 and the Genetic Information Law - 5761-2000 (Ministry of Health, 2019). It is also influenced by frequent changes of management procedures, regulations, additional laws, and standardization requirements. The prevalence of hereditary diseases among Israel's general population is high. In some population groups, such as the Bedouin in the Negev, the prevalence of carriers of hereditary diseases can in some cases reach 1 in 9 (For example, osteoporosis) or even 1 in 5 (Carmi syndrome). The result of such a high prevalence includes, among other things, high infant mortality. For example, in the same Bedouin population, the prevalence of birth defects is 10 times higher than among the Jewish population, and infant mortality is 11.4 per 1000 live births, 3 times the rate of the Jewish population (Ministry of Health, 2014). The Arabs, including Bedouins, in Israel belong to lower income group, and have a traditional culture characterized by paternalism, authoritarianism, and 99% are Muslims.

Genetic screening is a costly process both in terms of human life and in financial terms. Israel has a policy of performing genetic screening tests, which have unequivocal criteria and targeted populations. The operational and the economic responsibility for conducting screening tests belong to the health funds. According to the Ministry of Health's 10/2018 Medical Division Circular, the condition for

eligibility for coverage of the cost of tests by health funds requires proof that the test has a sensitivity of more than 50% of the disease in question, is executed in a laboratory recognized by the Ministry of Health and that there is an expert's approval for conducting the tests. In conclusion, apparently, the policy of the Ministry of Health for dealing with screening seems adequate - focusing on at-risk populations, adding complete genome tests. However, in practice, the situation is different, since the performance of screening tests is largely lacking, mostly in Arab population. For example, the introduction of complete genome tests is in addition to specially targeted tests (Ministry of Health, 2018), thus creating a waste of resources. Also, the health system is transferring more costs to health consumers on one hand and looking for ways to streamline the treatments it provides, on the other.

However, there are certain groups among whom the performance of genetic screening tests is more complex and the responsiveness to testing in these groups is low. In Israel these are members of the Arab community, while the Muslim community is less responsive than the rest of the population. However, it is very important to increase the responsiveness of Israeli Arabs to screening tests, due to the high incidence of certain types of hereditary diseases, such as *Thalassemia*, in their society (Ministry of Health, 2014).

This paper will deal with the subject of genetic testing among the Arab population at an administrative level, considering the theoretical framework in the field of health systems management and existing diagnostic methods, the importance of conducting screening tests, theoretical, social, and religious aspects that affect the importance of the response to screening, and examination of possible solutions at the policy level and the knowledge level. The purpose of the paper is to present the complexity of the issue of genetic screening tests among the Arab population in Israel and the wide range of changes that can be made to increase the response of Arab women to genetic tests on a national and community level, in order to reduce hereditary morbidity in Israel.

2. The research methodology

Within the quantitative phase, 381 questionnaires were distributed among Arab women and 120 questionnaires among stakeholders, to examine their positions and opinions on the current situation and on their willingness to introduce a new change regarding the conducting of genetic testing in the country.

The pilot sample consisted of 20 Arab women aged 18-44, of childbearing age. All the questionnaires were returned fully completed. This is a convenience sample collected from among family health centers in Arabic-speaking communities in northern and central regions of Israel. All the participants were women (20, 100%), all were Muslim (20, 100%), most had a high school education or higher, most were traditional (16, 73%), most were married (13, 59%) and most had an average of 2-3 children (11, 55%).

Once the results of the pilot study showed that the questionnaire is a trusted, valid, and reliable tool, 381 questionnaires were distributed among Arab women in Israel.

288 completed questionnaires (75.66%) were received from the Arab women and were included in the research analysis. The research population is approximately 9.1 million people, of which 40,427 are Arab women aged 17-44. To calculate the appropriate sample size, the following main factors were used: Threshold probability for rejecting the null hypothesis. Type I error rate = 0.05, power of 80%, or in other words the probability of failing to reject the null hypothesis under the alternative hypothesis. Type II error rate = 0.2, and the expected correlation coefficient (r) is equal to 0.25. The minimum sample size is 381 participants.

The inclusion criteria for Arab women were the following: to be literate, aged between 18-44 years, and being of childbearing age. The survey included 228 women of childbearing age. The demographic characteristics of the ample are presented in Table 1, below.

Table 1: The demographic characteristics of the Arab women sample

| Variable | | Number of Respondents | Percent of the Sample (%) |
|-----------------------|----------------|-----------------------|---------------------------|
| Marital status | Married | 168 | 73.68 |
| | Single | 53 | 23.25 |
| | Divorced | 7 | 3.07 |
| Religion | Muslim | 225 | 98.7 |
| | Other | 3 | 1.3 |
| Degree of religiosity | Secular | 7 | 3.07 |
| | Traditional | 197 | 86.4 |
| | Very religious | 24 | 10.53 |
| Number of Children | 0-2 | 121 | 53.07 |
| | 3-4 | 85 | 37.28 |
| | 5 or more | 22 | 9.65 |

Table 2, below, presents numerical demographic characteristics of the sample.

Table 2. The numerical demographic characteristics of Arab women sample

| Variable | Minimum | Maximum | Average | Standard deviation |
|--------------------|---------|---------|---------|--------------------|
| Age | 20 | 56 | 34.23 | 7.702 |
| Years of education | 2 | 26 | 14.72 | 10.85 |

One can see that this is a sample of relatively young women with a wide age distribution. The most common education was a Bachelor's degree (42.5%), the average number of years of education was 14.7 (matriculation certificate and above). A random sample questionnaire was distributed between November 2019 and January 2020 among Arab women from the Arab sector in central and northern Israel.

The pilot questionnaire, completed by 20 subjects, as well as the research questionnaire 228 responses from women, were developed, written, and based on the

first, qualitative part of this research. The themes and categories that emerged from the first part of the research and were supported by the literature, enabled the creation of this questionnaire. The questionnaire was designed specifically for this research. Each section of the questionnaire underwent Cronbach's alpha testing in order to examine the questionnaire's internal consistency level. It was validated by three content experts.

A Likert scale was used in this research: This is a scaling technique designed to allow the possibility of classifying variables for which there is no fixed and agreed unit of measure. In the Likert scale, the subjects are asked to evaluate a statement by giving it a quantitative value on any kind of subjective or objective dimension, thus stating their level of agreement/disagreement (Derrick & White, 2017). All responses to statements range from 1 ('strongly disagree') to 6 ('strongly agree'). Questionnaire results were analyzed statistically, and the findings either confirmed or refuted the research hypotheses.

The questionnaire used for Arab women included 56 questions in 5 parts.

The first part dealt with the socio-demographic part. For all parts of the questionnaire, Cronbach's alpha tests were conducted to test the internal reliability level of the questionnaire.

The second part included questions 1-14 on the subject of "genetic screening tests". They refer to the tests performed, the timing of the tests prior to or during pregnancy, the type of tests the women underwent, the referring parties, training on the subject and when they received the training, existing family diseases, who the patients are, what types of diseases, "willingness to care for a sick child" and awareness of the dangers involved, and a question about the means that can help women perform the tests. The questionnaire was compiled by the researcher specifically for the purpose of this study as part of factor analysis.

The third part included questions 1-21 on the subject of "assessing positions and awareness towards genetic screening tests." This part consisted of 15 statements describing attitudes towards performing the tests. The answers to the statements range from 1 ('strongly disagree') to 5 ('strongly agree'). The Cronbach's alpha internal reliability test found a good enough internal reliability level, $\alpha = 0.705$.

For the purpose of constructing the index, the average of answers to the 5 statements was calculated, such that a high score indicated the great importance of performing the tests in the practical aspect and the timing of the tests prior/after pregnancy, the emotional, cultural and religious aspect, knowledge and awareness of the tests, influence of the emotional and economic situation on the family, the most suitable location for training, and support for a law that would mandate testing.

The Cronbach's alpha internal reliability test found the Alpha Cronbach $\alpha = 0.790$. For constructing the index, the average of the responses to the statements is calculated so that a high score indicates that there is a high level of awareness and a great willingness to perform screening tests, and a low score will indicate a lack of responsiveness to performing the genetic tests.

The fourth part consists of 8 statements and includes 8 questions describing the following factors influencing the participants' decision to perform or not to perform hereditary screening tests. The answers to the statements range from 1 ('strongly disagree') to 5 ('strongly agree'). The Alpha Cronbach internal reliability test found a high internal reliability level $\alpha = 0.919$. For processing the data, an average index of the answers of all 8 statements was constructed. The high score of the questionnaire will indicate decisive factors that influence women not to perform the tests. A low score will indicate low importance of the set of factors that influence the decision to perform genetic tests.

The fifth part consisted of 2 statements and included two questions. The part examined level of knowledge about the incidence of genetic diseases in the Arab population and the type of diseases examined by genetic screening tests.

The sixth part consisted of 2 statements and included two questions. The questions refer to the existence of an intervention program on the subject, and if so, which programs do women consider important and which should be carried out in the general population, $\alpha = 0.922$.

Statistical analysis was performed using the SPSS version 24 software for quantitative analysis.

3. Findings

The findings of the survey of a representative sample of 228 women of fertility age are discussed further. Table 3 below summarizes the demographic characteristics of the sample. One can see that most of the subjects were married (73.68%) and Muslim (98.7%).

Table 3. Demographic characteristics of the women respondents

| Variable | | Number of Respondents | Percentage of the Sample |
|--------------------|----------------|-----------------------|--------------------------|
| Marital Status | Married | 168 | 73.68 |
| | Single | 53 | 23.25 |
| | Divorced | 7 | 3.07 |
| Religion | Muslim | 225 | 98.7 |
| | Other | 3 | 1.3 |
| Religiosity Level | Secular | 7 | 3.07 |
| | Traditional | 197 | 86.4 |
| | Very religious | 24 | 10.53 |
| Number of Children | 0-2 | 121 | 53.07 |
| | 3-4 | 85 | 37.28 |
| | 5 or more | 22 | 9.65 |

Table 4 below presents numerical demographic characteristics. One can see that this is a sample of relatively young women with a wide age distribution. The common

level of education is a bachelor's degree (42.5%), 34.2% had a matriculation certificate, approximately 19% hold a master's degree, 3% hold a doctoral degree, and the rest had no formal education, while the average number of years of education is 14.7 years (matriculation or higher).

Table 4. Numerical demographic variables of the women sample

| Variable | Minimum | Maximum | Mean | Standard Deviation |
|--------------------|---------|---------|-------|--------------------|
| Age | 20 | 56 | 34.23 | 7.02 |
| Years of Education | 2 | 26 | 14.72 | 1085 |

The higher the education, the less subjects agree with the claim that genetic testing affects a family's financial state. Half of all women strongly disagree with marrying a husband with a genetic disease in the family. The lower the education, the more variance in the answers. Almost everyone disagrees with the argument "it's better for parents not to know", except those who have no education - they are mostly neutral. Most of the respondents (especially those with a PhD) agreed with the claim that the state authorities must require genetic testing. The majority agree that information on genetic testing should be provided in school. Regarding religious centers there are differences of opinion (that most likely depend on the religion). There is a great variance in replies regarding information at health funds and regarding predicating marriage on the performance of the tests.

The respondents identified the following factors that could have influenced women to perform genetic tests, by education level of respondents: a) the vast majority *disagree* that the financial factor is the most influential factor; b) religion is the most influential factor among the group of women with no education; c) parents' positions also affect women without consequences, but less when the women are more educated; d) there is more variance regarding the partner's position; e) the more educated women are, the more influential is the factor of women's health; f) there is a positive link between knowledge of the various tests and women's level of education. Knowledge about the existence of tests plays an important role when women are more educated; g) this is also true of availability at health funds.

When asked about the need for a compulsory law there is not much difference. Most women agree that this is a very important consideration. Regarding the behaviour of the Israeli Ministry of Health in this regard, 42.2% women answered that is insufficient, 35.6% acceptable, quite a few assessed the functioning of the Ministry of Health as very good 10.5% and 11.4% considered it excellent, and 5 not replying. In conclusion, the more than three quarters of women respondents were not satisfied with the quality of the activity of the government about the existing situation.

Since women, as citizens are also clients of the health system, this result indicates that there is an urgent need to improve the policy and the management of the genetic screening system.

Related to the proposals for actions to improve the system, the largest percentage (39.9%) suggested organizing additional lectures on genetic testing, 36.4% supported providing information at schools and health funds, 10.5% were in favour of campaigns on social networks and in newspapers, 9.6% proposed mandating

testing prior to marriage, 7.9% - advertising in the Arab sector, 2.2% - free tests for everyone, and only 0.4% - identifying inbreeding.

4. Discussion

This part discusses the findings about the subject of responsiveness and opinions on performing genetic tests in Arab society in Israel and attitudes to this practice as evidenced by the analysis of the findings in the quantitative part that emerged from statistical analysis of questionnaires distributed among stakeholders and Arab women of childbearing age in the State of Israel.

This study examined factors influencing the management of the public health system on the performance of genetic screening tests and their impact on the level of responsiveness to performing screening tests by women in the Arab sector, according to by the Arab women themselves.

The conclusion that emerges from the discussion is that in the literature review, this connects to the importance of content delivery by professionals and their unwillingness to invest the training time in a population that is less exposed to the whole issue. The literature reinforces the opinion that the knowledge component of the medical sector and its transmission to the population is necessary to raise awareness. According to Siani and Assaraf (2017), the issue of content adaptation and training methods, as well as genetic counselling per se, is a significant theme in interviews conducted among genetic experts. There is room for a change in policy from uniform training for the entire population in Israel to training medical staff to examine content and conduct training in a culturally appropriate manner, in order to increase the responsiveness of performing genetic screening tests.

Israel does not recommend a binding law; this allows for a lack of responsiveness due to personal considerations and the result can be grave. The literature shows that one of the reasons for the lack of testing is "unwillingness" among Arab women.

However, the quantitative findings regarding a binding law revealed that among women there is a great deal of support for enforcing such a law and mandating the performance of tests as well as the requirement to predicate marriage on tests, in comparison to the opinion among stakeholders.

The findings of the present study indicate the influence of religion on the willingness to perform tests among the population. A special and important contribution of the current study is a change in religious policy by the Chairman of the Muslim Court in Israel, who issued a fatwa (religious order) that commands and directs the population to perform the tests.

Moreover, the issue of the importance of screening tests has been examined in countries around Israel, and in some of them it has been implemented on the legal level as part of promoting public health in light of religious policy.

The researcher is proposing the development of a national program that promotes genetic health and directly influences responsiveness to pre-pregnancy tests aimed towards the main stakeholder group that is Arab women in Israel. The efficacy of the program is expressed by predicting the behaviour of the target population towards

the issue of genetic diseases and performing preliminary screening tests, and according to the data obtained, carrying out an appropriate culturally sensitive intervention. The expectation after the intervention is for a decrease in the incidence of genetic diseases among the target population, while addressing all the factors and barriers that can affect it and treating them accordingly in order to promote the issue of testing. Moreover, building a future training program for Imams and clergymen that are active in society, that will provide them with knowledge on the subject and the ability to provide extensive guidance and leadership on the subject, the so-called "health trustees".

Another contribution is a proposal for a managerial change in the policy of performing genetic screening tests in the health funds, by inserting the tests into health quality indices determined each year by the Ministry of Health and marking performed/not performed in the medical file of any patient arriving at the health fund and referring him or her for testing, if necessary. Also, a proposal for a secondary change in the school system that prepares the younger generation and the beginning of exposure to the subject and its study in high school. Instruction will be structured and adapted from tenth to twelfth grade.

The management of the national level genetic health program constitutes an important layer in preventive medicine, through the placement of the patient(s) health and wellbeing at its center. Today the patient-centred approach is one of the pillars of Israel's health system, and the patient is surrounded by a multi-professional team and active and influential key people in the community who are harnessed to understanding the patient's perceived and expressed needs and thus help the public system to promote his health and prevent the onset or reduction of diseases.

The study emphasized that Israeli policymakers play a key role in directing and harnessing promotion of the issue of pre-pregnancy genetic screening tests due to their significant importance in preventing and reducing genetic morbidity and raising a healthy lifestyle among the general population. However, our study revealed that there is a lack of knowledge about the nature, the causes the factors and the barriers facing the system for genetic screening among Arab women in Israel, as shown by the findings of the study among Arab women. One possible explanation is that in Israel, policy on conducting screening tests is in the hands of those who do not necessarily have a direct say in conducting the tests in the field or in health, although the health of the population is the main issue and is thought to be on the policymakers' agenda.

There is also a significant connection between religion, decision making to the responsiveness and performance of genetic tests, even among policymakers, stakeholders, and women. The lack of contact with the field in decision making can certainly explain the lack of knowledge on the subject even among policymakers. It is quite possible that if in Israel there was a link between religion and decision making on heredity tests, similar to certain countries in the Middle East (Cousens, Gaff, Metcalfe, & Delatycki, 2010), at least among Arab religious policymakers there would be more awareness of the phenomenon.

The findings revealed a significant link between reasons related to culture and high belief in God and the environment and lack of adherence and restrictions on performing the tests. A very important practical result of the current study is that there has been a significant change on the religious-cultural level based on the fatwa of the Mufti, Dr. Mashhor Fuaz.

In addition, the current study revealed the influence of family and spouses in terms of resistance to testing. This identification is important and culturally sensitive. Therefore, it is highly important to involve the husband in the decision making through the national plan proposed by the present study. Among women there is a positive link regarding the effect of performing the tests on the emotional state of the family. The literature addressed the religious cultural context at an inadequate level, so there is room for further research to gain an in-depth understanding of the full picture of family influence on decision-making.

In addition, the current study identified that the transfer of information and accessibility of genetic screening tests has a mediating effect on the level of adherence and performance of tests. The findings revealed that in the three groups, among policymakers, stakeholders, and women, this creates immediate gaps in decision making. It should be noted that in the existing policy, based on the delivery of leaflets to a small part of the population, the study findings indicate the importance of identifying populations where there is a lower incidence of using information and existing tests. The findings of policymakers in the first part of the study emphasized the importance of collaborating with professionals, opening additional clinics and training additional staff, as well as collaborating with organizations available to Arab women, clergymen, media, and Internet personnel that will provide intensive training on the subject.

An important bias, thus a limitation, is that the researcher, being both a nurse and a nursing teacher, having the experience and knowledge gained over many years of practice might have created a subjective point of view.

5. Conclusions

The study findings emphasize the importance of raising awareness about pre-pregnancy genetic tests among the population through collaboration with key figures in addition to the medical staff (Ministry of Health), clergymen and the Ministry of Education. The findings revealed a great need for first-line information from physicians and nurses, which highlighted a lack of necessary information. Future research is needed about availability of professionals for the Arab population and the Arab population's perception about it, about factors that influence the performance of hereditary screening tests among Israeli Arabs. Another important future research is to examine the effects of the new fatwa on the willingness and level of responsiveness to pre-pregnancy screening tests among the Muslim Arab population in Israel.

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STUDY ON LEARNING MOTIVATION OF MASTER'S STUDENTS IN MASTER'S COURSE IN LEADERSHIP AND ORGANIZATIONS AT THE UNIVERSITY OF DEBRECEN

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Abstract: *The aim of our study is to present the topic of adult learning and its motivation. We first define the definitions and importance of learning in a person's life. We then turn to the definitions of motivation and the historical background and evolution of adult learning. We also point out some big events that helped reaching the today's form of adult learning. Moreover, the motivation of adult learning as a function of different motivational theories is presented. In the second half of the study, an initial research is focusing on the motivation of adult learning. The subjects of our research are young adults who are studying at the Master's programme in Management and Organisation at the Faculty of Economics, University of Debrecen. Our questionnaire was filled by 27 students, as only a small sample was available during the pandemic time. By the results, we want to get answers to which different factors motivate examined young adults in studying. According to the results, these students are mostly motivated by the fact that they can largely shape their own learning effectiveness and external factors do not affect this that much. Moreover, they perceive that they have control over their learning performance, which has a great influence on their learning motivation. With the results, we want to give an idea of how the learning motivation of the students can be characterized to both lecturers and human resource professionals working in the private sector. We intend to expand the research to a larger sample in the future.*

Keywords: *adult learning, motivation, academic students*

JEL Classification: I23, I26, D83

1. Introduction

Learning is part of our daily lives. During our lives, we spend several decades in school. But the learning process does not even cease after leaving school. Today, the term of lifelong learning has been mentioned a lot. This is no coincidence, as we must keep up with our rapidly developing and changing world in all areas of life. In the private life, there is also a continuous change in the workplace around us, which makes it essential to lifelong learning. Continuous, institutionalized learning

between the age of 18-23 generally ends in person's life by completing the vocational secondary school, grammar school or university. However, the learning process itself is far from ending at that time.

2. Theoretical Background

Conner (1997) states that "learning can be defined formally as the act, process, or experience of gaining knowledge or skills". People are in the learning process from the moment of birth. In any age they can learn everything that their minds perceive. Learning strengthens the brain as it builds and strengthens the relationship between nerves. Although the human being fundamentally likes known facts and the change is disturbing, they are still looking for newness and trying to respond to them.

This means that, leaving the student years, people seek for the need, desire, and importance. for learning, Learning is present in several forms in our lives. Foley (2004) distinguishes several learning dimensions. According to him, people are in continuous learning through formal and informal channels. The formal channel is the most popular way of adult learning. Follows a specified syllabus, teachers help the process, and the result is usually obtaining a qualification. Informal mode is gaining through the acquisition of their own experiences, outside the walls of the institution. Cuenca and Pérez de Guzmán (2003) believe that learning is part of human nature in such a way that man is the subject of learning. Without this ability, life would not be possible, as one would not be able to survive. This also means that when man stops learning, they risk the ability to survive. Learning makes people fit and integrate into the environment. They will get continuous feedback from the environment that improves all its abilities while assimilating to the behavioural patterns of society in which they live. Learning is a permanent need that can not be eliminated in no age. Carrasco and Martín (1997) reviewed changes in adult learning over time. They describe that although the importance of education was recognized in ancient times, but it took many centuries until society demanded education for adults. In the 19th century they realized to give access to education to those who did not have previously and to renew previously acquired knowledge. In the 19th century they created the so-called adult classes in France. During 20th century, adult education expanded its horizons because of continuous changes in the economic, social, technological, and political environment.

In the webpage of UNESCO Institute for Lifelong Learning, we can read that in 1949, reacting to the World War II. the UNESCO's member states joined to discuss how adult learning and education could help the peace and international understanding. This international conference was named as "Confintea" name (French: Contress Internationale Sur L'Education des Adultes). This conference was an important milestone in the recognition of the importance of adult education.

In the UNESCO 1976 publication we can read that the adult learning involves all the educational processes that complement the knowledge acquired earlier in schools, at different levels, formally or informally. Adults are able to enrich their knowledge, develop their professional ability. During the introduction of adult learning methods,

various socio-cultural factors should be taken into consideration. The adult learning can interfere with barriers, such as family or professional ones, which could burden adults. Knowing the psychology and motivation of learning is also essential for the successful process. We will give you a detailed explanation of this later.

The objective of the adult learning policy is derived from the Lisbon and the Europe 2020 strategy. The Europe 2020 strategy states that lifelong learning and skill development are key to handle the current economic crisis and the aging of the population. In 2008 was the first time to determine the common priorities for the adult education sector and created the foundations of a coordinated European policy cooperation. Loboda (2007) also highlights several aspects of adult learning. It mentions its economic importance as skilled labour is the most important resource of companies. It covers the changes in population pyramid that the aging of population is a serious problem today. If the older generations continue to learn and train themselves to meet the specific challenges of compliance, they can continue to be employed, thus reducing the problem of the state for care of elderly people.

Before discussing the motivations for learning, it is essential to talk about motivation itself. According to Bakacsi (2010), "motivation is the willingness to make efforts towards the achievement of organisational goals, which also satisfies individual needs." Bakacsi interpreted motivation in the organizational context, but from his words we can infer motivation as an internal driving force that pushes us in a particular direction.

Kenrick et al (2010) distinguish two major sources of motivation. Functional, i.e. intrinsic, motivation stems from a lack of motivation in the individual. In contrast, proximal motivation is triggered by external events. The motivation for adult learning can therefore be divided into two broad categories. If learning is triggered by intrinsic motivation, then the individual is driven to acquire new knowledge by an internal drive, curiosity, desire to know or the possibility of progress through acquired knowledge. If the motivation comes from outside, for example in the case of a compulsory on-the-job training or in the hope of a higher salary, then proximal motivation may be at work in the individual.

According to Lieb (1991) motivation is an indispensable element of learning, because if a person does not recognise the need to acquire the information, learning will not be successful. To achieve this, teachers should motivate learners in several ways. This means that one of the external sources of motivation can come from the teacher. The teacher should create a friendly, open atmosphere and associate a positive feeling with the teaching process. The teacher himself/herself should also reflect openness because this will give the learner the feeling that he/she can always turn to him/her for help. However, an open atmosphere is not the same as a relaxed atmosphere. If the material to be taught is a high priority, it is worth adding some level of stress to the atmosphere, as the right amount of stress can have a positive effect on students. However, teachers should also pay attention to the level of difficulty of the tasks, as the task should be difficult enough to be challenging, but not so difficult that it becomes an unsolvable problem.

According to a study presented by Morstain and Smart (1977), six major motivational dimensions can be distinguished when talking about learning. Social relationships describe the need for an individual to acquire new knowledge by getting to know other individuals or by belonging to a group of individuals. Other motivating forces within this dimension include acceptance by others and interest in similar subjects. In the dimension of external expectations, the individual is driven by external motivation, for example, perceived at work. In the social well-being dimension, education prepares people to participate in society and to actively serve the interests of society. In the dimension of professional development, the study suggests that the development of individual competences helps individuals to achieve a higher status in their profession. The escape or stimulation dimension refers to the desire to escape from an environment perceived as boring, and thus aims to alleviate boredom. The dimension of cognitive interest implies that the individual has a self-directed desire to learn, driven by an intrinsic motivation to enrich his or her knowledge and to learn simply for the "pleasure of acquiring new knowledge".

3. Methodology

One of the most used measures of the motivation of learning is in connection with Pintrich and colleagues (1991). The questionnaire was designed and developed by a research team at the University of Michigan in 1991. The questionnaire contains a total of 81 questions and is divided into 15 subscales. The authors explain that the scales can be used both together and separately. The subscales are grouped into two major themes, namely the motivation scales and the learning strategies scales. In the present study, the learning motivation scale was used, which comprises a total of 31 questions out of the 81 mentioned before. In analysing the questions within the learning motivation scale, we will review the results obtained by subscales, which are namely: intrinsic motivation, extrinsic motivation, task value, learning belief regulation, learning and achievement, and test anxiety subscales.

The MSLQ questionnaire was adapted into Hungarian by Éva D. Molnár (2013). In our primary research we compiled the questionnaire based on her translation. Respondents were asked to rate the statements on a 7-point Likert scale, where a value of 1 indicates "not at all true for me" and a value of 7 indicates "absolutely true for me".

The sample of the research includes students of the Master's course in Leadership and Organizations at the Faculty of Economics of the University of Debrecen. The questionnaire was filled in by 27 students, as a small sample was available. The respondents included 9 men and 18 women. 23 full-time and 4 part-time students completed the questionnaire. The Master's course in Leadership and Organizations is taught in 4 semesters, with students from all 4 semesters represented in the sample. The total number of first semester students was 14, the total number of second semester students was 5, the total number of third semester students was 4 and the total number of fourth semester students was also 4.

4. Results

The results of the primary research will be presented by analysing the responses to the questions of the MSLQ learning motivation scale. The motivation scale consists of 6 subscales, and the results will be presented using them.

Intrinsic motivation refers to the fact that the student engages in the task for reasons such as challenge, curiosity, mastery. The student's participation in the task represents a goal for him/herself and not participation to achieve the goal (Pintrich et al.1991). The results for the subscale are shown in Table 1.

Table 1: Results of the Intrinsic Goal Orientation subscale

| Item | Mean | St.d. |
|---|-------------|-------------|
| 1. In a class like this, I prefer course material that really challenges me so I can learn new things | 6.11 | 1.19 |
| 16. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn. | 6.00 | 1.14 |
| 22. The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible | 5.44 | 1.53 |
| 24. When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade. | 3.85 | 1.94 |
| Scale: | 5.35 | 1.72 |

Source: Own research, 2021

Extrinsic motivation is complementary to intrinsic motivation and refers to the fact when a student engages in a task for reasons such as grades, rewards, performance, evaluation by others and competition. If one has high extrinsic motivation, then participation in a learning task is a means to an objective (Pintrich et al.1991).

Table 2.: Results of the Extrinsic Goal Orientation subscale

| Item | Mean | St.d. |
|---|-------------|-------------|
| 7. Getting a good grade in this class is the most satisfying thing for me right now. | 5.19 | 1.59 |
| 11. The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade | 5.15 | 1.68 |
| 13. If I can, I want to get better grades in this class than most of the other students. | 5.11 | 1.74 |
| 30. I want to do well in this class because it is important to show my ability to my family, friends, employer, or others. | 4.74 | 1.89 |
| Scale: | 5.05 | 1.72 |

Source: Own research, 2021

The task value refers to the student's assessment of how interesting, important and useful it is to complete the task. A high task rating results in increased participation

in learning, whereas a low task rating results in less student engagement in each task (Pintrich et al.1991).

Table 3.: Task Value subscale

| Item | Mean | St.d. |
|--|-------------|--------------|
| 10. It is important for me to learn the course material in this class. | 5.30 | 1.71 |
| 27. Understanding the subject matter of this course is very important to me. | 5.15 | 1.77 |
| 17. I am very interested in the content area of this course. | 5.11 | 1.63 |
| 26. I like the subject matter of this course. | 5.04 | 1.89 |
| 4. I think I will be able to use what I learn in this course in other courses. | 5.00 | 1.66 |
| 23. I think the course material in this class is useful for me to learn. | 4.93 | 1.82 |
| Scale: | 5.09 | 1.72 |

Source: Own research, 2021

This subscale refers to the belief that results depend on the student's own efforts, as opposed to external factors such as the teacher. If students believe that their academic effort will change their learning, they are more likely to learn in a more planned and effective way. That is, if students feel they can control their academic performance, they are more likely to be able to strategically implement what is needed to make the desired changes (Pintrich et al.1991).

Table 4.: Control of Learning Beliefs subscale

| Item | Mean | St.d. |
|--|-------------|--------------|
| 2. If I study in appropriate ways, then I will be able to learn the material in this course. | 6.37 | 0.79 |
| 18. If I try hard enough, then I will understand the course material. | 5.89 | 1.12 |
| 9. It is my own fault if I don't learn the material in this course. | 5.44 | 1.69 |
| 25. If I don't understand the course material, it is because I didn't try hard enough. | 4.44 | 1.67 |
| Scale: | 5.54 | 1.53 |

Source: Own research, 2021

The scale items assess two areas of expectation: success and self-efficacy. Expectations of success refer to performance expectations and relate to task performance. Self-efficacy includes perceptions about the ability to complete a task and confidence in one's ability to complete the task (Pintrich et al.1991).

Table 5: Self-Efficacy for Learning and Performance

| Item | Mean | St.d. |
|--|-------------|-------------|
| 12. I'm confident I can understand the basic concepts taught in this course. | 5.89 | 1.22 |
| 21. I expect to do well in this class. | 5.52 | 1.42 |
| 31. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class. | 5.44 | 1.12 |
| 5. I believe I will receive an excellent grade in this class. | 5.26 | 1.40 |
| 15. I'm confident I can understand the most complex material presented by the instructor in this course | 5.00 | 1.57 |
| 20. I'm confident I can do an excellent job on the assignments and tests in this course. | 5.00 | 1.11 |
| 29. I'm certain I can master the skills being taught in this class. | 5.00 | 1.36 |
| 6. I'm certain I can understand the most difficult material presented in the readings for this course. | 4.78 | 1.42 |
| Scale: | 5.24 | 1.36 |

Source: Own research, 2021

Test anxiety negatively affects academic performance. Anxiety is divided into two major components: a worry component and an emotion component. The worry component refers to the negative thoughts students have that interfere with performance, while the emotion component refers to the affective and physiological arousal aspects of anxiety. They found that cognitive anxiety and preoccupation with performance were the largest sources of performance impairment. Effective learning strategies can help reduce levels of anxiety (Pintrich et al.1991). The results for the subscale are shown in Table 6.

Table 6: Test Anxiety

| Item | Mean | St.d. |
|--|-------------|-------------|
| 28. I feel my heart beating fast when I take an exam. | 4.19 | 2.00 |
| 8. When I take a test I think about items on other parts of the test I can't answer. | 3.44 | 2.06 |
| 19. I have an uneasy, upset feeling when I take an exam. | 3.41 | 2.08 |
| 14. When I take tests I think of the consequences of failing. | 2.63 | 1.82 |
| 3. When I take a test I think about how poorly I am doing compared with other students | 2.19 | 1.57 |
| Scale: | 3.17 | 2.01 |

Source: Own research, 2021

Referring to the results, we can see that the highest score was obtained in the subscale of Control of Learning Beliefs (M=5.54). According to this score, students feel that they largely shape their own learning effectiveness and that external factors do not influence this that much. Furthermore, students perceive that they have control over their learning performance. This is followed by the Intrinsic Goal Orientation subscale (M=5.35), which shows that students can be motivated by the involvement

in the task, the challenge the task provides and the opportunity to acquire it. The third highest score was obtained by the Self-Efficacy for Learning and Performance subscale (M=5.24), which refers to the expectation of success and self-efficacy, which may also be an element of intrinsic motivation. The Extrinsic Goal Orientation subscale (M=5.05) and the Task Value subscale (M=5.09) had a similar score. While extrinsic motivation represents recognition and reward, task value represents how useful and important the student thinks it is to complete the task. The lowest score was obtained by the Test Anxiety subscale (M=3.17), where the lower the value the more favourable.

In addition to analysing the results, we also compared them with international results to get a more complete picture of the learning motivation of the students. In the comparison, we gathered data from a similar sample, comparing it to student surveys conducted at the University of Tartu in Estonia (2015), Lovely Professional University in India (2020), Utah State University in the US (2013) and Beijing Forestry University in China (2013).

Compared to the international results shown in the first figure, the results are very diverse across the world. Among our own results, the Intrinsic Goal Orientation subscale and the Self-Efficacy for Learning and Performance subscale outperform internationally, as well as the test anxiety subscale - for which the low value is the favourable one. However, the Control beliefs regulation subscale, which scores highest in our own research, is below internationally

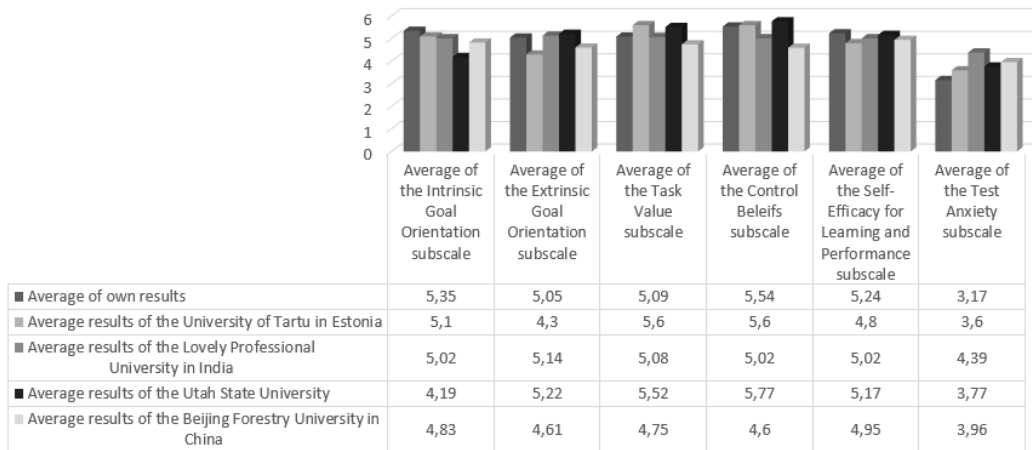


Figure 1: Comparison with international results
 Source: Own research, 2021

5. In conclusion

This study presents theories related to adult learning and its motivation. In the second part of the study, an existing and validated questionnaire was used to assess the learning-related motivations of the students. It was concluded that intrinsic goal orientation and control beliefs, i.e. the regulation of learning beliefs, scored the highest averages. Internationally, the test anxiety of the

students surveyed is relatively low, which is a good result for this scale. It is also worth pointing out that students' intrinsic motivation to learn is higher than their extrinsic motivation, which is certainly an advantage. As we pointed out before, with these results, we would like to give an idea of how the learning motivation of the students can be characterized for the human resource professionals. To sum up, we can see that these students can be engaged in the task by challenges or curiosity, so the professionals or the academic teachers have to come up with interesting tasks for the students.

The questionnaire used in this research covered the relevant part of the whole questionnaire, so only the relevant scale was used. In the future we would like to extend our results by using and analysing the other half of the questionnaire.

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MANAGING THE IMPLEMENTATION IN SCHOOLS OF ICT AND ITS INFLUENCE ON THE PERFORMANCE OF SCHOOL STUDENTS

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Abstract: *The integration of Information and Communication Technology (ICT) in teaching is a goal that education systems across the world strive for, in both developed and developing countries. However, ICT integration has not been found prevalent and consistent in empirical studies in the past three decades. Although many of these studies have examined the application of ICT and its effects on teaching and the achievement of learning objectives, empirical information is still lacking on the relationship between ICT integration and the ability to realize its potential benefits regarding students' achievement. The purpose of this paper, therefore, is to review the current empirical research examining the impact of ICT implementation in schools on students' academic achievements. The conclusion drawn from empirical research findings in the past two decades is that they tend to be consequential to the research approach from which they derive, and that a robust and distinct effect of ICT application on students' academic achievement cannot be determined. Additionally, findings reinforce the claim that the greatest impact on students' academic outcomes following the use of ICT is not significantly influenced by internal factors in students, but more by factors related to the teachers, the learning environment and opportunities and the school administration. Furthermore, a large proportion of these factors are, in turn, a subject of a certain cultural and social context. Consequentially, the association between ICT integration in a given educational system and the expected results of the process, is the product of a complex relationship between many factors, educational, cultural and social, and a successful ICT assimilation process has to be one that takes these factors into account. These findings highlight the need for further empirical research that will expand the current theoretical and practical knowledge on this issue. In addition, these findings need to be taken into account by policymakers as well as education professionals.*

Keywords: *ICT Integration; Education Management; Instructional Design; Twenty First Century skills.*

JEL Classification: *I21; I24; I28*

1. Introduction

The integration of Information and Communication Technology (ICT) in teaching is a goal that education systems across the world strive for, in both developed and developing countries. ICT has been such a desired objective in recent decades due to its many attributed benefits (Badarne, 2019a; Park & Weng, 2020). In particular, this process is attributed a significant potential impact on economic development and

growth in many countries, including Israel (Badarne, 2019b; Díaz & Cano, 2019). However, despite its appeal, ICT integration has not been found prevalent in international studies like PISA and PIRLS around the world. For this reason, in the past three decades, many studies have examined the application of ICT and its effects on teaching and the achievement of learning objectives. These studies can be divided into three main branches: The first consists of studies that examined the relationship between various factors and the progress of the ICT implementation process, including economic, social, cultural factors, teacher's skills and attitudes of stakeholders in the educational system in relation to technology and change (Ben Amram et al., 2021; Eickelmann, 2011; Eyles, 2018; Goldstein & Ropo, 2021; Hermawan et al., 2018; Muslem et al., 2018; Nikolić et al., 2019; Salam et al., 2018; Willis et al., 2019; Yeop et al., 2019). The second branch consists of articles that examined the relationship between systemic, country-wide and local factors and the impact of ICT on students' academic achievement (Basri et al., 2018; Díaz & Cano, 2019; Park & Weng, 2020). And the third branch of the research literature focused on the individual student level and were mainly interested in the study of the relationship between factors within the individual and the impact of the ICT application process on students' academic achievement (Hu et al., 2018; Meng et al., 2019).

Alongside these important studies, empirical information is still lacking in order to advance the theoretical and practical knowledge of the relationship ICT integration and the ability to realize its potential benefits regarding students' achievement. Thus, the purpose of this paper is to present a review of the current empirical research in the field. Accordingly, the article will be organized as follows. First, I will present and define the key concepts relevant to the paper. I will then review the field of research studying the factors that influence the integration of ICT in education systems. Next, I will focus on the question of the benefits and advantages of implementing ICT in schools according to empirical research. Correspondingly, I will present a recent review of the empirical research examining the impact of ICT implementation in schools on students' academic achievement, and the final section will conclude the paper.

2. Integration of Information and Communication Technology in Education

Over the past century, many attempts have been made to integrate technological developments into teaching and learning practices, beginning with radio, film and television, and on to computer assisted and online learning. However, despite immense expectations of each attempt to significantly improve learning efficiency and outcomes, most of them did not have long term usage and significant integration in actual teaching and learning. Nonetheless, thanks to great advances in mobile communication technology, social networks and Cloud technology in the recent decades, ICT integration in education is expected to become a major contributor to the achievement of teaching objectives and goals (Badarne, 2019a). Accelerated by

the effects of Covid-19 quarantines and disruptions, E-learning and remote learning have become wide-spread and routine practices all over the world (McQuirter, 2020). Moreover, ICT integration is considered a key factor in 21st century skills education and development. 21st century skills refer to a global set of skills and capabilities including information management, communication, media literacy, collaboration, creativity, planning, entrepreneurship, critical thinking, risk taking, conflict management, problem solving, alongside social and cultural skills, flexibilities and lifelong learning. A major aspect of these skills involves operating and manipulating data and technology; thus, it is clear why education systems around the world play a central role in instilling these skills and preparing learners for adult life in a future world of information-rich environments (Amzaleg & Masry-Herzallah, 2021; Badarne, 2019b). Additionally, ICT implementation holds great potential for improving many populations' accesses to quality education without incurring excessive costs, thus becoming an agent of social change (Abdelrahman & Salhi, 2020; Badarne, 2019b).

2.1. What is ICT in Education

ICT integration in education is the implementation of information and communication technologies in learning and teaching practices as well as in administration and evaluation, viewed as an organizational change (Basri et al., 2018). ICT includes computers, use of the Internet in mobile and stationary instruments and electronic systems such as sound equipment, televisions and projectors and others (Díaz & Cano, 2019). Using communications technology platforms, education organizations and educators can manage courses, curriculums and distance learning processes. In addition, information technology can be used to develop innovative learning materials and methods. Moreover, the combination of information and communication technologies allows greater interaction, between the students, the learning materials and the teacher (Badarne, 2019a). Furthermore, ICT provides the teachers with a variety of tools with which they can diversify their lessons, using different methods, interactions, games and stimulating environments, thus improving not only learning efficiency, but also students' attitudes toward various subjects. The students themselves benefit from ICT as it allows progress at a personal pace, active learning with immediate feedback, enhance interest and enjoyment in the learned subject and cultivation of personal skills. Last but not least, ICT also allows to bridge physical obstacles such as geographic distance, handicap accessibility and budget restrictions, thus contributing to the basic principle of equality in education (Badarne, 2019a; Díaz & Cano, 2019).

Although there is a broad consensus about the importance of ICT in education, even today, after years of investing in computer equipment and internet infrastructure in many countries around the world, some researchers claim that the expected benefits of ICT integration are still marginal (Ben Amram et al., 2021). This claim leads to the on-going discussion over the various factors that influence ICT integration. The

study of these factors and their supposed relationship with ICT integration success stands at the center of the next few paragraphs.

2.2. Factors Affecting ICT Integration

Most of the research literature on ICT integration leads to a conclusion of a multi-factor model, that includes teacher-specific variables, environmental and school-specific variables and student variables (Salam et al., 2018). However, the highest amount of research attention has been granted to teachers and teaching variables, under the assumption that teachers have a key role in implementing ICT (Eickelmann, 2011). Literature shows that teachers' implementation of ICT tools and skills in their teachings is highly varied, for many different reasons, such as seniority, personal abilities, digital literacy, motivation and cultural characteristics (Amzaleg & Masry-Herzallah, 2021) as well as past experience, seniority, work-load and digital literacy (Al Shobaki & Abu-Naser, 2017; Yeop et al., 2019).

Another major factor impacting ICT integration is teachers' and school administrative staff's attitudes toward ICT in particular and organizational change in general. These feeling, pre-conceptions and beliefs among faculty and administration have been found to have a significant impact, either positive or negative, in implementing, accepting and advancing ICT use in schools (Badarne, 2019b; Willis, 2018). School principles' attitude toward ICT, their enthusiasm for implementing ICT in their schools, their willingness to learn alongside their subordinate teachers and set a personal example, all influence actual ICT integration through teachers' practices and behavior (Cohen, 2019; Eickelmann, 2011; Habiballah et al., 2021).

However, the success of ICT integration depends not only on teacher-specific variables, but also on student-related factors. As an example, cultural variables and personal attitudes of the students have been found to cause anger and frustration among some students. These negative beliefs and feelings toward ICT integration may hinder its implementation (Badarne, 2019a). Avidav-Ungar and Porcush Baruch (2016) pointed to a combination of factors, both internal within the teachers and external, circumstantial and environmental factors. Their finding show that lack of time allocation is a major cause for ICT integration impediment, alongside external factors such as lacking equipment, faulty infrastructure and low organizational support. These findings coincide with and support a multi-factor theoretical approach toward the analysis of ICT integration processes in education, such as the RIPPLES model (Surry et al., 2005) and others (Salam et al., 2018). However, in most research models and approaches, the greatest weight is given to the human factor, attitudes, perceptions and beliefs of people towards the technology, their acceptance of it and its application.

3. ICT's Relationship with Student's Academic Achievements

The integration of ICT in educational organizations has proved to be a useful process that led schools and universities to significant improvements in management, learning methods, teaching practices, research, innovation and overall development

(Nikolić et al., 2019). However, this process's impact on students' academic achievement, a crucial question that occupies many researchers in the field of education, learning and organizational change, has yet been determined and fully resolved (Basri et al., 2018). An improvement in students' academic performance relates to the enhancement of students' knowledge and skills as they are reflected in their Grade Point Average (GPA) and in other aspects that signify their personal and academic growth (Basri et al., 2018). This definition is considered to correspond with a wide approach to academic achievements, as opposed to a narrow approach, examining only grade improvement. The problem with the narrow approach, even though it is considerably easier to apply and measure, is that the improvement in students' performance is usually attributed to the syllabus, making it difficult to differentiate ICT integration's specific contribution. Another obstacle in attempting to measure the impact of ICT integration on learning outcomes is the difficulty in distinguishing the effect of a rapidly changing technology and performing valid comparisons in order to isolate their effect (Basri et al., 2018; Díaz & Cano, 2019). In order to distinguish between the effects of learning on academic achievements to the effect attributable to ICT integration, a different approach measures not the change in students' grades, but the change in their learning behavior. Following this approach, Díaz & Cano (2019) examined the relationship between ICT integration and mathematics school performance. The findings, collected during the International Student Assessment Program test (PISA), indicated that ICT integration explains 28% of the variance in the students' mathematics performance, whereas 72% was explained by the students' work at school and at home and background variable. Similarly, Sarsur (2019) examined the effectiveness of ICT integration among Israeli fifth-graders in terms of motivation, cooperation, self-efficacy and achievement. An alternative method to evaluate the impact of ICT on learning outcomes is to perform the comparison between schools which adopt ICT programs and those which do not, as was carried out by Ben Amram et al., (2021) who used a qualitative research method in a "case study" model to contrast between two Israeli primary schools, in terms of teachers' perceptions and attitudes as well as actual teaching performance.

3.1. How can ICT affect Academic Achievements?

Young people nowadays are very familiar and proficient in using digital sources and information technology, nevertheless, that does not automatically mean they know how to use these technologies for learning. In fact, studies show that there still is a critical need for instruction, especially due to the almost infinite amount of information online, and that students' ability to incorporate online information into their learning process is influenced by the teaching methods employed by their teachers. Furthermore, the introduction of ICT into school itself isn't sufficient to evoke an improvement in academic performance; the implementation of ICT tools and practices must follow a constructed teaching plan in order to effectively achieve its goals (Ben Amram et al., 2021; Díaz & Cano, 2019). Indeed, ICT when put to effective use, can assist in repetitive learning, memorizing vast amounts of material,

enhancing students' motivation, creativity and fun, stimulate cognitive and emotional processing and advance alternative methods of problem solving. All of these benefits are believed to be translated into improved academic achievements. But better yet, not only can ICT support schoolwork, but it can also offer help to student who encounter difficulty during their homework (Nikolić et al., 2019).

Moreover, ICT can improve teaching in several different ways, in medium, in materials, in accessibility and timing and in communication and interaction (Díaz & Cano, 2019). In the medium of teaching, ICT enables learners and teachers to conduct lessons unbounded to the physical classroom, as the digital medium is practically boundless, allowing an endless variety of learning environments, elaborate demonstrations and interactions as well as a vast amounts of teaching and practice material (Ghalib, 2021; Nikolić et al., 2019). Finally, the matter of accessibility has been demonstrated to be one of the most important traits of ICT in education during the Covid-19 school closures. But even before the massive switch to distance learning that occurred all over the world as a result of the attempt to stop the pandemic outbreak, ICT has offered people with mobility disabilities and other disabilities, the chance to participate in learning despite their inherent limitations. Furthermore, through ICT, learning can occur at any time and any place; thus, teachers can dispense personalized practice for students to complete wherever and whenever they are available, and even receive personalized feedback in real time (Díaz & Cano, 2019).

3.2. Evidence from Empiric Studies

In the early twentieth century, great advances in the field of mass media had seemed like they are on the brink of revolutionizing the concept of distance learning and traditional teaching practices. Yet, many studies have shown that the medium itself was not enough to cause a major transformation in learning, but it was more so dependent on the instruction of the teacher (Díaz & Cano, 2019). Nevertheless, as instruments of ICT teaching and instruction have evolved, so did the understanding of the possible strategic use of these capabilities. Accordingly, educational plans and curriculums were designed to better harness the potential of ICT in improving teaching and learning.

Basri et al., (2018) studied the adoption process of ICT in Saudi Arabia universities and its effect on students' academic achievements. Their research included 1,000 university students in four different institutions and explored the possible effects of gender, GPA and students' majors as moderators. In their research they defined three distinct research objectives in order to determine ICT integration's impact on academics. The first objective was to evaluate the extant the organization has adopted ICT; The second is determining the type of relationship that exist between ICT integration and academic performance among the students, and third, to explore the impact ICT integration has on the organization in general and students' performance in particular. The research findings indicate a positive relationship between the integration of ICT and students' academic achievements. They also found that ICT

integration positively affected the improvement of female students more than that of male students, however, they found no effect for GPA nor study majors.

Another empirical evidence of ICT's contribution to students' academic achievements can be concluded from a recent study conducted in an Arabic school in northern Israel (Ghalib, 2021). The first stage of the study focused on recognizing the main obstacles in ICT implementation in biology teaching in middle school. After identifying the main issue to be addressed as a lack of clear instructions for teachers on how to effectively implement ICT in their teaching, a specific teaching plan was designed and carried out by the teachers of the experiment group, while the teachers of the control group didn't follow a special plan but the regular curriculum. The results show that the experiment group improved their biology grades in more than 10 points (15%) whereas the control group went down 1.5 points at the end of the program. These findings not only point to the immense potential inherent in the application of ICT in education, but more importantly, it points to the significance of an appropriate guidance and instruction for teachers, without which the desired improvement in outcomes cannot be achieved.

Finally, the most comprehensive studies of ICT integration effect on academic achievements in the last decade were based on the 2015 PISA international test results including the data of hundreds of students in many countries (Hu et al., 2018; Meng et al., 2019; Park & Weng, 2020). The findings indicated a complex picture of factors and effects that are to some extent, counter-intuitive. For example, it was found that ICT skills had a more positive effect on student academic performance than did ICT access and use at the national level; also, students ICT availability at school was positively associated with academic success, whereas student ICT availability at home was negatively associated with it; in addition, student ICT academic use was negatively correlated with student performance, while ICT entertainment use was positively correlated with academic success. Moreover, student attitudes toward ICT demonstrated mixed effects on student academic success – specifically, student interest, competence, and autonomy in using ICT had positive correlations, while student enjoyment of ICT social interaction had a negative correlation with academic performance. Findings also indicate an interaction effect between country GDP and cultural variables and some student-specific factors like perceived autonomy and the influence on academic achievements.

4. Discussion

In the information age, teaching and learning are going through a gradual change, as they shift from traditional practices and patterns on to a model of continues learning through search and review of information (Nikolić et al., 2019). ICT integration in education plays a vital role in imparting the necessary skills to young members of future society, as well as keeping school and the institutionalized education system relevant (Díaz & Cano, 2019). Indeed, learning is becoming more fluent and flexible thanks to ICT and it offers substantial benefits to learners as well as educators, but

as the research literature reflect, these benefits are dependent on a variety of contributing and inhibiting factors (Eickelmann, 2011).

In the review presented in this paper we sought to answer the question of whether the application of ICT has a positive effect on the academic achievements of students. The conclusion drawn from empirical research findings in the past two decades is that they tend to be consequential to the research approach from which they derive, and that a robust and distinct effect of ICT application on students' academic achievement cannot be determined. Additionally, findings reinforce the claim that the greatest impact on students' academic outcomes following the use of ICT is not significantly influenced by internal factors in students, but more by factors related to the teachers, the learning environment and opportunities and the school administration. Furthermore, a large proportion of these factors are, in turn, a subject of a certain cultural and social context (Hu et al., 2018; Meng et al., 2019; Park & Weng, 2020).

The main conclusion to which the review presented above leads, is that the association between ICT integration in a given educational system and the expected results of the process, is the product of a complex relationship between many factors, educational, cultural and social, and that successful ICT assimilation in education has to be one that takes these factors into account.

5. In conclusion

As presented in this paper, the research literature has yet to fully address some of most important questions regarding ICT implementation in educational practice, such as, which kinds of technological uses and applications have a positive impact on learning and which do not? What is the optimal frequency of using ICT in teaching? When does the use of technology in teaching become counterproductive? Moreover, with so much information being made available to them, students nowadays need to be instructed of the best efficient ways to process and contain that information, how to treat it critically and make judgements and how to put it to the best use in accordance with the lesson plan. This aspect shines a light on the importance of teachers' training, to become good ICT integrators and to become better teachers in an ICT rich environment.

Unfortunately, the research literature consistently leads to the conclusion that teacher training in regard to the application of ICT tools is lacking; that the reference to ICT within the teacher training colleges is insufficient and does not constitute a good example of practice; and that the training carried out on the job is not frequent and in-depth enough in order for the ICT application to be sustainable. Thus, the required extension of the current body of research in the field is one that will focus on the relationship between optimal teacher training and the optimal impact on student achievement. This research could help focus the definition of ICT implementation in education, which is currently lacking, and improve the cost-effectiveness of the many resources invested in implementing ICT in education systems in Israel and around the world.

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STAKEHOLDERS IN EDUCATION

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Abstract: *The purpose of the present study is to explore the identity, importance, and goals of stakeholders involved in the school. Stakeholders refer to groups of people affected by the success or failure of an organization, who include individuals, public groups, governmental and private organizations, institutions, and associations. Stakeholders such as parents, teachers, community leaders, civic organizations and students, should therefore be encouraged to get involved in the school, and participate in various programs that will improve the school and the students' achievements. In the context of education, a skilled school principal will find ways to harness the interests and ability of different people to contribute to the educational institution, and create a school climate in which this can occur. It is important that the school administration involves stakeholders in the decision-making process, in order to improve the performance of the school. School performance and its success is affected also by the stakeholders' capability to use efficiently human and material resources at their disposal for the school benefit. Google Scholar database was searched and papers published in the last 15 years were analysed. The review findings show that stakeholder's participation can improve teaching and learning, efficiency in school management, raising motivation and commitment among staff, and foster open communication with various actors. In order to benefit the school, especially in a period characterized by accountability, competitive education market and limited government resources, the school principal must empower, provide information and train different stakeholders. The principal is the main actor capable to build bridges between all stakeholders, through provision of autonomy and support, in order to improve decision-making and implementation processes, designed to raise the quality of the school and the students.*

Keywords: *participation; school performance; school principal; stakeholders; student achievements.*

JEL Classification: *M12; A14*

1 Introduction

Research on organizations has developed rapidly in the last two decades. Business management researchers, in particular, have developed the concept of 'stakeholders', which refers to groups of people affected by the success or failure of an organization (Freeman et al., 2010). Mitchell, Agle and Wood (1997) approached the concept of 'stakeholders' from a managerial and business perspective, and argued that current literature fails to identify stakeholders in the organization. These stakeholders can be individuals, public groups, governmental and private organizations, institutions,

associations and the environment. Michelle et al. (1997) focused on the relationship between an organization and stakeholders.

Stakeholder involvement means working with people and using available resources to achieve specific goals and objectives (Bartle, 2007). In the context of education, a skilled school principal will find ways to harness the interests and ability of different people to contribute to the common good, and create a school climate in which this can occur. It is important that the school administration involves all stakeholders in the decision-making process, in order to improve the performance of the school. Increasing stakeholders' involvement in the school management practices should strengthen school performance and promote academic excellence (Gichohi, 2015).

2. Literature review on stakeholders in schools

2.1. Stakeholders' theory development

Stakeholder theory developed in the 1980, as a response to the increased complexity and changes in organizations environment. This approach indicates that all individuals or groups that have interest in an organization are taken into account in the strategic management, and the organization is directed in order to avail customers, suppliers, owners, employees and local communities (Freeman et al., 2020).

Stakeholder theory wins acceptance and relevance in strategic management research and business practices, but most of its aspects still need to be explored in contexts such as educational institutions. Educational institutions play an important role in society because of their importance in transferring knowledge to the wider community (Bilodeau et al., 2014; Ferrero-Ferrero et al., 2018). Various stakeholders are able to influence educational institutions in terms of teaching quality and development of joint research projects (Kettunen, 2015). Therefore, in order to improve the relationship with the stakeholders, comprehensive strategies are needed that will ensure mutual cooperation and involvement (Stocker et al., 2020).

Schools nowadays operate as semi-commercial organizations and their success depends on their ability to adopt effective management practices. These institutions have a diverse system of stakeholders with whom they collaborate on behalf of the school. Therefore, classifying and locating these stakeholders and addressing their interests and claims is important to society and the school. Thus, investigating the issue of improving the relationships between the school and stakeholders, based on stakeholder theory is essential, because according to this theory, such collaborative management is a means of developing relationship with the organization and achieving a competitive advantage (Cho, 2017; Kettunen, 2015).

Stakeholder theory is based on the following principles: Active involvement of stakeholders in the decision-making process; Exchange of information regarding the requirements and preferences of the stakeholders; Developing a relationship of mutual trust between stakeholders and the organization; And the inclusion of stakeholders in the organization's strategic planning process (Langrafe et al., 2020).

Freeman's (Freeman et al., 2020) important research is considered to be fundamental in stakeholder descriptive literature. They argue that a profound change is needed in the management of organizations that will adapt them to new demands and social trends. For an organization to succeed in this new context, the manager must create simultaneous satisfaction among his owners, employees, unions, suppliers and customers. Managing stakeholders' relationships is also seen as an organization's means of addressing social issues (Freeman et al., 2020).

Stakeholder theory poses various questions regarding strategic management of organizations, such as identifying and prioritizing stakeholders, understanding their interests and requirements, balancing relationships between different stakeholders and their involvement in organizational activities (Harrison et al., 2010; Sulkowski et al., 2018). Stoner and Freeman (1999) divide stakeholders into two groups: internal and external. Internal stakeholders operate within the organization, such as owners and employees, external stakeholders' operate with the organization, such as customers and suppliers.

Among the various definitions of stakeholders, Freeman's definition (Freeman, 1984) is the best known, he defines stakeholder as follows: "A stakeholder in an organization is any group or person, who can influence or be influenced by the achievement of the organization's goals" (p. 46). Mitchell et al. (1997) argued that the key concepts that appear in the organization's main theories, are power and legitimacy. But these terms are seen as contradictory to stakeholders' perceptions. The main common approaches in stakeholders' theories are: authority, behavioural, institutional, and population ecology, resource dependence and transaction cost.

'Agency theory' claims that managers can control the behaviour of their subordinates in order to fulfil the organization's goals. This is achieved through incentives and supervision. 'Resource Dependency Theories' indicate that stakeholders have resources and therefore are able to influence the organization. 'Transaction cost theories' indicate that stakeholders outside the organization, who participate in a small competitive system, can increase transaction costs to levels that justify their absorption into the firm, where the costs of hierarchy are lower than transaction costs of market failure'. These theories attest that power relations between managers and stakeholders are important factors in stakeholder theory. But focusing on power will not help identify suitable stakeholders. Both, institutional, and population ecology theories, link organizational legitimacy to the existence of an organization. According to these theories, legitimate stakeholders are the ones that are important. Urgency is the last attribute that affects the leaders' perception of stakeholders. Urgency is defined by Mitchell et al. (1997) as 'the degree to which stakeholder claim call for immediate attention' (p. 867). According to behavioural theory, urgency is the goals which is not achieved. Therefore, Mitchell et al. (1997) proposed a theory of identification and salience of stakeholders that includes the following concepts: power, legitimacy and urgency. Power, is 'a relationship among social factors in which one social factor, A can get another social factor, B to do something that B would not have otherwise done'. (p. 869). Legitimacy, refers to the actions of an organization, considered desirable according to the norms, beliefs and values of

society. Urgency, is a concept that refers to the call of stakeholders for immediate action. Saliency, refers to stakeholders claims and the extent to which managers give them priority (Avci, Ring and Mitchell, 2015).

2.2. Types of stakeholders

According to the theory of Mitchell et al. (1997), there are seven types of stakeholders defined based on their attributes. Three of these types have one attribute, three others have two attributes and one has all the attributes mentioned earlier. 'Latent stakeholders' have only one of the attributes. These types are: dormant stakeholder - who has power but not legitimacy or urgency. 'Discretionary stakeholder' has legitimacy but not power or urgency. Demanding stakeholder has urgency but not power or legitimacy. 'Expectant stakeholder' has two attributes. 'Dominant stakeholder' has power and legitimacy but not urgency. 'Dependent stakeholder' has legitimacy and urgency but not power. 'Dangerous stakeholder' has power and urgency, but not legitimacy. 'Definitive stakeholder' has the three attributes. Mitchell et al. (1997) claim that stakeholder attributes add dynamism to their saliency: i.e., their attributes are variable and not fixed; they are socially understood, but not an objective reality.

An issue related to the relationships between schools and stakeholders, is the accountability of schools. Accountability is a difficult endeavour, it requires gathering insights about the pros and cons of the school, meeting with its stakeholders to conduct an open dialogue concerning the decisions and performance of the school, related to perceptions and judgments of various stakeholders. To this end, the relevant stakeholders need to be identified and sometimes also motivated and trained. The schools themselves need to build capacity in terms of leadership for multiple accountability processes, and ability to interpret and make effective use of data (Hooge, Burns and Wilkoszewski, 2012).

What organizations, groups, and individuals are important to the legitimacy of strategy, decision-making, and the quality of school services? And which parties are in a position to evaluate and provide important feedback to improve the quality of education? Regarding multiple accountability processes, Hooge and Helderma (2008) distinguished four groups of stakeholders: primary, internal, vertical and horizontal. In education, parents and students are the primary stakeholders. Teachers and educational and non-educational staff are internal stakeholders who have a clear interest in the success of the school. Governments and organizations such as municipalities, act as vertical stakeholders. Finally, all other organizations, groups or individuals in the school environment, with some interest in the school are horizontal stakeholders (Hooge, Burns and Wilkoszewski, 2012).

2.3. Motives for stakeholders involvement in schools

The motivations for collaborative management are divided into two types: 1. Humanistic or democratic - It has been argued that people have a right to participate in making decisions that affect their lives. It assumes that people have the ability and potential to participate intelligently. 2. Pragmatic or human relations - points out that

collaborative management is a way to achieve productivity, valued goals and organizational goals. It has been argued that in the last three decades, principal's rationale for increasing teacher involvement in school decision-making stems from pragmatic claims that educational innovation will not succeed without teacher support, and realization that teachers have the right to be involved. From a pragmatic perspective, participation was perceived as improving the quality of educational decision-making. Teacher participation is seen as giving principals access to important information related to various educational issues. Increased access and use of information is seen as improving the quality of curriculum and teaching-related decisions. In addition, involvement of various professionals can improve the quality of decisions through the use of a variety of expert knowledge (Gichohi, 2015).

2.4. Participatory management with stakeholders in schools

Most researchers in the field of education have focused on decision-making in investigating dimensions of collaborative management, and described participation as consisting of two areas: 1. A technical core, dealing with students and teaching policies, classroom meaning policies, and solving learning problems. 2. Administrative issues, such as school operation and administrative issues related to setting school goals, hiring teaching staff, allocating budget, and evaluating teachers (Gichohi, 2015). A manager could ask subordinates to participate at various levels of participation (Apodaca-Tucker and Slate, 2002). The degree of participation is regarded as being on a continuum. First, an autocratic decision-making in which no prior information about a decision is present to subordinates and the manager makes the decisions himself. Second, decision-making in consultation where the manager shares the problem with the subordinates and accepts their ideas and suggestions before decision making, which may or may not reflect his influence. Third, democratic decision-making is when the principal shares problems with subordinates, together they analyse the problem and come to a mutually acceptable solution. The literature argues that the usual areas of collaboration or involvement in decisions making include: team employment and team development; Establishing academic policies; School budget; Selection of textbooks and other teaching materials; Curriculum development; Planning new school facilities; Addressing the academic and other needs of students; Issues of student discipline; Problem-solving of school-community relations; Assessment of student and teacher performance; Problem solving of staff and students; And teaching methods (Aposaca-Tucker and Slate, 2002).

Studies have shown that improved teaching, optimal learning, and high school efficiency are the most common reasons for implementing collaborative school practices such as school boards, collegial educational leadership, and parental and community involvement (Quezada, 2003). This is achieved because creating close relations between school and community while listening to various parties allow interdependence that promotes the school to reach better decisions. In addition, collaborative school practices contribute to higher levels of employee motivation and commitment (Beyerlein et al., 2003).

Research suggests that allowing teachers to participate in the decision-making process leads to positive outcomes. Employee satisfaction, motivation, and self-esteem are positively affected by involvement in decision making and execution (Gamage and Pang, 2003). Also, employee commitment and loyalty are reinforced by collaborative school management practices (Wong, 2003). This is because better decisions are made and greater efficiency is achieved by open communication among people who express different perceptions and are involved in collaborative management. Collaborative management also has an impact on participants as it creates in them a desire for action and leads to greater support for change (Gamage and Pang, 2003).

Recently, stakeholders' theories have focused on mechanisms of value creation and distribution to stakeholders (Carcia-Castro and Aguilera, 2015; Tantalo and Priem, 2016). Instead of focusing on the most important stakeholders, improving relationships that create more value has become the focus of research (Freeman et al., 2020). Value is a significant concept in the field of strategy building. Within stakeholder theory, value creation is inherent in the relationships between the organization and its stakeholders (Bosse and Coughlan, 2016). Harrison et.a. (2010) explored different forms of value creation and noted that organizational performance measurements should address the perspective of many stakeholders. The emphasized that value is 'anything that has the potential to be of value to stakeholders'. Value can relate to community service programs, employee participation in the decision-making process, better payment terms, and lower customer prices (Harrison et al., 2010).

Stakeholder participation in school management, according to Wenger, McDermott and Snyder (2002), describes the level at which teachers, students, parents and various organizations participate in six aspects of the school community. Tilbury and Wortman (2004) explain that participation is done in various forms of stakeholder involvement and includes "consultation and consensus building to decision-making, risk-sharing and partnerships" (p. 51). They also argue that some people see participation as a process in which people have some involvement but no authority to provide feedback or make decisions. In such a way participation lacks the possibility of dialogue or decision making. White (2000) recognizes that participation has political implications, when people are persuaded to contribute to the operation of a project with a top-down approach (Shane-Antonio, 2014).

Tilbury and Wortman (2004) argues that besides participation as a form of manipulation, the true form of participation involves a collective effort between people during action planning and decision making. In this way, people are able to provide ideas and solutions to problems. Van de Fliert (2010) argues that this is related to communication between groups, and the final decision is made after analysing opinions and recommendations that people present. In the process of consultation, knowledge plays an important role in learning and decision-making process. Tilbury and Wortman (2004) note that teachers and parents are seen as helping students to provide solutions and act during decision-making processes. In this way, students develop the knowledge required to solve problems as well as

leadership skills to be active participants in their environment (Shane-Antonio, 2014).

Wenger, McDermott and Snyder (2002) explain that not all stakeholders (such as: teachers, students, parents and local organizations) participate in the same way. Some participate because they see value in being part of the community, others due to private relationships and skills. There is usually a stakeholder coordinator who enlists the help of other leading people to assist him. According to Wenger, et al. (2002), there are five levels at which community members participate: Core, active, occasional, peripheral, and transactional. The 'core' group is the one that includes people with leadership roles who participate in discussions and projects, thanks to their dedication and commitment to the community. They also 'identify issues that the community needs to address and motivate the community according to the agenda of its learning' (Wenger et al., p. 56)

The members of the 'active' group are those who usually participate in meetings and activities but less than the core group. The 'occasional' group is made up of members who only participate when a particular issue on the agenda interests them, or when they have something to contribute to the community. The 'peripheral' group, includes the large number of community members. These are passive participants in the interaction that occur between the core group and active group members'. They are less committed to a community, as they do not have much to contribute to it. But they too are in the process of learning and use the skills they have learned outside the community. The 'transactional' group is outside the four groups and is considered external and communicates with the community from time to time to gain access to resources or to provide services. According to Wenger et al.(2002), some members of the core group can switch between groups due to a change of focus or loss of interest, and on the other hand, outsiders become more involved in issues that interest them (Shane-Antonio, 2014).

According to Harrison and Wicks (2013), there are relationships that add value and meaning to the organization. Power relations exist between stakeholders in organizations. In situations where the stakeholders are in control, the organization depends on them. It is therefore important to investigate the power relations between an organization and stakeholders. In addition, it is necessary to identify the stakeholders and their possibilities to influence the organization' operation. Also, the organization and the stakeholders are found in contractual relationships, where the stakeholders have an interest in the organization' success. Stakeholders can benefit or be harmed by the actions of the organization, and therefore have a moral claim against the organization.

2.5. Building stakeholders' capacity

When the school does not address the knowledge, motivation and attitudes of stakeholders as potential participants, there is a fear that important, but weak stakeholders will be excluded. This may reduce the quality of multiple accountability processes. Although these processes are not hierarchical, this does not mean that the relationships between the school and the horizontal stakeholders are equal in every

aspect. Instead, some stakeholders have a certain level of knowledge and involvement similar to school, but in other situations stakeholders have less knowledge and involvement than the school. This means that schools are often better motivated and equipped to get into the process of accountability with their stakeholders than vice versa. Schools are, therefore, required to understand the stakeholders' needs, since some need help in acquiring knowledge and organizing their involvement (Hooge, Burns and Wilkoszewski, 2012).

2.6. Possible obstacles of stakeholders

The use and ownership of professional or experimental knowledge, can constitute a barrier between the school and its stakeholders, as well as among them. The position of non-expert people who have only experimental knowledge can be weak, compared to professionals who interact and strengthen their exchange of information and mutual connections (Brandsen et al., 2011). Unequal power positions between school, parents and community members, can allow stronger stakeholders to control them. This situation can occur at various levels, including unequal access to decision-making bodies, information and power asymmetries and an agenda suited to the powerful stakeholders (Brandsen et al., 2011).

Involvement in multiple accountability processes requires much efforts from parents and members of the community. They often lack, knowledge, time, endurance and skill, which they are supposed to acquire during a short training. This situation can be frustrating when parents and community members involved, perceive that the rules of the game are dictated by the school, and the communication is one-sided. In response, parents and community members will choose not to be involved, which will sometimes lead schools to mistakenly conclude that they are satisfied with the school's services. This will prevent involving important stakeholders and improving the school (Hooge, Burns and Wilkoszewski, 2012).

Consultation and participation can be an obstacle to multiple accountabilities. For example, Brandsen et al., (2011) have concluded that multiple accountabilities increase stress, because it emphasizes traditional vertical responsibilities. They argued 'many of the organizations we examined indicated that they felt burdened by an increasing amount of paperwork, the fatigue of staff members was mirrored by stakeholders and especially individual clients, who showed increasing disinterest in being consulted and involved' (p. 17).

3. Model suggested and discussions

Based on the theoretical review the author presented above and the fact the society and education of the 21-st century undergo serious changes of globalization and distant technologies, the following stakeholders' model is recommended for Israeli schools: 1. Mapping and classifying of stakeholders of schools including principals, school staff, pupils, parents, local authorities and community members. 2. Based on classification, giving the stakeholders some responsibilities, duties and rights. Especially, the author must emphasize the parents and their involvement at the times of Covid-19 crisis. If earlier they were not involved in school decisions, nowadays

their participation and cooperation are crucial for their children and the whole system's success. 3. Feedback and remapping the stakeholders, in case the roles should changes.

The author assumes that this model implementation in Israeli schools should make school structure and management less authoritarian and centralized, when actually more decentralization, cooperation and communication between all the stakeholders are needed.

4. Conclusions and recommendations

This literature review examines the relationship between schools and stakeholders and their impact on school quality and student achievements. The review presents theories dealing with stakeholders' function and concepts related to their involvement in the school work. In addition, the identities of the various stakeholders, their roles and the power relations between them and the school are described. The benefits of their participation in school management and decision-making were discussed, such as improving teaching and learning, efficiency in school management, raising motivation and commitment among staff, and foster open communication with various actors. The school principal is of great importance in recruiting talented and capable stakeholders. The review emphasizes that in order to benefit the school, especially in a period characterized by accountability, competitive education market and limited government resources, the school principal must empower, provide information and train different stakeholders. The principal is a significant figure in creating an effective school environment, and connects all stakeholders, providing autonomy and support, in order to improve decision-making and implementation, intended to raise the school and students' quality.

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A BRIEF OVERVIEW OF BENCHMARKING AS A MANAGEMENT TECHNIQUE IN THE FIELD OF WATER IN ROMANIA

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Abstract: *Given the public and permanent nature, of the public utility services, as a continuous operation, coupled with the dynamics of changes in technology, communication, labor market and last but not least the many changes in recent years of legislation and tax regulations in Romania, lead to increased pressure on decision-makers in the field of public utility services with an impact on housing. This topic was chosen in the context of the economic realities in Romania in the field of public utility services with an impact on housing, an area that reflects the ongoing concerns for a development that will ensure technological reform and integration into European financial structures. It is of real interest for any entity in the field of public utility services with an impact on housing concerned about the need to implement a decision-making and financial mechanism that provides a clear and relevant picture of the performance of services provided. In this context, the opinion of the International Water Association Group of Specialists that "benchmarking is a tool for improving performance through systematic research and best practice" has motivated many water companies to introduce benchmarking as a method of management. This article provides an overview of benchmarking as a water management technique for European Benchmarking Co-operation (EBC) compared to the national benchmarking exercise called H2Obenchmark. Due to the fact that both are based on the methodology developed by the International Water Association (IWA), the most important advantage of these benchmarking techniques is that they ensure comparability at any time with any water company in the world that uses the same system. By ensuring the opportunity for knowledge transfer, operators are able to identify and implement best practices and innovative solutions to the realities they face in the field of management, operations and investment projects. The brief diagnosis of water benchmarking in Romania highlights the fact that H2OBenchmark is a mature benchmarking exercise, with experience gained and maintained both in the water sector (ARA, CEB, OR, ANRSC, etc.) and partner consultants.*

Keywords: *benchmarking, management tehniquie, public utility services, public utility system*

JEL classification: *L32, L97, C38; M11; H50*

1.Intoducere

Benchmarking is a management technique designed to help improve performance by systematically researching and adapting best practices in the marketplace. The water and wastewater sector has become interested in the implementation of this management technique in the last two decades, in order to improve the performance of companies in the sector. Benchmarking is the process by which a company compares and improves its performance by learning from the best in a group. The process involves identifying and successfully adopting the methods and processes used by benchmarking partners. A well-managed operator must cover the operating costs and sources of financing required for capital investments. Non-compliance with the critical level of financing leads to underestimation of investments in assets in the field, respectively operating services in the field of utilities at an unsatisfactory level both in terms of quality and environmental requirements, as well as in terms of customer satisfaction index. From this point of view, it is particularly important that the ratio between operating expenses (excluding depreciation and royalty expenses) and operating income (excluding grants received) is superimposed.

By implementing benchmarking in the field of water in Romania, the premises were created to benefit from its proven and time-tested ability to offer solutions to solve challenges, obtain improvements and innovations in operation / services, and increase transparency in domain. The benchmarking methodology in Romania is well structured, in line with international best practices, based on IWA variables and performance indicators, with clear, well-defined definitions. The very complex and detailed methodology aims at the graphical representation of the result, by comparison with an average, or simply with the level obtained by the other regional operators, so that the interpretation and evaluation, as well as the elaboration of action / improvement plans is done. very easily by specialists in the field.

The Romanian benchmarking exercise has all the necessary elements to ensure efficiency and sustainability:

- well-structured, clear methodology, with definitions in line with IWA and best practices in the field of benchmarking;
- functional online platform, with various graphical options, with multiple filtering possibilities. Transparency and permanent access to historical data of all participants;
- written and known procedures, both for the functioning of the CEB and for all stages of the benchmarking exercise, including the Action Plans for improving the performance of the RO;
- the Romanian benchmarking system is self-financed by the contribution of the participating regional operators, so that the financial sustainability is ensured through their own forces;
- large number of participants from Romania, thus facilitating the finding of similar ORs in size or development (peer);

- the ownership of the database is internal and managed by CEB - ARA. (Report on the comparative analysis of the benchmarking system in Romania with international benchmarking systems (EBC), Variant 2 - 03.07.2019).

2. Benchmarking as a tool for comparing water performance internationally

The notion of benchmarking was introduced by Robert C. Camp in his book: *Benchmarking: The Search for Industry Best Practices that Lead to Superior Performance* (1989).

With the introduction of new regulations in the UK on the water and wastewater sector in 1989, benchmarking was chosen by the Water Services Regulatory Authority as a regulatory tool in the form of a yardstick competition to compare the performance of different water companies and compensate for the lack of competition in the sector, thus causing companies to improve their performance. After these beginnings of benchmarking in the water and wastewater sector, it began to be used in the form of benchmarking programs developed by water associations in several countries, governments in collaboration with universities, the World Bank (IBNET) but also as regulatory instrument in Germany and the United Kingdom.

The International Water Association (IWA) is a global network of water professionals, aiming to exchange scientific and professional experiences of academics and water industry managers, covering all aspects of the water circuit. The International Water Association's Benchmarking Group recommends abandoning the use of the terms "metric benchmarking" and "process benchmarking" and recommends an approach based on two consecutive components: "performance evaluation" and "performance improvement".

According to the benchmarking methodology, the benchmarking exercises compare the regional operators based on five performance areas (the 5 pillars model):

- Service security through performance indicators that measure the continuity of services without interruption.
- Quality of service through indicators that measure the quality of service from the consumer's perspective;
- Sustainability with indicators that address the "Triple Bottom Line", measuring environmental, social and economic parameters;
- Finance and efficiency through indicators that measure economic and financial performance;
- Water quality through performance indicators that measure compliance with water quality standards.

To these areas of performance is added contextual information that provides the inherent characteristics of the operator and through which the differences between systems and common points are identified, helping operators to compare performance.

Benchmarking facilitates the continuous process of improving efficiency and transparency for companies by: analizarea pozitiei în care se afla în prezent;

- oferirea unei platforme pentru schimbul celor mai bune practici de management și operare, gasind pe cineva care are performante masurabil mai bune;
- schimbul de cunostinte și experienta în benchmarking, invatand de la acestia ce fac exact pentru a atinge un anumit nivel de performanta (networking);
- adaptarea practicilor și proceselor acestora, care va avea ca rezultat invatarea și implementarea schimbarilor relevante, ce va duce la performante imbunatatite în cadrul companiei.

Benchmarking consists of two consecutive phases



Figure 1: Benchmarking phases

Source: Report on the comparative analysis of the benchmarking system in Romania with international benchmarking systems (EBC), Variant 2 - 03.07.2019

Performance evaluation generally does not take more than 6 months, while performance improvement can take considerably longer. Any benchmarking project can be framed in the two phases depending on the objectives pursued, the techniques used and also, taking into account the level of detail. Benchmarking techniques must always aim for continuous improvement, following the concept of PDCA (Plan, Do, Check, Act / plan, do, check, act). It is usually organized into projects ("exercises") with start and end dates and should be integrated into the (annual) business planning cycle, to connect it to the strategic objectives of the company, avoiding its transformation into a stand-alone project.

3. Brief diagnosis of benchmarking in the field of water in Romania

To assess the performance of water operators on the basis of comparable data, the World Bank launched the International Benchmarking Network in 1996.

IBNET was the first benchmarking study in which operators from the water supply and sewerage services sector in Romania participated.

The main objective of the project was to improve the performance level of the water supply and sewerage system, allowing comparisons between operators. The Bench Water System provided:

- The possibility for the company's management to compare its own performance with the performance of other operators, in order to identify areas that need improvement and to define a set of good practices for the parties involved;
- The possibility of the company's management to evaluate its own level of service efficiency, in relation to the other participating ORs;
- Possibility of monitoring by funding institutions and those responsible for sectoral policies, progress in improving performance in the water sector and compliance with the general objectives of the sector;
- The possibility of accessing the annual reports on the performance of the operators by the users and the general public.

The project proposed operational, managerial, financial and asset management benchmarking activities, taking into account the specific situation of the Romanian water and wastewater sector.

The online platform has been hosted and managed by the Romanian Water Association (ARA) since 2009, in accordance with the protocol established with the Ministry of Environment.

The functionality of the platform has been reduced due to limitations on data usage and transparency, with operators preferring to keep the data provided confidential. These aspects reduced the interest and motivation of the participating companies, and the responsibility for filling in the necessary data was transferred to the Romanian Water Association (ARA), the administrator of Apa Bench. ARA has issued annual reports based on Bench Water results.

The benchmarking exercises within Apa Bench focused on two areas of company performance, namely the operational performance and the managerial performance of the participating operators. The Romanian Water Association, considering the role, collected and compiled data annually, through the training center of the association, ensuring a basic quality through the control and management of data. The main categories of indicators used for the analysis of water supply and wastewater systems are: service coverage, quality of services, water consumption and water production, billing and collection, loss level, financial performance, metering methods, assets, the performance of pipelines, the affordability of services, wage costs and the level of employment, process indicators.

The resulting indicators are generated in the form of a graph, but the program does not allow a detailed individual or comparative analysis, which is a limitation for users. The data is processed in Excel format, and the company names are written in letters to keep the data confidential. The performance evaluation shows the evolution of the maximum and minimum values for the calculated indicators and the calculated average trend for all participating regional operators. These reports, by the way in which the information is presented and by maintaining the confidentiality of the data, do not allow a comparative analysis at company level or an easy identification of good practices.

According to the Romanian Water Association, issues such as lack of management and software development, inadequacy of the program for easy use, the difficulty of

improving the platform have led to the closure of this system. Thus, the latest report of the Romanian Water Association (ARA) based on the indicators from ApaBench covers the activity from 2012.

We conclude that the impact of ApaBench on improving the performance of companies takes the form of experience in collecting and transmitting data, giving companies a different perspective on comparing performance. This experience proved useful, including when it was decided to make transparent the data obtained from benchmarking exercises, which proved to be of major importance for the success and usefulness of the benchmarking exercise conducted in the coming years in Romania.

3.1 National benchmarking system (H2Obenchmark)

Currently, the benchmarking exercise of the Romanian water sector is organized and coordinated by the Center of Excellence for Benchmarking (CEB) within the Romanian Water Association. The Center of Excellence for Benchmarking aims to organize the benchmarking process annually, so that it is carried out with all regional operators in Romania. In order to properly implement the benchmarking system through the Center of Excellence for Benchmarking, the Steering Committee for Benchmarking (having a strategic role) was set up.

The benchmarking methodology used is built on the methodology developed by the World Water Association (IWA), ensuring compatibility and comparability with other operators using the IWA methodology.

In the Romanian benchmarking methodology, the stages of the benchmarking process used by regional operators are:

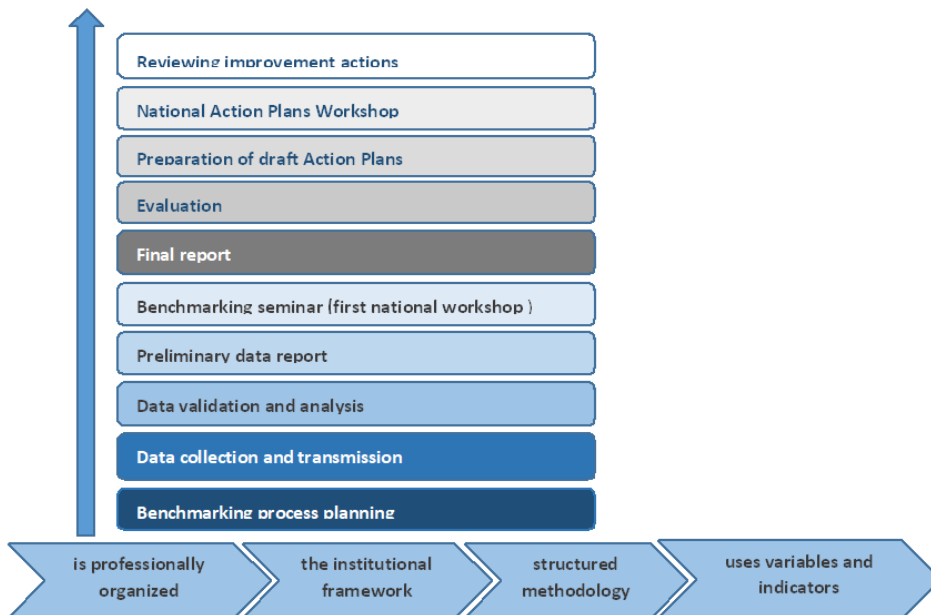


Figure 1: Stages of the benchmarking process

Source: Authors elaboration

A well-functioning, well-structured online platform, www.h2obenchmark.org, has been developed. All help files have been developed and updated, the methodology being described using IWA standards. The online benchmarking platform is developed on the web domain www.H2OBenchmark.org and hosted on the cloud server; the maintenance of the IT platform being ensured from the previous Benchmarking Program, carried out under the aegis of the EBRD. Data on regional operators from 2012 to the present are currently stored on the H2OBenchmark benchmarking platform. This database is a solid basis for evaluating performance and an effective means of drawing up performance improvement plans. Existing data are accessed by regional operators, but also by Intercommunity Development Associations, the latter having access to a predefined set of performance indicators. Benchmarking techniques in Romania follow the PDCA concept (Plan, Do, Check, Act / plan, do, verify, act) and materialize in the H2OBenchmark benchmarking exercise, by organizing a national workshop focused exclusively on presentations of good practices and part of the Action Plans to increase performance. H2OBenchmark has the advantage that preliminary reports are available around June, with the workshop usually taking place in mid-June, giving regional operators the opportunity to implement in a timely manner.

3.2 European Benchmarking Co-operation (EBC)

EBC's stated mission is to facilitate water services in the ongoing process of helping and innovating water services and to increase transparency by providing an international water services assessment program, providing a platform for the exchange of good management practices and management. operations and the exchange of benchmarking knowledge and experiences.. (www.waterbenchmark.org).

EBC was initiated in 2005 by the national water utilities associations of the Netherlands and the Nordic countries (DANVA, FIWA, Norsk Vann, Svenskt Vatten, Vewin) and several utilities of the Group of 6 cities (Copenhagen Energi, Helsinki Water, Oslo commune VAV, Stockholm Vatten).

The EBC benchmarking program is fully aligned with the IWA / AWWA (American Water Works Association) methodology and consists of two consecutive stages: performance evaluation and performance improvement.

The EBC (Western Europe) benchmarking exercise takes place between 1 May and 31 December and is structured in seven consecutive steps. EBC process planning steps:

- Preparation of the exercise (registration / registration of participants and orientation and training workshop) = February - April;
- Data collection = May - July;
- Data analysis and validation = July - September;
- Preliminary draft = end of September;
- Workshop (workshop) for disseminating results, good practices = November;

- Final report = December. This step, as in the case of H2OBenchmark, is preceded by the reopening of the data correction platform, if required;
- End of the exercise, completed with a public report = December 31.

The public report shows average values and spreads of key indicators for drinking water and sewerage services. Regarding drinking water, the report contains indicators such as the quality of water supplied, damage per 100 km, claims per property, share of water bill, electricity consumption per m³ of water produced, climate footprint per m³ of drinking water, coverage rate of costs and the age of the networks. Regarding wastewater indicators: compliance of treated wastewater, sewer blockages, share of sewage bill, energy consumption of treatment plants, total cost coverage rate and average costs per connected property.

The EBC benchmarking exercise is conducted in English, which requires that the staff involved have advanced knowledge of English. This is an important limitation of participation for water companies, respectively regional operators.

Another limitation of the EBC benchmarking exercise concerns the level of transparency and confidentiality, which is in line with the level accepted by the EBC participants. In the case of EBC, this aspect is difficult to manage because the participating companies come from many countries, with different approaches from one country to another but also from one company to another. The balance between ensuring a secure learning environment and requiring participants in transparency is ensured by the CBC by applying a confidentiality protocol accepted by all involved.

4. Similarities between the national benchmarking system (H2Obenchmark) and EBC

Both benchmarking exercises apply the IWA methodology.

We also find similarities in the stages of the benchmarking process, so that both contain the stages of: preparation / planning of the exercise, Data collection and transmission; Data analysis and validation, Preliminary data reporting; Benchmarking seminar / Workshop and final report.

Also, both exercises use the same IWA model for evaluating and improving performance, respectively benchmarking can be applied at the utility level (water company, comparing data at the level of the whole entity) or as benchmarking at process level (comparing achievements at the level of operation of water networks, sewage treatment plants, pumping stations, etc.).

Another similarity refers to the fact that the exercises perform a complete benchmarking cycle, ie evaluate and then aim to improve performance.

Both H2Obenchmark and EBC both use the same key areas of performance, namely: water quality, reliability, quality of service, sustainability, financial and efficiency.

Both benchmarking exercises use high-performance online platforms.

Differences between national benchmarking system (H2Obenchmark) and EBC

- A significant difference between the EBC and the national benchmarking system concerns the H2Obenchmark's concern for improving performance, by including in the stages of the benchmarking exercise the following

processes: Analysis of preliminary data, data history of participating companies, individually;

- Ensuring the necessary support in data analysis and then the preparation of Action Plans to improve performance;
- National workshop dedicated to Action Plans, in which the best practices are discussed and the debates on the presented topics are encouraged;
- Monitoring and evaluating the fulfillment of the measures included in the Action Plans of the RO.

Table 1: Differences between the two benchmarking exercises

| SYSTEM OF VARIABLES AND PERFORMANCE INDICATORS | |
|---|--|
| EBC | H2OBenchmark |
| VARIABLES | |
| Number of variables: basic + standard + advanced = 430 | Number of variables = 326 |
| INDICATORI DE PERFORMANȚĂ | |
| Number of indicators: basic + standard + advanced = aprox. 350 | Number of indicators = 206 |
| VARIABLE ADJUSTMENTS | |
| <p>In some cases IWA parameters are adjusted or parameters are added to better fit the EBC model.</p> <p>New parameters can be distinguished from existing IWA parameters by the following:</p> <p>When an existing parameter is split into several new parameters, the new parameters consist of the standard IWA code followed by: "a", "b", "c", etc.</p> <p>When a new parameter that resembles an existing one is entered, the parameter code from which the new parameter is derived is prefixed with a "z".</p> <p>completely new variables or performance indicators are coded with the original prefix (eg WA) and contain the code "EBC".</p> | <p>Sometimes the indicators for the Romanian specific are customized either because:</p> <ul style="list-style-type: none"> • contain a modified variable, but the calculation is done as in the case of IWA; • either because they have a different unit of measurement or represent a different version of the original IWA indicator. <p>When an existing variable is divided into several sub-variables or has a different unit of measure but is related to the same type of variable, the new variable is derived from the IWA and is followed by "a", "b", "c", etc. and contains "RO" in the code.</p> <p>The variables for other activities were derived from the variables for water, and the codes have the prefix "o" and also contain "RO".</p> <p>Certain operational data are required for wastewater activity in the largest city. These variables and indicators are derived from the general variables and indicators for water, and the codes have the prefix "l" and also contain "RO". A number of variables and indicators are specific to the whole company. These are derived from the</p> |

| | |
|--|---|
| | IWA variables for water and the codes have the prefix “t”, and also contain “RO” |
| TRANSPARENCY | |
| EBC | H2OBenchmark |
| Partial internal | Total internal |
| LANGUAGE | |
| EBC | H2OBenchmark |
| English | Romanian |
| PARTICIPATION COSTS AND FINANCING | |
| EBC | H2OBenchmark |
| EXPENSIVE for most potential OR participants in Romania | CHEAP (Sustainable from participants) |
| KNOW - HOW | |
| EBC | H2OBenchmark |
| Advanced, with more experience in conducting cross-border benchmarking exercises. | Advanced, with more experience on the specifics of Romania and the Romanian water sector. The CEB staff selection procedure ensures a permanent retention of know-how within the ARA |
| ONLINE PLATFORM | |
| EBC | H2OBenchmark |
| Only 1 user account is provided | 5 user accounts are provided. Usually: General Manager, Economic Director, Technical Director, Benchmarking Manager, ADI representative |
| Multiple possibilities for online generation of type graphics: linear, horizontal or vertical bar, spyder, circle, polka dots, etc. Great flexibility in setting up custom graphics: the years you want, who to compare with, graphics, filters, etc. At the moment the flexibility is greater in the case of EBC | Multiple possibilities for online generation of type graphics: linear, horizontal or vertical bar, spyder, circle, polka dots, etc. Great flexibility in setting up custom graphics: filters, years you want, who to compare with, graphics, etc. |
| OTHER DIFFERENCES | |
| EBC | H2OBenchmark |
| 25-30 participating companies, without interruption. There are companies that participate for only 1 year, 2 or 3. There are companies that participate for 1 year and take a break for a few years, etc. | 43 ORs permanent participants, without interruption. It is much easier to find a "peer" (relevant operator to compare with). |
| Award the cup and diploma annually to the best benchmarking manager | |
| Grants EBC certification, mentioned above, for uninterrupted participation in EBC | |

| | |
|--|--|
| Use "cards" that capture the essence, totals of the EBC exercise as a whole | |
| For companies participating in the advanced part, there is a section dedicated to "Climate Foot Print" - Greenhouse Gas Footprint. | |
| It starts and ends late. This is also due to the fact that not all companies open the fiscal year on January 1st. | |
| Participates developed companies, financially powerful. The average EBC (Western Europe) may represent a target or reference for the Romanian water sector in some more relevant indicators. | |

Source: Report on the comparative analysis of the Romanian benchmarking system with international benchmarking systems (EBC), Variant 2 - 03.07.2019

5. Conclusion

Lack of unitary provisions regarding the management of managed assets, specific and relevant to public utility services with an impact on housing, allowing the extraction of real and comparable information, oriented in the future, taking into account qualitative requirements, thus emphasizing the need for a decision-making mechanism and financially based on the possibility of evaluating the performance of the service starting from the financial sustainability, as a pillar of the sustainable development in the field. The implementation and use of modern management methods, unitary at branch level, field of activity, creates the premises for achieving the objectives assumed by Romania through the Treaty of Accession to the European Union, both in terms of environmental and quality requirements, as well as the fact that meeting the client's requirements and needs is essential in the field of public utility services with an impact on housing.

The technical and operational performance of water and wastewater systems is a key element in ensuring quality services and sustainable development of water and wastewater operators. Asset management and long-term planning is the key to the development of water and wastewater infrastructure in the service area of the regional operator. Knowing the state (degree of wear and tear) of assets allows the efficient allocation of investment, the preparation of realistic capital investment plans, increasing the life of assets, ensuring the level of service and understanding long-term financial needs. The calculation of performance indicators through unitary formulas of benchmarking exercises ensures the comparability of the data obtained and provides relevant information to regional operators in the field of water and wastewater, thus contributing to the role of benchmarking as a management tool.

We also consider that although there are requirements (especially of a socio-economic, qualitative and environmental nature) regarding the review of the

benchmarking methodology, this must be done in the light of the existing database on the online platform, so as not to distort any future results.

We reiterate the opportunity to prioritize the existing variables and performance indicators in the H2OBenchmarking exercise when choosing the relevant indicators for ANRSC, ARA, ministries, ADIs.

We believe that partnerships should also be encouraged with other relevant benchmarking systems or organizations in the European and international water sector.

Last but not least, given the proven usefulness of this management technique, we consider that it would be appropriate to implement in other areas of public services with an impact on housing.

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THE MEANING OF LIFE AT 20 YEARS OLD. GENERATION Z CONSUMERS

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Abstract: *We live in a digital society where people can use their smartphones daily and just by a click, everything can be controlled and performed. As long as our world improves we as humans strive to find out more about life and the meaning of it. Every day we create new connections, share emotions with family and friends, but do we have time to think about the meaning of our lives? This research aims to explore how Z Generation consumers understand their meaning in life. Z Generation, with the help of technologies, are more capable to look for different definitions about this concept than other generations. The purpose of our paper is to understand better the opinion of the Z Generation about this subject and how their choice as consumers is affected by their perception. The results and conclusions are obtained with the help of a qualitative research conducted on students of Iasi universities with a focus on their perceptions and opinions regarding the meaning of life.*

Keywords: *meaning in life; Z Generation consumers; youngsters values.*

JEL Classification: *D11; D19; D31.*

1. Ideas and concepts of the meaning in life

As human beings we always try to develop and understand different aspects of our life. Nowadays people discover the real meaning of the natural disasters, they focus on medical diagnoses (Berkup, 2022), develop new strategies about the earth, moon and also through all experiences and moments they strive to understand the meaning of their own lives (Wolf, 2010). We as humans depend very much on the people that are surrounding us, we live and share emotions every single day and that is the main source of meaning in life (King and Hicks, 2021).

It is difficult to give a definition. We have to understand that people are different, each of us having a different perception of life. There aren't two people with the same thinking. In general other people, the nature, our activities give a meaning to our lives and this can serve as anchors for having any interest in the world at all (Krok, 2018). The question of meaning in life is one of the most fundamental questions in life. That meaning is a matter of feelings and experiences, not of

physical possessions. It is the way we talk about things, not a feature of things themselves (Tutiasri and Febriyanti, 2021). On this theory, we can make life meaningful by the way we talk about it, and it cannot have a precise meaning for everyone. Living a life surrounded with people that share with us emotions and moments is what we are looking for our entire life and gives us a meaning.

We are all hungry for meaning, for purpose, for the feeling that our life is worth more than the sum of its parts (Schnell, 2020). Luckily, humans are resourceful- we have infinite ways of finding meaning, and infinite potential sources of meaning. We can find meaning in every scenario, every event, every occurrence, and every context (Berkup, 2022). We can find meaning in the sublime, in the absurd, in the dull and dreary, and in the perfectly wretched in life (King and Hicks, 2021). The meaning of life can change from day to day, from hour and hour but the most important thing is the specific meaning of a person's life at a given moment (Wolf, 2010). We share emotions, moments and ideas every day, we fall in love and make the other person the sense of our life, in other words we depend physical and psychological by people that surrounds us Krok, 2018). Happiness can be a well-defined concept in life and it can be derived from several sources, such as engagement in productive and meaningful activities, doing a good deed, loving a significant other or producing a creative product. We can ask ourselves if happiness can give so much meaning to our life and for sure the answer is yes, happy people, at any age, get more out of life because they put more into it (Berkup, 2022). Happy people are social, they do what they enjoy and enjoy what they do with planning and organizing all the things around. Finding meaning and purpose in life leads to happiness, not the other way around.

2. Characteristics of Z consumers

Through generations the concept of living a happy and meaningful life did not change at all, since ancient time we share emotions, moments and our behaviour depends on things that happen around us (Seemiller and Grace, 2018).

The Z Generation are the children of the Internet, often known as the Digital Generation. Is made up of people born after 1995 (Seemiller and Grace, 2019). One of the wonderful characteristics that Internet technology has bestowed on this generation is their ability to be engaged in multiple subjects at once. The Z Generation like activities and games that express different themselves (Seemiller and Grace, 2017). Socializing over the Internet, consuming quickly, practicality and speed, interactivity, efficiency, dissatisfaction, and being result-oriented are among their most important traits (Hainline et al., 2010). They believe that anything is possible in the world and that they can accomplish anything with their equipment (Gaidhani, Arora and Sharma, 2019). They have a high level of self-reliance (Loveland, 2017). They are usually efficient and creative. Because of enhanced technology, they are projected to have higher living standards, live longer, and be wealthier than earlier generations (Hoch, 2019). The Z Generation are still studying today. In comparison to past generations, kids begin their education at a younger

age and receive a more developed and planned education. They may reap the benefits of the education they get in the workplace.

Generation Z cares about the collective good and well-being. One of the best core values is that they care about other groups and formal volunteering (Loveland, 2017). They believe more about action than words and they are continually sharing experiences (Seemiller and Grace, 2019). Being an open-minded generation, the freedom of expression is vital, they always strive to support people and groups that are authentic and this is why it is important to have the freedom as desired (Hoch, 2019).

Does technology influence the meaning of life for Gen Z? The answer is yes. It influences their behaviour, mind, manners, hobbies, appearance, clothing, style and education (Hoch, 2019). The thing that they have to understand is how technology should influence their life and they choose the positive or the negative manner. Technology and social media will always improve and this is not in their hands to stop it, but they can choose to not pay attention and always be positive and influenced only by good things that can rise their confidence and make themselves better than yesterday.

3. Methodology

The purpose of this paper is to explore the opinion of the Z Generation students about the concept of meaning in life.

The main objective is to analyze the concept of meaning in life from the eyes of Iasi University students and also how they experience these meaning in life.

In order to reach this objective we have formulated several secondary objectives:

- To find out what Z generation students understand by the concept of meaning in life.
- To identify how they experience and share their meanings of life.
- To explore the students' meaning of life as graduating the university.
- To discover what are they doing to get closer to the meaning in life.
- To determine what do they expect to be the meaning of life five years after graduating the university

This research is a qualitative one, based on interviews where respondents shared their opinions and experiences. Due to this pandemic situation, we used the online method, the research instrument being the interview guide that includes multiple and open questions. Choosing a qualitative method made us understood better people's behavior and thinking by sharing anonymous information based on their own life. The structure of the interview guide is based on defining the concept of the meaning in life through the eyes of students. Their experiences and beliefs will help me write proper interpretations and conclusions.

The sample was composed by 20 students, both employed or unemployed at the moment of the interview, 12 females and 8 males, aged between 18 to 24 years old. All of them were adults from the Z Generation, 19 being in a relationship and only

one of them single. The meeting were conducted online and the average time to complete them was 30 minutes.

4. Results

The findings of our research will be presented by each one of our five objectives using frequencies tables.

The first objective implies finding out the concept of the meaning in life explained by students. In the table no. 1 are presented the results.

Table no 1: The words frequency regarding the concept of meaning in life

| Word | Frequency |
|------------|-----------|
| Family | 5 |
| Career | 4 |
| Happiness | 4 |
| Money | 4 |
| Love | 3 |
| Values | 3 |
| Health | 1 |
| Purpose | 1 |
| Travelling | 1 |

Source: own computing data

The purpose of the *first objective* is to understand students perception of the concept of meaning in life. Most of the respondents opted for family, career and happiness. Students also wrote about values, love, friends, being healthy and having a purpose in life. Evaluating the answers most of students define the concept of meaning in life by sharing their values, by taking care of family and friends, by love and being loved. This shows the fact that this generation depends of people that are sharing emotions with them. They like being surrounded by people who loves and supports them every single day. The word *family* has a 5 times frequency, so the family members are very important for students. On the other hand, we can see answers like *money* and work, which are also vital for students. *Money* has a frequency of 4 times and this emphasize the desire of being independent and grow up in life. Another frequent word was *values*. Students stand for things that real matters and value important things. Living a meaningful life for them means achieve all the goals proposed, be aware of their values, have a healthy family, be surrounded of friends and work hard for growing in career and make money. This study exposed some effects for the women interviewed: the meaning in life is established through broader and social values of work and life, like caring for others and respect. Women stand for family, happiness and health. By contrast, the male counterparts interviewed revealed the meaning in life in quantitative terms like: career, financial independence and work.

For *the second objective* we aimed identifying how students experience and share their meanings of life. Most of the respondents stand for sharing emotions every day and working hard for achieving goals. It is really important that students understand the fact that they have to work hard to go further in life. Some of the respondents recognized the fact that they want money to travel. Actually, the entire research is almost composed on two sides: *family* and *money*. Most of students said that they want all of these things together, for some of them *career* goes first. *Love* is another element for living a meaningful life. In order to create positive connections, they share love and receive it back. All these elements help each other to live a meaningful life. We can notice here that students are grateful for everything they have and try to do their best. They are conscious that everything starts from them, through realities, step by step getting far.

The third objective emphasize the meaning of life as graduating the university. In table no. 2 we present the mentioned words that describe the meaning of life as perceived in the moment of finishing the university studies.

Table no. 2 The words frequency regarding the meaning of life as graduating the university.

| Word | Frequency |
|----------|-----------|
| Job | 8 |
| Career | 4 |
| Business | 2 |
| Family | 1 |
| Vacation | 1 |

Source: own computing data

For students the meaning in life, as graduating the university, means finding a well-paid job or opening their own business in order to grow in career. Most of the answers show that the respondents chose to be financial independent by finding a job full of opportunities. Due to this point, students are aware that the next step is starting the grownup life. Moreover, they realize that working hard lead to success. We observed through answers that respondents have big expectations in finding a suitable job that can fit all the requirements. By sharing these opinions and beliefs, we can say for sure that as graduating the university most of students will look for a well-paid job and get involved in different activities. Other words that were less frequent than previous ones are family and vacation. Beside the working process and forming a professional career, a strong family is also a key factor in their meaningful life. Vacations offer complete relaxation and a kind of escape from reality. Analyzing the answers, students are aware that for planning vacation we need resources and time. From their point of view, for accomplishing all these needs, working hard and finding a well-paid job in the near future is the best solution.

The fourth objective explains how students can get closer to their meaning in life.

In table no 3 we present the most relevant key-words that have been chosen by students in order to describe what they do to get closer to a meaningful life.

Table no. 3: The words frequency related to what they do to get closer to the meaning of life

| Word | Frequency |
|-------------|------------------|
| Work | 5 |
| Skills | 3 |
| Family | 2 |
| Study | 2 |
| Career | 1 |

Source: own computing data

We notice that, to get closer to the meaning in life, students first of all try to understand themselves, to figure out what to do with their future and develop personal skills. The most frequent is *work*. Due to this point, we understood that respondents try to work hard, be more responsible, independent in order to get closer to a meaningful life. Another word with a big frequency is *skills*. Students improve their skills every day, invest in knowledge and in themselves. By building good relationships with everyone they create a positive correlation between thoughts and actions. The third common word is *family*, taking care of their loved ones get them closer to the meaning in life. *Studying* is also an important decision that emphasizes the importance of being educated and follow the rules. Students also opted for following their values, take care of friends, build strong relationships with everyone and have a successful career.

Working day by day to have enough financial resources, improve social and cultural skills by studying hard get students closer to their meaning of life. The key factor is independence and have a precise purpose to follow in order to get the success in life. *The fifth objective* aims to explain how they see their meaning of life evolving five years after graduation.

In table no. 4 we show students expectations for their meaning in life to be in five years.

Table no. 4: The words frequency regarding the meaning in life after five years

| Word | Frequency |
|------------|-----------|
| Family | 9 |
| Career | 6 |
| Job | 5 |
| House | 2 |
| Money | 2 |
| Travelling | 1 |

Source: own computing data

The biggest frequency has the word: *family*. Building a family leads to respect, support. Another word with big frequency was: *career*, followed closely by *job*. Students want financial independence and are looking to grow in career in order to have big possibilities in life. The respondents' answers made us understood that they can create a positive correlation between career and family. Creating this strong connection and improving it day by day make lifemaking meaningful and happy. As we already saw, students have these strong ideas at a very young age and set milestones in order to achieve the best. Other key words determined in the interview were *house*, *money* and *travelling*. All of this are a sort of consequences of the first three words with the biggest frequency. If you have a big family, well-paid job and a future grow in career, the possibilities to travel, buy a house and have money are unlimited.

5. Conclusions

As we already know, people always try to find solutions and definitions to different aspects of their life. People struggle to understand the meaning of natural disasters, medical diagnoses, life on other planets and they also since centuries try to understand the meaning of their own life. The concept of meaning in life has not a clear definition. Despite its controversy and the fragmented debates in literature, most of people define their life based on something that keeps them awake. There are a lot of studies that identifies the meaning of life, but most of them are based on the presence of meaning in work.

Meaning in this sense enables people to interpret and organize their experience and effectively direct their energies. The concept of meaning in life is something abstract, each of us define their own meaning in life. Each of us set goals and have a specific purpose thereupon to focus. Via this research we wanted to contribute with a small part to the existent literature regarding the meaning of life. We pointed out and focused specifically on the meaning of life for 20 years old students and in the same time make a correlation between their opinions and beliefs.

The strongest and most frequent associations, as we noticed in our research, are made with family, career and happiness. At 20 years old, students understand the meaning in life by having meaningful relationships, building homes and strong careers and

feeling good. Students also define it by values, love, friends, being healthy and having a purpose in life.

They stand for sharing emotions every day and working hard for achieving goals. Money is important. But, more than having money, is important what money can bring. And here we found strong associations between having money and being happy, healthy and travelling all over the world.

Our subjects were senior students, so they were about to graduate. In that context, the present concern was related to having a well-paid job and starting a career. Therefore the immediate meaning in life was to be financial independent. For that reason they tried first to understand themselves, what they want, what they prefer and what they hate. Students figured out what to do in near future and developed personal skills. But, after five years, they expect to move their meaning of life in another direction, especially the one responsible for relations and family. Career and money will still be important, but not as important as having dear and important people beside them.

The biggest limitation of our research was the constraint we had to face due to the pandemic situation. Also, the subject itself is difficult to comprehend and to be explained in words by anyone, at any age, especially by youngsters. The answers given in a face-to-face conversation and without any preparation seemed to be quite impossible sometimes.

In conclusion, the general meaning of life at twenty years old from the students' point of view emphasizes major values like family, friends, love, career, job and money. Due to this fact, students have a lot of common ideas, beliefs and desires. Beginning from the concept of meaning in life, we can say that each person defines its own concept and purpose. Students have powerful ideas at a very young age and set milestones in order to achieve the best. To sum all this up, we can say that literature bring us a lot of possible definitions from different scientists regarding the meaning of life, but the main fact is that these definitions are just hypothesis and possible answers. Each of us think and believe that they are living a unique meaningful life and struggle day by day to make it better.

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SOFTWARE ECOSYSTEMS AND DIGITAL PLATFORMS – A THEORETICAL REVIEW

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Abstract: *Recent literature has focused increasingly on software ecosystems and digital platforms. Digital platforms, as the foundation that supports software ecosystems' development, have reshaped the traditional business models by focusing more on new dimensions such as stakeholders instead of customers and suppliers, or value co-creation instead of value creation. Software ecosystems contribute significantly to how business is conducted around the world. By performing an overview of recent literature published in Web of Science top academic journals, our paper presents a bibliometric co-occurrence and co-authorship analysis of both software ecosystems and digital platforms. The results show that software ecosystems and digital platforms research collide based on the key words co-occurrence analysis under a certain degree, underlying the evolution of the two topics towards platform ecosystem and platform economy research in recent years.*

Keywords: *software ecosystems, SECO, digital platforms.*

JEL Classification: *M15*

1. Introduction

The world of business is changing today as through the pervasiveness of digital technologies driving the technological revolution. We are witnessing the creation of Economy 4.0, characterized by the ubiquity of information, bottom-up participation, “co-creation”, self-organization and collective intelligence as new organizational principles (Helbing, 2021). The trend now includes the creation of various complex, interdependent software solutions in which the multiple stakeholders interact to co-create value within the same ecosystem. These software ecosystems are based on platforms, representing various technologies supporting them. Within software ecosystems, the platform is the key technological resource (Dal Bianco et al., 2014). Whereas traditional firms create value within the boundaries of a company or a supply chain, digital platforms utilize an ecosystem of autonomous agents to co-create value (Hein et al., 2020). Some of the most well-known such platforms, with millions of users around the world, are: Airbnb in hospitality, Uber, Lift, Bolt and BlaBlaCar in transportation, Deliveroo in food delivery, Facebook, Instagram, Whatsapp in communications, Netflix, Youtube, Tiktok in entertainment industry.

Digital platforms are the main drivers of the platform economy, which along with the proliferation of the internet and the widespread diffusion of mobile phones have transformed how consumers engage and share experiences, buy products and food, pay for goods and services, access health care, and share accommodation and resources (Fu et al., 2021). In order to succeed in today's economy, entrepreneurs, consumers and academics alike must grasp the implications of these software ecosystems and digital platforms as they behold tomorrow's successful businesses. Our paper focuses on understanding software ecosystems and digital platforms, by exploring the articles published in Web of Science database. Using the Vos Viewer software, we are able to perform a co-occurrence and co-authorship bibliometric analysis in order to find common ground research of the two topics we investigate, but also a bibliometric analysis of themes, their distribution, and the main clusters. The paper is structured as follows: we cover concepts definitions in a brief literature review, proceeding to research methodologies, results, implication and conclusions.

2. Brief literature review on software ecosystems and digital platforms

A software ecosystem is the interaction of a set of actors on top of a common technological platform that results in a number of software solutions or services (Manikas and Hansen, 2013), that enable, support and automate the activities and transactions by the actors in the associated social or business ecosystem and the organizations that provide these solutions (Bosch, 2009). In this extended group of stakeholder's new products and services are created, improved, adapted, and reshaped to be made available to an end-consumer who is no longer their sole beneficiary, but can in the same time take the role of the contributor and actor in this process. In this ongoing increased stakeholders' interactions and involvement modern, fast products and services are emerging to challenge traditional business models into new forms. The success of software ecosystems highly depends on the variety and quality of end-user applications (Dal Bianco et al., 2014). This approach differs from IT in that the initiating actor does not necessarily own the software produced by contributing actors and does not hire the contributing actors (Manikas and Hansen, 2013).

Digital platforms on the other hand, represent the technologies that support software ecosystems. The digital economy has led to significant socio-economic transformations in all aspects of our society and livelihoods (Fu et al., 2021) and digital platforms contributed by putting labour at the centre of their valorisation and therefore of their business models (Baronian, 2020). Digital platforms build on the widespread availability of constantly evolving information technology, such as cloud computing, in-memory databases, and analytical solutions for big data (Hein et al., 2020). Platforms are products or services that function as foundations upon which others—termed complementors—can build complementary products, services, or technologies (Eckhardt et al., 2018). The emergence of large-scale digital platforms such as Facebook, Google Play and Apple App Store around 2008 has created opportunities for independent entrepreneurs to offer their self-

developed software applications (“apps”) to large groups of platform users (Fan et al., 2021).

From the engineering perspective, the connection between various types of digital platforms and software ecosystems can be explained in very simple and easy to visualize lines. Historically, software ecosystems have evolved from component-based systems to software platforms, to software product lines and became increasingly common for software organizations (Dal Bianco et al., 2014). The product line architecture and shared components, referred to as the platform, if made available to parties external to the company, enables the company to transition from a software product line to a software ecosystem (Bosch, 2009). In the table below we illustrate the various types of digital platforms used for different alternatives of software ecosystems. According to the literature, software ecosystems are an effective way to construct large software systems on top of a software platform by composing components developed by internal and external contributors (Manikas and Hansen, 2013) interacting and co-creating value for the end consumer. In the recent years, the term software ecosystem and digital platform seem to evolve towards a combined form called platform ecosystem (Fan et al., 2021), which is linked to platform economy. The platform ecosystem is based on a digital platform and includes all companies, the organization and other formal elements from the platform environment, which influence the value of the platform and its participants (Drewel et al., 2021). It is an assemblage of the offerings developed on that platform (Kapoor et al., 2021). Whereas, platform economy refers to a situation in the future in which major economic sectors have completed a transformation into a platform ecosystem (Drewel et al., 2021).

Table 1 Software ecosystems and digital platforms

| Category/Platform | Desktop | Web | Mobile |
|----------------------|------------------------------|---|-----------------|
| End-user programming | MS Excel, Mathematica, VHDL | Yahoo, Pipes, Microsoft Pop Fly, Google mashup editor | - |
| Application | MS Office | Sales Force, Ebay, Amazon, Ning | - |
| Operating system | MS Windows, Linux, Apple IOS | Google App Engine, Yahoo developer, Bungee Labs | Android, iPhone |

Source: adapted from (Bosch, 2009, p. 2)

3. Research methodology

In this paper we perform a bibliometric analysis employing Vos viewer on software ecosystems and digital platforms literature. We selected Web of Science database, on which we performed a search on software ecosystem and digital platform, using commas and the apteryx symbol in order to include all relevant forms of the 2 expressions. We applied inclusion/exclusion criteria limiting the search to journal

articles and obtained 209 results on software ecosystems and 3323 on digital platforms.

We saved the data bases and performed the bibliometric of co-occurrence analysis on keywords used in research on the selected topics to explore where they overlap. Then we tested for the co-authorship for identifying the most promising authors, contributing with the highest number of papers on the selected topics and their set of relations. Maps with visual representations of the results were generated and are presented in the results section below.

4. Results

A total of 3532 peer-reviewed articles (209 on software ecosystems and 3323 on digital platforms) from top academic journals were identified in WOS data base. The maps of visual representation of the co-occurrence in keywords to observe the overlapping of the two topics can be seen below in Figure 1 and Figure 2. Keywords provided by authors of the papers on software ecosystems occurring for more than 1 time in the WOS core database were enrolled in the final analysis. Of the 218 keywords, 218 met the threshold for software ecosystems, as seen in Figure 1. We chose the minimum number of occurrences at 1 for software ecosystems due to the smaller sample size of articles included.

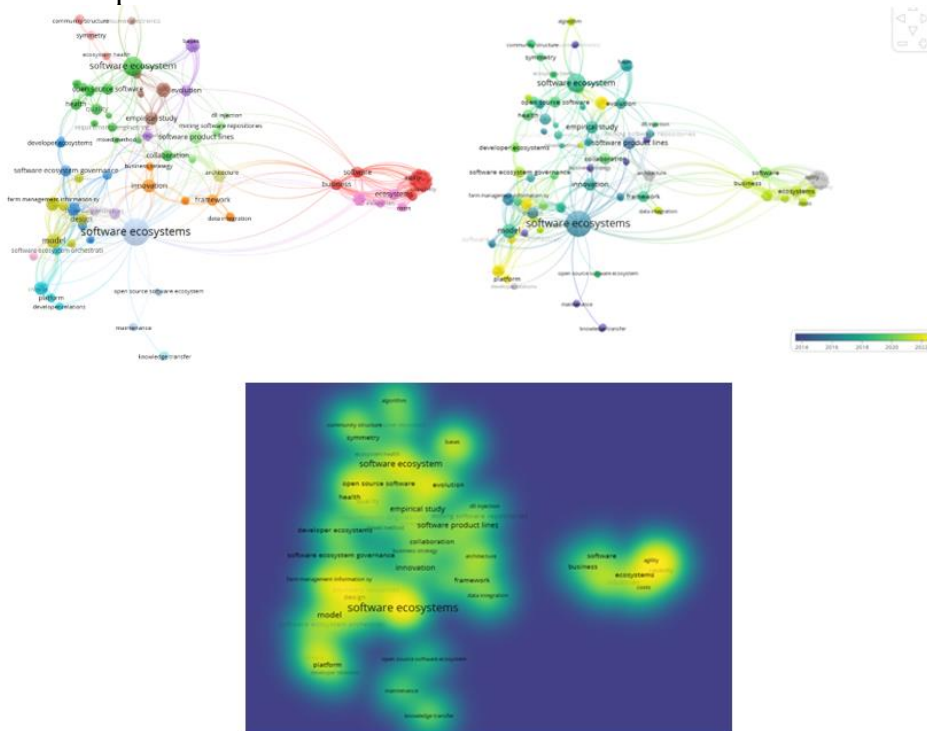


Figure 1 Co-occurrence analysis of software ecosystems

As we can observe in Figure 1, there are some clear clusters of keywords identified in the academic literature. The size of nodes indicates the frequency of occurrence

and curves between the nodes represents their co-occurrence in the same publication. The shorter the distance between two nodes, the larger the number of co-occurrences of the two keywords. The identified clusters revolve around keywords such as innovation, empirical research, open-source innovation, agility and capability, governance, design and model. Considering the evolution in time of the research (top left corner in Figure 1), we note that researchers first focused on the basics of software ecosystems (product lines, maintenance, knowledge transfer, business strategy), and gradually moved towards topics on innovation framework, symmetry, community structure, open-source software. In recent years the academic literature on software ecosystems focuses more on platforms, costs, governance and business aspects such as costs. In the density visualization topics such as software ecosystems, boundary resources, agility, open-source software, evolution, health and platform got mentioned by the highest number of articles.

Figure 2 depicts bibliometric results on digital platforms, including keywords identified in the literature, with an occurrence of at least 5 times, 12.752 results out of which 802 met the threshold. We can observe a number of research clusters, such as the one in green on social media topics, in yellow on labor and platform work, in blue on technology and innovation, in red on health. In the top left corner of Figure 2 a recent evolution of research topics can be observed based on keywords revolving around social media in 2019, moving towards innovation in early 2020, and later focusing on Covid-19 and health in 2022. In the density visualization digital platforms, technology, innovation, social media, and covid-19 are the topics that generated the highest number of publications.

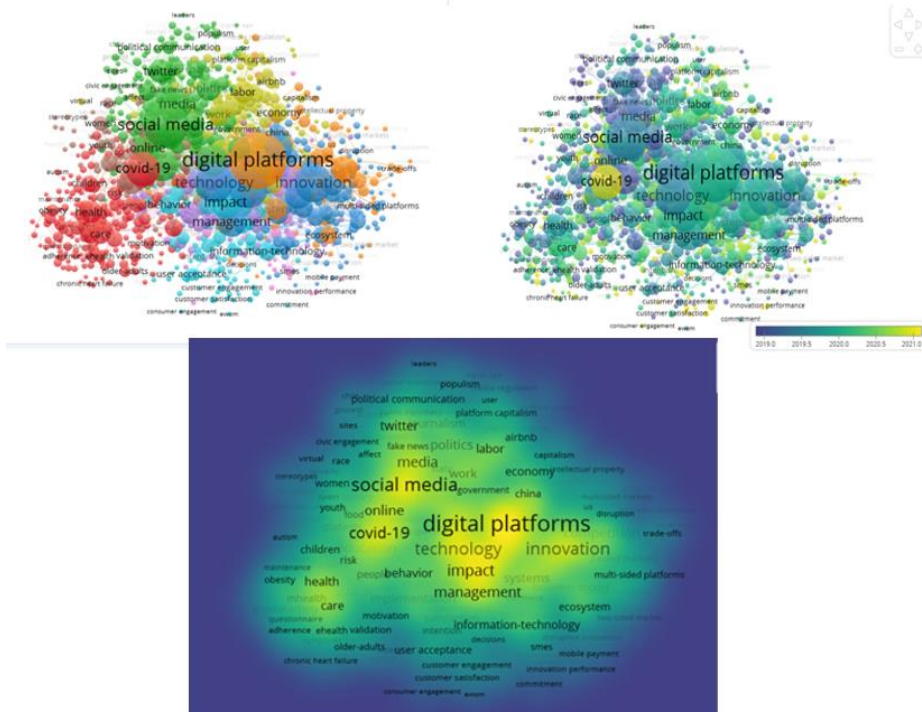


Figure 1 Co-occurrence analysis of digital platforms

In recent year the term software ecosystem and digital platform have emerged in a new term, which is platform ecosystem (Fan et al., 2021).

In Table 1 we grouped the results on the co-authorship analysis on the analysed topics, including only the top 30 authors resulted in the Vos Viewer on both topics based on an occurrence of at least 3 times.

Table 1 Co-authors analysis results on software ecosystems and digital platforms

| | Software ecosystems | | | Digital products | | |
|----|---------------------|------|---------------------|------------------|------|---------------------|
| | Authors | docs | total link strength | Authors | docs | total link strength |
| 1 | LIAO, ZF | 5 | 27 | ALI, L | 5 | 24 |
| 2 | ZHANG, Y | 5 | 27 | EKMAN, I | 5 | 24 |
| 3 | LIU, SZ | 4 | 23 | FORS, A | 5 | 24 |
| 4 | LIU, H | 2 | 11 | BARENFELD, E | 4 | 20 |
| 5 | ZHOU, Y | 2 | 10 | WALLSTROM, S | 4 | 20 |
| 6 | BERGER, T | 2 | 9 | GYLLENSTEN, H | 3 | 16 |
| 7 | BLINCOE, K | 2 | 8 | SWEDBERG, K | 3 | 16 |
| 8 | DAMIAN, D | 2 | 8 | ANEMA, JR | 3 | 15 |
| 9 | JANSEN, S | 5 | 8 | BOOT, CRL | 3 | 15 |
| 10 | ROBBES, R | 2 | 8 | BROUWERS, EPM | 3 | 15 |
| 11 | HE, DY | 1 | 7 | HAVERMANS, BM | 3 | 15 |
| 12 | JIN, HZ | 1 | 7 | HOUTMAN, ILD | 3 | 15 |
| 13 | WU, JS | 1 | 7 | KRCMAR, H | 6 | 15 |
| 14 | YANG, L | 1 | 7 | VAN DER BEEK, AJ | 3 | 15 |
| 15 | ZHAO, BH | 1 | 7 | LIAO, ZF | 5 | 13 |
| 16 | CZARNECKI, K | 1 | 6 | ZHANG, Y | 5 | 13 |
| 17 | DIENST, S | 1 | 6 | ARDEN, MA | 3 | 12 |
| 18 | PFEIFFER, RH | 1 | 6 | DRABBLE, SJ | 3 | 12 |
| 19 | SHE, S | 1 | 6 | HUTCHINGS, M | 3 | 12 |
| 20 | TARTLER, R | 1 | 6 | MAGUIRE, C | 3 | 12 |
| 21 | WANG, Y | 1 | 6 | O'CATHAIN, A | 3 | 12 |
| 22 | WASOWSKI, A | 1 | 6 | SCHREIECK, M | 4 | 12 |
| 23 | WIESE, I | 2 | 6 | TRABUCCHI, D | 8 | 12 |
| 24 | YI, MJ | 1 | 6 | WIESCHE, M | 4 | 12 |
| 25 | ANQUETIL, N | 1 | 5 | HEIN, A | 4 | 11 |
| 26 | BEULENS, AJM | 1 | 5 | LIU, SZ | 4 | 11 |
| 27 | BOSCH, J | 4 | 5 | BOHM, M | 3 | 10 |
| 28 | BRAGA, R | 1 | 5 | BUGANZA, T | 6 | 10 |
| 29 | BRINKEMPER, S | 2 | 5 | HUNTINGTON, P | 5 | 9 |
| 30 | CAMPOS, F | 1 | 5 | MULLER, JM | 4 | 9 |

5. Conclusions

Software ecosystems and digital platforms represent two topics with much in common at a first glance, starting from their definitions. Digital platforms hold a central position in the business models of the largest companies in the world, transforming traditional roles in areas like employment, productivity and innovation activities (Bonina et al., 2021). Moreover, their relevance in business derives also from the fact that four of the largest firms in the world in terms of market value in late 2018 were Microsoft, Apple, Amazon and Alphabet – all platform companies (Cusumano et al., 2019). In our research on software ecosystems and digital platforms published articles in WOS data base we observe some key areas under which research collides, but with significant less overlap than anticipated. This can be explained by an evolution of research from software ecosystems and digital products toward platform ecosystem, as an emerging topic in very recent years including focus on the emerging topic of future platform economy. The research limitations include the fact that we restricted our research to article published in Web of Science data base. Future research should focus on a more inclusive approach by scanning more data bases, but also on more empirical approaches.

6. Acknowledgements

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EDUCATION MANAGEMENT ACCORDING TO THE „NEW RULES”

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Abstract: *The pandemic coronavirus brought major disruptions to education between 2020 and 2022, giving an important role to online education/ learning. Attendance at online courses has largely depended on the existence of computer/laptop and internet connections. Family involvement in children's education was crucial, sometimes being forced to assume the role of teachers. It is sad but thru that, the success of the children during this period largely depended on the financial situation of the parents. The unpreparedness of students in the online teaching and learning process from the beginning over time was replaced with quality and competency in the use of communication and technology. The need for teachers was underlined by the crisis. Virtual learning versus traditional in-person learning has been the favourite topic of debate for scientists in 2021. The detailed analysis of the weaknesses and strengths fills whole volumes, but most of them agree with one thing a strong education means combining them. Knowledge management in a virtual environment is difficult and requires a lot of attention and skills. The composition of the virtual pedagogical portfolio must be done in the interest of the students. Adapting the curriculum to local needs is a demand for a successful education, satisfied students who will be capable to assume a role in economic development. We must not lose sight of the fact that by 2022 over 50 million students are enrolled on the most popular online platforms. The development of a new educational system that is sustainable and equipped for all kinds of unexpected scenarios is a global necessity.*

Keywords: *virtual learning; adaptation; pandemic; sustainability; online platforms*

JEL Classification: I21; I24

1. Introduction

Before the outbreak of covid-19, education already faced problems like lack of teachers, topography issues, and families' poor economic conditions. The experience of transferring knowledge through online learning for many represents a "new industrial revolution" in which science is inseparable from technology. For example, in Indonesia at the national level was implemented the Open and Integrated Indonesian Online Lecture Program (KDITT), which ensures quality for the entire academic community (Batubara, 2021). Among the benefits of online learning are the increased level of interaction between students and teachers, time and place flexibility, the potential to reach a global audience, and easy updating of content. During this hard time was created global study groups shared knowledge, methods,

and solutions for the advancement of science and society. Google Meet, Smart Class, Zenius, Quipper, Zoom, Facetime, Slack, Skype, Join.me, Highfive, GoTo Meeting, and Intrado are some of the platforms that have been suitable solutions for online meetings in a time of great restrictions. Benefits provided: simple scheduling, screen sharing, instant messaging, record meetings, webinar functionalities, meeting waiting room, and cloud storage for recordings.

2. Literature review

Dubey and Pandey present challenges and opportunities in education during the pandemic in India (Dubey, Pandey, 2020). In Pravat opinion, COVID-19 has impacted immensely the education sector of India, created many challenges, and various opportunities among which the Indian Govt. and different stakeholders of education explored Open and Distance learning (ODL) by adopting different digital technologies (Pravat, 2020). Onyema's study concluded that unequal access to technology and prolonged school closures deprived millions of students of access to education, particularly those in third world countries, rural areas, and people with special needs whose consequences will be seen shortly (Onyema at al 2020). Kalimullina shows that the figure of the teacher, even in connection with the use of digital instruments, is so far unchanged in the learning process (Kalimullina at al 2021). In Careaga's vision, online education is justified under three sets of conditions: territorial dispersion, the need to educate very large groups of students, and a way to meet educational needs in exceptional situations (Careaga at al 2020). Sahlberg says that the pandemic may help make education more equitable (Sahlberg, 2021). In Şeren opinion, education can become a business of machines, not humanity (Şeren, Özcan, 2021). Hill is of the opinion that in British Columbia the pandemic has highlighted the need to re-envision teachers' role and education in multiple ways (Hill at al, 2020).

3. Methodology

The research in this article involves the study of national and international specialized literature, statistical data, as well as an analysis conducted by international organizations about education. Determine the advantages and drawbacks of virtual learning, and face to face learning, to present a clearer picture. Because we cannot appreciate the possible changes that will take place without being aware of the reality: education will never disappear from human society, but it will be very changed from now on. So, the digital environment creates fundamentally new conditions for education and self-expression, and if young people are adaptable to changes, they will benefit in the medium and long term.

4. Virtual learning versus traditional in-person learning

Advantages of virtual learning, webcasting, virtual group discussions, and video conferencing include dynamics interaction, a safe and comfortable environment, time flexibility, enhanced students' independents, and self-learning capacity. Through drawbacks, can be listed as isolation, the dependence on good internet, lack of hands-on exposure. The benefits of traditional learning are well known as direct interaction, hands-on exposure, direct student assessment, setting boundaries between home and school, provide training for procedural skills. But like anything in this world, traditional education has its disadvantages like lack of innovation, reliance on the presence of lecturers all the time of education, wasting a lot of time commuting and moving between different classes. In this situation examinations have been delayed and postponed, which affected the motivation of the students, and caused massive distress. Many students believe that face to face education is boring and monotonous but online elements could help them get motivated to learn more effectively. The role of the teacher was in the middle of the attention and discussions for a long time, and the pandemical situation accentuated their need and high-performance training. The rapid development of very advanced technologies leads to massive information processing capabilities. If we look at Kuwait, we will see that even though the combination of online and traditional education has been on the agenda of several Ministries of Education, none of them has managed to implement it before the pandemic. An existing digital infrastructure that only needed to be activated for young people to benefit from their share of education was the perfect solution (Alhouti, 2020). At least 3 million Italian students may not have been reached by remote learning due to a lack of internet connectivity or devices at home (Mascheroni at al, 2021). To see the importance of learning tools, figure number 1 shows their use in percentage.

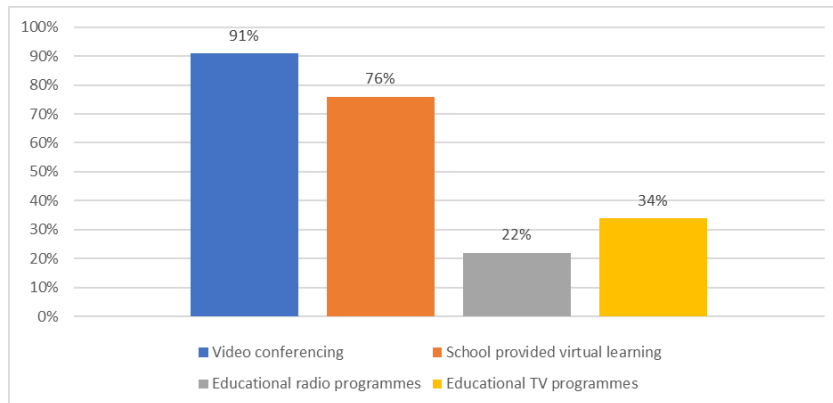


Figure 1: The average use of digital learning tools in 2021

Source: created by the author, based on information collected from UNESCO

4.1. Knowledge management in virtual education

One solution would be the organization of education in such a way that teachers can participate in the design of virtual pedagogical portfolios. Must be avoided the, copy and paste syndrome acquired by many during online learning. Collaborative construction of the didactical process is a must for successful learning, teachers and students need to work and learn together to reach intellectual, cognitive, and emotional satisfaction. The internet facilitates access to educational resources regardless of their location, stimulating collaboration globally. Evaluation of competencies, skills, and/or learning achievements should be done in different contexts to be relevant, and feedback should be given a bigger role. Education needs to be synonym with trust-based professionalism and have the autonomy to adapt the curriculum to local needs. The adaptability of young people to change is crucial for the development of a changing society. We all know that this is not exactly easy to achieve. Thus, we can see that countries that do not easily adapt to changes become marginalized.

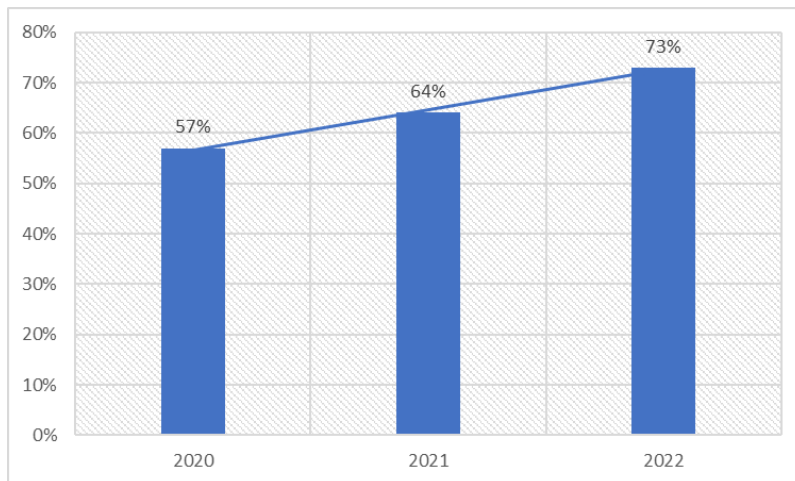


Figure 2: The adaptability of young people to "new" educational reality
Source: created by the author, based on information collected from UNESCO

5. The future of education, post-pandemic reality

The need for a new educational system that would be safe, sustainable, and equipped for all kinds of unexpected scenarios in the future is obvious. One solution for the future is to create reliable online platforms whose content meets both the educational requirements of the Ministry of Education in each country and the needs of students. To get a time-tested method it is necessary to combine traditional face-to-face learning with online virtual learning. For students aged up to 25 years, the digitalisation of education is natural, and teachers represent a special layer. In a transforming learning environment, teachers are the bridge and the key to success for young people ready for the future and a prosperous economy. And this situation is forcing teachers to rebuild their methodologies. To successfully meet the needs of

a modern economy that wants a speedy recovery education must go beyond tradition (Kalimullina et al, 2021). A personal trajectory for every student is a wish, in which improved student performance and flexibility are the first places. Given that over 50 million students are enrolled on the most popular online platforms such as Coursera, edX, XueuetangX, and Udacity must recognize the appeal of online courses. The online platforms that during this difficult period have been able to adapt the courses to the needs of the students have created a long-term partnership with them. The flexibility of the courses, the low fees and their gratuity are just some of the points of attractiveness. The educational offer is vast and diversified which can satisfy all needs. Young people's motivation during online learning is changeable also thanks to the ability to socialize online.

5. Conclusions

In the last two years, the world has undergone a forced change. Traditional education, well known to all, has been "reinvented", adapted to the new normal. The sudden transmission resulted in sacrifices, mainly due to a lack of proper technology and connections. The Internet has been a major source of both negative and positive for young people. It is sad but very true that those who had a good financial situation had access to education and were able to develop their knowledge while those with a precarious economic situation accumulated medium- and long-term disadvantages. The role of the teacher has changed but its importance has not. Parents were often forced to take on the role of teachers, even though they did not have adequate training. During this period there was a real need for adaptation and reinvention. In the future, a strong education needs to combine online and traditional education.

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TALENT MANAGEMENT IN A POST-PANDEMIC REALITY

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Abstract: *History shows that each crisis brings numerous challenges in many areas, from which the economic, financial or business does not make exceptions. COVID-19 altered every person's reality overnight. Individuals, cities, economies, countries, and continents have experienced the shock of lockdown and the fear of unknowing. Managers have had to make many decisions in a very short period of time – decisions about who should stay at work and who should go home; how and where people could be moved into digital space; and what the priorities are and how those priorities can best be communicated to employees. It is a time in which many paradigms can reorganize or reappear in this vast area of economy, and the involvement of IT and technology in this period, more than before, means also a new challenge in the competition for employees with high potential or talent. Identifying, attraction and talent retain are practices of Talent Management research area that can maintain a certain competitive advantage of companies.*

Talent management does not have a rich history behind but it is requested the need of a new type of employee, the employee with a high potential, talent especially in the area of IT which comes to be the bases for so many branches.

Which are the talent characteristics that talent management deals with in order to solve the talent crisis and maintaining the competitive advantage in the IT area in this period of crisis is our research preoccupation in this study. We will approach conceptually the term of talent and talent management and how can talent management programs can apply in the IT area.

Keywords: *talent, challenges, talent management, performance, human resources.*

JEL classification: *M51, M53, J62*

Introduction

COVID-19 is the most serious health crisis the world has experienced in a century—and it could also be one of the biggest destroyers of jobs in human history. That matters greatly: when people are stripped of their work, they suffer losses not just of income but also of dignity, meaning, and hope. Leaders in the public, private, and social sectors are already taking urgent steps to manage the fast-evolving crisis of jobs and work.

If in 2019, only 20% of managers stated their organization was prepared to cope a major crisis, COVID-19 made these fears to become real. We cannot ignore human talent in which it can be observed a high vulnerability in the context of pandemic crisis.

If the financial crisis in 2007-2009 brings forward the role of leaders and experts of financial area, the pandemic context of COVID-19 sees the role of leaders of human resources as highly important. A significant member of employees were forced to work from home and this fact determines major changes in methods and practices of collaboration among members and staff of organizations, in distance management ways of so projects and activities. Real meetings, beforehand collaboration, moving life with business meetings were replaced by some restrictions as staying home, virtual meetings, virtual work.

In this crisis context also talent searching is significantly reconfigure; if beforehand it could be emphasized the searching, selection and keeping talents and the personality could make up a determinant, now in the working environment and virtual collaboration, some personality features do not become so important to be taken into account such as introversion-extroversion because introverts have equal chances with extroverts to participate into online interactions and discussion, equal chances in contributing to competitive advantage building.

Human resources directors, managers from many levels were faced to inevitability of making quick decisions in a very short time and of which all society structures were depending on, and in what the work form is concerned, managers had to decide who would stay in workplace and who would work from home, how and where people should be moved in digital space and which are the priorities, referred to how these priorities should be efficiently communicated to employees.

COVID-19 crisis overburdened organizational resources and emphasized organizational key abilities, exposed weaknesses both individually and collectively, but discovering new talents; people who seemed more reserved, introvert employee group full more comfortable in virtual work meetings, stating new ideas. So this crisis determined managers to rethink or to reconsider the issue of right man in right place. And the research in talent management area has an answer to this issue.

We will approach the IT industry situation in the COVID-19 crisis, talent issues in this context in IT industry and what we can recommend in this talent crisis in a world crisis.

The goal of this research comprises in the prominence of human resource vulnerability or talent crisis, as organizations key-resource, study of the impact that this experiences in the during pandemic work and the effects that would be left in post pandemic period, measures that organizations have to undertake during this time, in order to maintain the employees performances and efficiency.

1. COVID-19 crisis in IT industry

The impact Covid-19 and the associated lockdowns, have had on the lives and careers of technology professionals. reflect on Covid-19's impact on the technology talent market and technology professionals. We surveyed technology professionals to ask how the lockdown and the global pandemic had affected their careers. Some

of the biggest takeaways are about how this year has changed candidates' priorities when looking for a new role.

It has broadly been acknowledged that technology professionals have been integral in enabling businesses to adapt to the lockdowns, either through supporting remote working or digitization customer touchpoints. You may have even seen headlines stating that the technology industry is not slowing down. Certainly, in April and May, Zoom and Microsoft seemed to be some of the early winners among the chaos.

Companies in this worldwide crisis spent the correspondent approximately extra 15 billion euro per week in the area of technology to integrate working from home in safe conditions during COVID-19 pandemic (KPMG Study, 2020).

These investments focused mainly on large scale implementations of assigned technologies in Cloud (42%), as well as SaaS Software as a Service (34%). Furthermore, the crisis contributed to highly emphasizing of division among organizations that run their business strategies through intensive practice of technology and those that do not do this.

The largest market study for worldly technology leaders, with over 4200 respondents from organizations in 83 countries and with a combined budget of over 250 billions euro in technology are, also discovered that in spite of this huge increase of investments, from which the security and data protection costs were the weight factor during Covid/19 pandemic, 4 of 10 leaders in informatics technology stated that their organizations experienced more hackers than usual (KPMG/Harvey Nash Study, CIO Survey, 2020).

More than half of respondents (47%) sustain that the pandemic permanently accelerated digital transformations and adopting emergent technologies. Technology represents the key-factor in organization effort to become more flexible and more efficient in the operations they accomplish. Actually, the planning, the talent and performance management are the strongest advantages of an agile organization. The conclusion results from a study realized this year by PWC and Strategy among 646 companies at a world level, that analyze 6 dimensions organizing, talents, technology, planning and performance management, working ways, risk and conformity. More than half of respondents to the PWC (57%) considered that IT is the most valuable agile function. It is an intuitive response as long as agile approach was initiated by the software developers and is usually associated to them. Technologies are essential, necessary but are they adequate for the organization change? Opposite to common perception, exceeding focus on IT is a mistake that many organizations make in trying to adopt change (PWC Study, 2021).

Agana-Burke show us how the pandemic affected careers:

- 43.9% of professionals surveyed had retained their job with no change
- 12.2% said their contract was not renewed in the first lockdown
- 14% lost their job
- 51.2% felt their employer met or exceeded their expectations in their handling of the Covid-19 pandemic (Agana-Burke, Niyonu, 2021)

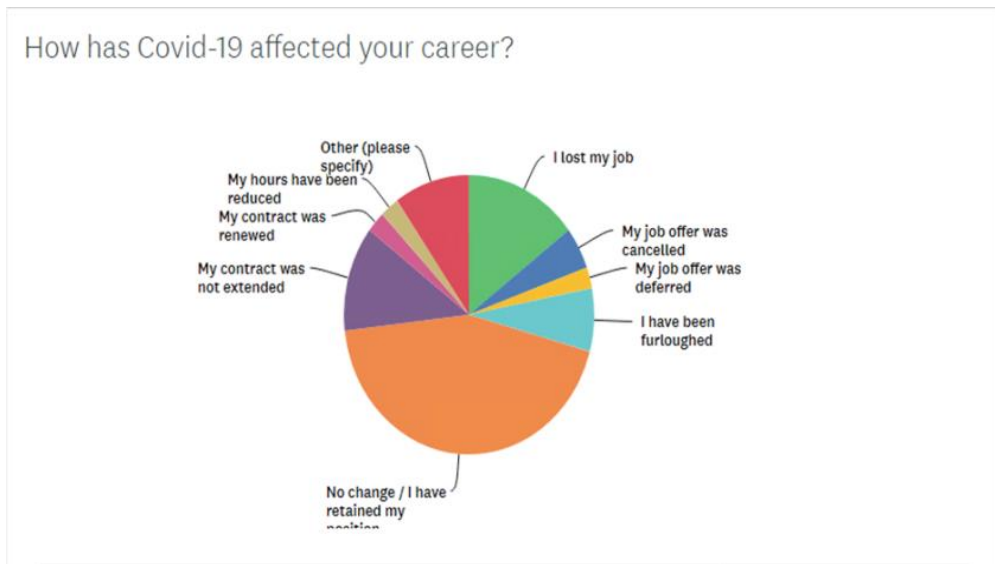


Fig. 1. COVID and career, Source: Agana-Burke, Niyonu, (2021),

When asked to provide more detail, respondents who had been disappointed with their employer’s response explained there was “total panic” “lack of clear communication” or were critical of the volume or speed of furloughs. Those who were happy with their employer’s approach praised the “human approach” the “transparency” and proactivity of employers moving to home working from early March 2020.

How has Covid-19 changed what you will be looking for in an employer in the long-term?

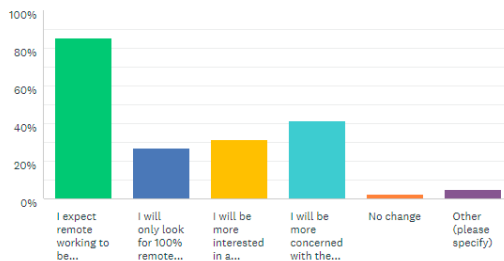


Fig.2. The impact on candidates’ future expectations. Source: Agana-Burke, Niyonu, (2021),

We asked respondents to describe how their expectations had changed in the short term. Answers formed three categories; unchanged, desire for a safe and socially distanced work environment/to continue working from home and those who were more concerned about job security.

Job security was a strong theme for how respondents long term expectations of employers have changed too. 41.5% of respondents said they would be more

concerned with an employer's financial stability. The vast majority, 85.4%, now expect remote working to be an option, but only 26.8% expect roles to be 100% remote. Only 2.5% of respondents said there had been no change in their expectations (Agana-Burke, Niyonu, 2021).

If we study which are the first 3 obstacles in the entry of an organisations towards agility, we notice that they are all related to culture and organization. Change involves more these areas that IT reorganisation which is a main component, but it has to be rounded with a set of well defined and achievable objectives: an organization must clearly understand what is working and what is not, what is a priority and what is not, in order to integrate technologies and to gradually remodel the way the employees work, in which they create or sell products and services that is the whole organizational culture. Thus, it results that planning, performance and talent management are the most valuable dimensions of enterprise agility (Pwc Study, 2021).

The majority of respondents (80%) confirm that digitalized transformation of their business accelerated during pandemic. The most important progress registered at the level of digitalized transformation of operations, 30% of respondents stating that current situations is many more years advanced in relation to appraisals.

It is possible that 2/3 (67%) of executive leaders to invest more capital in technology than in people, this tendency being a parameter since the initial study.

Approximately 8 of 10 IT leaders sustain that during COVID-19 pandemic, mental health of their team represents a concern, which led to implementation of an emotional support programs of personnel by 58% from organizations where these activate (Pwc Study, 2021).

Teleworking is here and it will not disappear: 86% of IT leaders moved a significant part of office working „remotely” and 43% of these are expecting that more than half of their employees to work from home even after pandemic. The importance of remote working increased to become one of the most important factors in recruiting process and keeping the key technological talents during and after COVID-19 pandemic.

As a result, leaders will have to rethink the way they attract and hire the staff in a world in which physical location is no more an advantage or disadvantage (Pwc Study, 2021).

2. I.T. Industry in Romania and Covid-19 reality

Brainspotting is the company of leader consulting in Romania focused on recruiting and selection in IT&C area and it covers positions both for our country as well as for EMEA. By studies realized by Brainspotting it was obtained a vantage point on industry IT&C situation in the software development area.

In 2014 Brainspotting company realized “Romania IT talent map” through which it wanted to offer a vantage point on IT Romanian market. According to Brainspotting study, in 2012 the value of Romania software market reached the sum of approximately 572.3 million Euros. Same year IT&C companies being in top 15

most profitable companies in industry extended working teams with almost 2700 new candidates, that is an expansion of personnel with 21%. Nowadays, in Romania work market are constantly 1500 jobs posted on the recruiting sites. Until 2014 it is envisioned that due companies expansions with IT profile will be created almost 5000 new jobs. We have a distributions of areas in which software developing in Romania work before the pandemic.

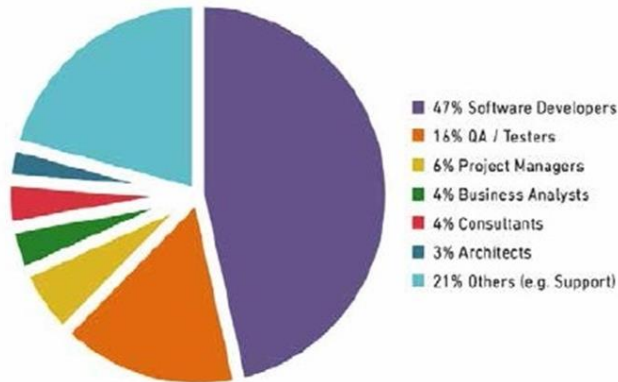


Fig. 3. Software developies areas; Source: Romania IT Talent Map

More and more hiring companies offer many benefits to motivate to work using 100% of your potential. Brainspotting realized a top of most frequent promises that companies make to future employees. The main goals of these benefits are to assure a retention as big as possible of new employees but also for increasing the satisfaction level at the job. Some benefits are: effective training programs (88%), attractive salaries (75%), personal benefits (75%), good reputations and self-image (63%), challenging job (60%), friendly job (50%).

Covid-19 crisis bring significant changes in IT area, in Romania there are significant changes when we discuss about working space with the increasing percentage of those who allow home working, appealing to talent market that are not location conditioned.

An important aspect in the welfare of own employees, giving solutions, benefits, assistance. It is observed a transformations of the recruiting way and of the stressing of talent, recruiting based mainly on attitudes rather than studies and qualifications. The actual crisis determined many companies to reduce or to eliminate systems that are not essential, and this lead to quick process of making decisions and of responding to external events

3. Talent crisis in IT

As a consequence of COVID-19 pandemic, leaders of some of the most influential world companies consider the risk regarding talent as one of the greatest challenge for growth (talent and corporate responsibility).

We argue that the human resource of an organization is the most affected resource and requires special treatment from managers both during the pandemic and in the post-pandemic period (Cotelnic&Scarlat, 2020)

KPMG interviewed 1300 executive leaders in January and February 2020, before markets experience the pandemic effects. Between 6 July and 5 August, KPMG unrolled the second research with 315 executive leaders to obtain a perspective on changes in their thinking as a crisis result. The 2020 edition of study KPMG CEO Outlook shows that leaders agenda substantially modified since the beginning of the year, cut out for trends such as the environment, social responsibility, and corporate governance, flexible working hours and digital transformation intensified. Analyzing the growth perspectives in the next 3 years, 33% of executive leaders are presently less optimistic regarding the growth perspectives in the next 3 years in regress to the beginning of the year (KPMG study, 2020).

Bill Thomas, CEO KPMG declared „The significant change in executive leader`s priorities in the last six months is a clear indicator that business had to change the strategy very rapidly in order to face the pandemic challenges. Business leaders in the whole world try to operate uncertainty. This crisis accelerated the created strategies for digitizing and social responsibility. Although in certain areas, future planning became more difficult, especially concerning the future of work and of problem solutioning. Thus it is not a surprize that leader focus on importance of talent for sustaining and growth of future businesses.” (KPMG study, 2020).

In January 2020, executive leaders put the risk concerning talent on the 11th place among those which affected the growth potential. However, since the beginning of pandemic, talent came up in the classification until the 1st place, becoming the biggest threat for a business, advancing even the supplying chain and the environment risk.

Organisations tried to find qualified professional in cybernetic security area to support this change towards working from home and reported that cybernetic security (35%) is now the most „appealing” technological competence in the world. It is for the first time in more than a decade that abilities regarding cybernetic competence reached in the top list of roles and scarce technological abilities within companies (KPMG Study, 2020).

Lack of competence - before the COVID-19 pandemic, lack of competence in IT seen in 2020 was remaining close to historic level. After that, lack of IT competences remained high, insignificantly lowering comparing to Global Financial crisis in 2008. Besides the competences in „cybernetic security” (35%), the hardest to find are those in „organisational changes management” (27%), „enterprise architecture” (23%) as well as „technical architecture” and „advanced analytical abilities”, both with a 22% deficit (KPMG / Harvey Nash CIO Survey study 2020).

4. Talent management in post-pandemic reality

The concept of "talent management" was born at the end of 1990s, starting from a group of consultants from McKinsey&Company, a consulting company of global

management, who wanted a change of paradigm in human resources and invented the term *the war for talent* with the intention to underline the importance that must be granted to the organizations staff in assuring these organizations success. These focused their approach on the importance of occupying the organizations posts with "type A performers" and eliminating "type C performers", the last ones being considered nonperformers for the organizations. (Scullion&Collings, 2010).

Talent management is an incorporated set of processes, programs and cultural standards within an organisation, assigned and implemented with the goal of attracting, developing, unfolding and keeping talent to reach the strategic objectives and meeting the future challenges in business setting (Silzer&Dowell, 2010).

As the pandemic resets major work trends, HR leaders need to rethink workforce and employee planning, management, performance and experience strategies.

The coronavirus pandemic will have a lasting impact on the future of work in few key ways. The imperative for HR leaders is to evaluate the impact each trend will have on their organization's operations and strategic goals, identify which require immediate action and assess to what degree these trends change pre-COVID-19 strategic goals and plans.

As long as COVID-19's effects persist — and likely into the future — employers will need to adjust their tactics to a transformed talent market. HR teams have an opportunity right now to explore new, more effective ways to recruit and hire the best talent for open roles.

A world's leading research and advisory company identifies some trends postpandemy COVID-19 (Gartner, 2021):

- a.** Increase in remote working. A recent Gartner poll showed that 48% of employees will likely work remotely at least part of the time after COVID-19 versus 30% before the pandemic.
- b.** Expanded data collection. Gartner analysis shows that 16% of employers are using technologies more frequently to monitor their employees through methods such as virtual clocking in and out, tracking work computer usage, and monitoring employee emails or internal communications/chat.
- c.** Contingent worker expansion. Gartner analysis shows that organizations will continue to expand their use of contingent workers to maintain more flexibility in workforce management post-COVID-19, and will consider introducing other job models they have seen during the pandemic, such as talent sharing and 80% pay for 80% work.
- d.** Expanded employer role as social safety net. The pandemic has increased the trend of employers playing an expanded role in their employees' financial, physical and mental well-being. Support includes enhanced sick leave, financial assistance, adjusted hours of operation and child care provisions. Some organizations supported the community by, for instance, shifting operations to manufacturing goods or providing services to help combat the pandemic and offering community relief funds and free community services.

- e. Separation of critical skills and roles. Before COVID-19, critical roles were viewed as roles with critical skills, or the capabilities an organization needed to meet its strategic goals. Now, employers are realizing that there is another category of critical roles — roles that are critical to the success of essential workflows. To build the workforce you'll need post-pandemic, focus less on roles — which group unrelated skills — than on the skills needed to drive the organization's competitive advantage and the workflows that fuel that advantage. Encourage employees to develop critical skills that potentially open up multiple opportunities for their career development, rather than preparing for a specific next role. Offer greater career development support to employees in critical roles who lack critical skills.
- f. (De-)Humanization of employees. While some organizations have recognized the humanitarian crisis of the pandemic and prioritized the well-being of employees as people over employees as workers, others have pushed employees to work in conditions that are high risk with little support — treating them as workers first and people second.
- g. Emergence of new top-tier employers. Prior to COVID-19, organizations were already facing increased employee demands for transparency. Employees and prospective candidates will judge organizations by the way in which they treated employees during the pandemic. Balance the decisions made today to resolve immediate concerns during the pandemic with the long-term impact on the employment brand.
- h. Transition from designing for efficiency to designing for resilience. A 2019 Gartner organization design survey found that 55% of organizational redesigns were focused on streamlining roles, supply chains and workflows to increase efficiency. While this approach captured efficiencies, it also created fragilities, as systems have no flexibility to respond to disruptions. Resilient organizations were better able to respond — correct course quickly with change. To build a more responsive organization, design roles and structures around outcomes to increase agility and flexibility and formalize how processes can flex. Also, provide employees with varied, adaptive and flexible roles so they acquire cross-functional knowledge and training.
- i. Increase in organization complexity. Companies will focus on expanding their geographic diversification and investment in secondary markets to mitigate and manage risk in times of disruption. This rise in complexity of size and organizational management will create challenges for leaders as operating models evolve (Baker, Mary, 2021).

COVID-19 crisis accelerates preexistent talent management which can be translated through finding and keeping suitable people; continual effective is very important.

Learning and developing make up an important step, especially that this crisis determined a rethinking or a reconversion of some posts, jobs and following the

effects of accelerated working force transition generated by the pandemic; postpandemic agenda for learning and development imply digital training in essential skills, competence development based on work change, leadership development.

Another aspect of talent management is performance encouragement. Crisis affected plans and projects for performance and now – the performance encouragement is realised through transparent connection of employees objectives to business priorities and maintaining a strong element of flexibility, investment in coaching abilities of managers, accomplishing evaluations for all employees.

Optimizing planning working force and optimizindg planning strategies involve identification of critical roles, qualities, abilities.

COVID-19 has reminded us all of the need to evolve with the times, and the traditional recruiting process is long overdue for an update. By reviewing roles with a focus on skills, exploring your internal talent pool, and using data to guide your efforts, you can create a process that attracts top talent to fill internal gaps during and after this pandemic (*Schmidt, 2021*).

Talent management can propose for I.T. industry:

- **Finding and hiring the right people.**
- **Learning and growing.** The agenda for post-pandemic learning and development extends beyond reskilling to three categories of cost-effective training: *Broad-based digital training in essential skills, Focused upskilling rooted in changing work, Leadership development.*
- **Managing and rewarding performance.**
- **Tailoring the employee experience.**
- **Optimizing workforce planning and strategy.** Components of workforce planning and strategy include:
 - a. *Critical roles.* Research suggests that a small subset of roles is disproportionately important to delivering a business-value agenda. For each role, identify core jobs to be done, qualities needed of leaders, and whether the role is set up for success.
 - b. *Skill pools.* Organizations should look at their major skill pools to understand the skills required for the future and whether they are long or short on the required talent.
 - c. *Talent systems.* (Narain, 2020)

Conclusion

The COVID-19 pandemic has had terrible repercussions, causing sickness and death around the world. Governments, together with semi-public institutions and private organizations, have struggled to cope with uncertainties from the strategic to the operational level.

Talent management represents a determinant factor that comes to support human resources area. Success depends on the corporation in relation with the existing human resource, in its keeping, motivating and development according to its potential even COVID-19 post-pandemic. Talent management programs helps IT

Industry to find qualified and competent professionals and develops them in digital trainings, to invests in performance.

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E-LEARNING AND MODERN DIGITAL PROFESSIONAL SKILLS FOR MEXICO

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Abstract: *The article follows the deductive method, with a hermeneutic paradigm and a qualitative approach. Online learning has allowed students to have academic preparation without having to go to a traditional educational center, where there is already physical displacement and there are no pre-established schedules, in addition, they allow lowering travel and tuition costs. Permanent relearning, asynchronous models and self-learning are managing to train individuals who know how to search for adequate information and solve problems as they arise, increasing their sense of responsibility and achieving permanent updating of their knowledge. In the last decade, modern digital media have generated the appearance of new professional activities, among which they have stood out for generating higher income: Chief Digital Officer (CDO); Chief Technology Officer (CTO); Digital Business Manager. Artificial intelligence allows imitating the functions that humans perform constantly and repetitively, making its application trend grow exponentially in the future.*

Keywords: *online learning, self-learning, informal learning, professional status, artificial intelligence*

JEL: O33

Introduction

Online education has been expanding and growing exponentially in recent years, where there are advantages such as not having to attend classes or physically pre-established places in schools, thus obtaining savings for people by not having to travel or use transportation, in the same way that they can take advantage of their free time to prepare and acquire knowledge, which previously could not do for lack of time or because in their geographical areas there were no educational centers that allowed them to do so.

Taking classes and lessons asynchronously, meaning that there are no pre-established schedules, nor is there any interconnection or direct communication between teacher and students, has made it possible to expand the knowledge or schooling of people who lack the time to take classes in a traditional school.

Self-learning has also allowed millions of people to acquire knowledge and education formally or informally, highlighting that self-learners require sufficient willpower to acquire discipline and permanence on their own. With the growing incorporation of new information and communication technologies (ITC), distance education has been strengthened in our country and in the whole world.

The application of new technologies in many economic activities, such as shopping, bank payments and multiple forms of sales that are made electronically, have been

incorporating professional services that companies or institutions need to respond to the current digital world. This requires digital skills that have been incorporated into new professions, which also tend to have considerable income.

Another issue that has become very important in the current digital environment is artificial intelligence (AI), which has been used by private or public organizations and companies, where the repetition of activities has become a daily occurrence, estimating that over the years the sectors and areas that use AI in the country and the world will grow.

1. Online learning (e-learning) and self-learning

Virtual learning environments can correspond to formal or informal education, where anyone can use them to learn about a subject of their interest, Mendiola Medellín (2018: 7) gives us this definition on the subject: “By virtual environments we mean technological environments that allow distance learning, they are not determined platforms, rather they are a set of tools among which are the platforms, which are used to learn online”.

Distance education seeks to fill the gap left by traditional or conventional education, seeking to meet the needs of a segment of the population: 1) To make education accessible to people who do not have time to go to a physical campus; 2) To make it possible for some people, who by regulation are over the age of school programs, to take them online; and 3) To have more in-depth or specialized knowledge of a subject, which may lead to better employment conditions. González García & Gómez Chiñas (2011: 54) point out that educational institutions have taken on the task of:

...to create technical and professional careers as well as postgraduate programs with an open and distance orientation, in order to respond to the educational needs of people who do not have the time, resources or age to attend an on-site program (that is, the three "neither"). In other words, in Mexico, as in the rest of the world, open and distance education responded to a well-determined logic and situation of lack of time, age and economic resources.

There are two basic forms or modalities of electronic or virtual education: 1) b-learning or blended learning; and 2) e-learning or electronic learning. The concept of b-learning (blended learning), is a flexible program that encompasses programs or education in face-to-face and virtual instances, combining both educational approaches. In my point of view, it becomes a kind of flipped classroom.

The term e-learning is the abbreviation of electronic learning, which consists of the teaching or learning process that takes place through electronic means, generally via the Internet, supported by technological tools and a totally virtual environment. For his part Julio Cabero (2006: 2; cited by Mendiola, 2018: 11) defines e-learning as: "...the training that uses the network as a technology of information distribution, whether this network is open (Internet) or closed (intranet)".

In e-learning Hotmart Company (2020) considers that teachers make available the content of the subjects and students access from any computer or mobile device, in this regard for online education is needed:

For this, it is enough to have someone willing to teach, an audience interested in learning, a platform for hosting the course and, of course, access to the Internet..... It is a more democratic format that allows more people to learn new things every day in a short time and transform their lives.

García Peñalvo and Seoane (2015: 135; cited by Mendiola, 2018: 11) talk about that until 2015 there were three e-learning generations, while Arellano Calderón et al (2021: 43-44) mention that there are already four generations of online education, same that they link with the technological stages of the World Wide Web:

- ❖ Web 1.0 from 1990 to 2003: unidirectional education marked by the appearance on the scene of learning management systems (LMS), focused on platforms and educational content provided by the teacher only.
- ❖ Web 2.0 from 2004 to 2009: bidirectional education marked by the interaction and collaborative relationship between student and teacher, thus allowing the student's commitment and responsibility, allowing open knowledge. One of its first uses is Moodle, then came social networks and formats such as Prezi, Slideshare, Issuu and YouTube videos.
- ❖ Web 3.0 from 2010 to 2015: platforms for videoconferencing, audio-visual and chat are opened, which are in the cloud and run from mobile devices: such as Zoom, Google Meet, Microsoft Teams. It is a semantic web, where data and content are used in a more efficient way, based on information from user profiles. It breaks with the hegemony of the LMS, giving rise to formal and informal learning.
- ❖ Web 4.0 from 2016 onwards: it tries to process information in the same way as the human brain would, that is why it is called cognitive web, through platforms or browsers such as Google, Microsoft, Facebook and others.

The vision of lifelong e-learners, which is the education that takes place at the same time and after the academic degrees, requires the student to leave his classic position of being a mere receiver of knowledge and to take an active position to achieve learning at all times. In this sense, Alvin Toffler (quoted by Ganduxé, 2020) points out:

The illiterates of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn. An illiterate will be the one who does not know where to go to look for the information required at any given time to solve a specific problem.

With online education, another important point to consider is the cost, since not requiring classrooms or auditoriums for classes makes the courses cheaper, and since there is no need for teachers and students to travel, a fairer price is obtained for the educational content.

E-learning in Spanish has been called virtual teaching, online training, tele-training or distance learning, although for Martha Ganduxé (2020) these terms are not synonymous. In this regard, Moore et al. (2011; cited by Ramírez, 2019: 93) are more

explicit and point out that in a review of the different definitions used in the literature they have detected that the terms distance learning, online learning, and e-learning have been used without distinction.

| | Open learning | Online learning | Virtual learning |
|-------------------|---|---|---|
| Calendar | Calendar and flexible schedules. Open enrollment all year round. | Fixed calendar and with the possibility for students to communicate with their peers. | Allows students to study at any time and place, eliminating the territorial and geographic problem. |
| Synchrony | Asynchronous, students decide when and where to study. | Schedules established for meetings between teacher and students. | Asynchronous, since there is no interaction or coincidence in schedules. |
| Connection | Connection Internet connection is not necessary (but recommended). | Internet connection to enter an online classroom: Zoom, Google Meet, Skype. | Use of the internet on an educational platform. Cell phone or computer required. |
| Classes | Classes No set classes, radio and TV as support. | Classes are live and can be presented debate and discussion forums. | Communication between teacher and students via platform or e-mail. |
| Advantages | Allows to combine and alternate study with work. It can be self-taught. | Encourages collaborative work, critical thinking and discussion debate. | It is possible to study and have other activities, in addition to generating self-taught knowledge. |
| Questions | Through phone calls or text messages. | Online resolution of doubts and feedback online or by e-mail. | Phone calls, e-mail, help desk, counseling and tutoring. |
| Materials | Printed books and notes, or multimedia CDs delivered to the student in person or by certified mail. | The online university may or may not share bibliographic materials online, with licensing open to the public. | Teacher shares reference materials. Digital didactic resources with Creative Commons license. |

Source: Own elaboration. I retake ideas from Arellano Calderón et al (2021: 44-45)

Important elements to consider within online education models are synchronous and asynchronous courses. In the synchronous model the instructor and students are present at the same time and with live classes, highlighting several Internet tools for this purpose: Zoom, Google Meet, Microsoft Team, Adobe Educa, among others. In the asynchronous model, the teacher prepares the class and leaves it recorded so that the students can watch it when they have time, so there is no live interaction during the class.

Advantages of synchronous education: 1) Direct contact with the teacher; 2) Students can get immediate answers to their questions; 3) Group discussions; 4) Team activities, which is ideal for those students who find it easier and more comfortable to work in a group.

Advantages of asynchronous education: 1) The student can access the course content whenever he/she has time; 2) The flexible schedule allows for daily and routine study; 3) The student progresses through the course according to his/her personal study pace; 4) Possibility of reviewing extra content in addition to the syllabus; and

5) The student becomes more responsible and self-taught; 6) He/she makes better use of his/her free time, without having to be subject to schedules.

The experience of the study carried out in professional training, in e-learning environments at postgraduate level and under the Project Based Learning (PBLy) method, conducted by Ramirez (2019: 91) allowed him to expose:

In undergraduate and Graduate courses has been widely documented the implementation of PBLy in engineering areas (Breiter, Fey, & Drechsler, 2005; Fernandes, 2016), being scarcer those focused on the social or educational area (Habók & Nagy, 2016; Márquez-Lepe & Jiménez-Rodrigo, 2014).

In addition, the author of reference (Ramírez, 2019: 94) concludes that the impact of project-based learning in graduate courses generates innovation in educational practice and a high commitment to collaborative work of master's degree students in education, who study in private educational centers.

In the practical application shared by Garduño Mendieta et al (2018: 5) on the problem-based learning model and self-management of learning, focused on competencies, which they carried out in the course 'Computer Organization' at the Unidad Profesional Interdisciplinaria de Ingeniería y Ciencias Sociales (UPIICSA) - Interdisciplinary Professional Unit of Engineering and Social and Administrative Sciences- of the IPN they embody:

Regarding the benefits that students perceive as something that their experience in the course brings them, the following responses are: greater participation in their own learning process (65%); greater learning (35%); greater commitment (20%). The negative part that they express is that they have to work harder (20%) especially at the beginning of the course to complete the assigned tasks.

In self-learning, learning is achieved through the individual effort of each person, where knowledge and skills are acquired through study or experience. In self-learning, the interested subject seeks information that is useful or valuable to him/her, where people who learn by themselves are considered self-learners. Self-learning is also called self-management, Garduño Mendieta et al (2018: 3) point out: "With respect to self-management, Knowles (1990) states that it promotes an active role of the student, participating as co-responsible for their own learning process. That is, they take the initiative and identify the resources for learning".

With the widespread use of the Internet in these times, the self-taught experience in aspects of education is becoming more and more common and used, and there are many different subjects that can be learned for free or with a payment system. Attempts to adapt education to the possibilities and pace of the students have now given way to the fact that the student himself wants to direct his learning in a personal way. In this sense Vargas Santillán (2018: 1) external:

Self-taught education or self-learning refers to the process of incorporating new knowledge by oneself...when we speak of self-taught learning we refer to the capacity that the human being has to acquire new knowledge by himself and leave it recorded in his memory, to then form a mental database.

The next step in the educational process is to incorporate the media or social networks such as Google, YouTube, and Twitter. In this sense, Manta and Ranieri (2016, cited by Baron et al, 2021: 125) show that in learning environments, information (formal or informal) can be used in pedagogical processes that are functional for the understanding of the objectives to be achieved in educational programs.

The role of the self-taught is not to seek instruction in the traditional way or in formal means such as school and typical teachers, but to seek new knowledge through self-management. In this regard, in an excellent way Vargas Santillán (2018: 3) notes:

In this sense, self-taught education improves your memory, increases your vocabulary, keeps you updated and opens up possibilities to study new subjects. At the same time one can pose problems oneself and evaluate alternative solutions and investigate and innovate on one's own. Therefore, it allows you to learn to discern between the main and the complementary and to create a sense of responsibility rather than obligation.

Self-learning arises from an individual's or student's own initiative, where he or she searches for information on his or her own until he or she is able to master the contents or topics that are to his or her liking or out of necessity for use in his or her work environment. It encompasses two great verbs: to want and to know.

Self-taught learning is presented as a personal commitment, so it is essential to establish beforehand the objectives to be achieved with self-learning, presenting these characteristics: 1) Students must be disciplined with their study schedules; 2) Generate projects where they put into practice what they have learned; 3) Learn a new subject or topic; 4) Make self-learning a habit of life; and 5) Meet goals and commitments that are generated in a personal way.

In the last decade, video tutorials have emerged as a very important and significant resource for self-learning. An educational video tutorial is understood as a compendium of audiovisual resources that fulfill a previously formulated didactic or educational objective.

There is a great variety for the classification of video tutorials. M. Schmidt (TECH, 2021: M2T8: 13) provides us with a classification that fits the school environment: 1) Instructional, its mission is that students master a content; 2) Cognitive, they make known different aspects with the subject treated; 3) Motivational, its purpose is to positively predispose the student to develop a task or project; 4) Archetypes, they present models to imitate; 5) Playful or expressive, they are used as a means of expression, highlighting skills and knowledge.

In tutorial videos, the profile and academic preparation of the users must be taken into account, according to the expressive potential of the educational videos there are three types:

- Low expressiveness: videos that only contain static images allusive to the topic and require the intervention of the instructor to give meaning to what is seen. They only serve as a means of support, since they do not generate learning on their own.

- Medium expressiveness: videos containing images and sounds that require explanation by the presenter, but to a lesser extent, thus generating learning.
- High expressiveness: videos with a didactic objective in which use is made of theories, examples and conclusive demonstrations, generating knowledge and skills in the student at the end of the transmission. The video itself conveys a complete content.

In the field of educational self-management, the Self-Access Centers (SAC) play a very important role worldwide, which are a feasible alternative for self-taught learning and support the processes of self-study with technical resources.

SACs aim to develop a self-learning process in any area of knowledge, according to Ruiz (2014; cited by Vargas, 2018: 5), the student can use certain spaces and didactic resources to acquire a given knowledge, in addition, he/she can acquire the responsibility to organize his/her own school work and make decisions that favor his/her learning, as well as work at his/her own pace and in a flexible schedule.

2. Digital skills in professionals and Artificial Intelligence

The application of new Information and Communication Technologies (ICT) has led to the segmentation of products, changes in consumer habits and innovations that are made in order to have competitive businesses. This requires having new occupations or specialized professional profiles. The characteristics and nature of the new digital media, have led to the emergence of new professions or professional roles, which brings that companies and organizations are constantly trying to incorporate people who have skills and knowledge in the digital world. The key points of the information technology (IT) labor market, in the opinion of Olvera, E. (2022) present these characteristics for the year 2022:

- ❖ The supply of technology jobs grew by 88% in 2021.
- ❖ Java, .Net, Python, cloud servers and JavaScript are the IT most sought after by companies.
- ❖ Go or Golang is the technology that registered the highest growth in 2021 (424%), it is also the best paid programming language with an average salary of \$42,761 pesos. The second place goes to Kubernetes.
- ❖ In our country, Mexico City is home to 38.5% of IT vacancies.
- ❖ The average salary of an IT professional in Mexico is \$30,247 pesos per month (15% more than the previous year). Professionals with advanced English earn 3.9 times more than those who do not know English.

As background, the Colegio Oficial de Ingenieros en Telecomunicación (COIT) - Official College of Telecommunication Engineers- [12] reminds us that at the end of the last century, specifically in 1999, International College for Experience Learning (ICEL) points out the new digital professionals, which will be of interest for the then information and communication technologies (ICT), identifying 13 new profiles of professions:

1. Radio Frequency (RF) Engineering.
2. Digital Design.
3. Data Communications Engineering.

4. Digital Signal Processing.
5. Communications Network Design.
6. Software and applications development.
7. Software architecture and design.
8. Multimedia design.
9. IT business consulting.
10. Technical support.
11. Product design.
12. Integration & Test / Implementation & Test Engineering.
13. System specialist.

In 2006 Blanco Vásquez (2006:6) brings up that in the Proposal of Actions for the Training of Professionals in Electronics, Informatics and Telecommunications (PAFET) presents a list of 30 professions that he considers will be the future of the professions related to ICT, referring to the case of Spain, being these: 1) Software Systems Programmer; 2) System Designer/Integrator; 3) Signal processing specialist multimedia; 4) Systems consultant; 5) ICT solutions specialist; 6) Communications network designer; 7) Multi-media programmer; 8) WEB designer; 9) Application programmer; 10) Hardware maintenance specialist; 11) Software maintenance specialist; 12) Radio Frequency Engineer; 13) Tele-communications Consultant; 14) Hardware development engineer; 15) Telematics network architect; 16) Information manager; 17) Computer operator/installer; 18) Integration and testing specialist; 19) Telematics services analyst; 20) Telematics security specialist; 21) ICT products and services manager; 22) Development project manager; 23) Sales manager; 24) Research and Development Manager; 25) ICT security specialist; 26) ICT innovation manager; 27) ICT Infrastructure Operation and Maintenance Technician; 28) Content developer; 29) ICT Consultant in Public Administration; 30) Specialist in usability of services and applications.

In more recent times, in 2018 Apaza Paucara (2018: 66) mentions five of these new profiles, with their degree of responsibility: 1) Chief Data Officer (CDO); 2) Data Scientist; 3) Chief Revenue Officer; 4) Brand Manager; 5) Product Marketing Manager. Even more recent, in 2021 García Machado & León Santos (2021: 44-46) point out that as communication has expanded, digital marketing requires new professional profiles that provide solutions to the new needs posed by the market, these positions being:

- Community Manager or Virtual Community Manager: is responsible for analyzing and understanding the information produced in social networks, in addition to being the mediator of the company's relations with users in the digital environment.
- Social Media Manager: the person who executes the communication strategy of the social networks, in addition to coordinating the work of the Community Manager.
- Copywriter / Multimedia Journalist: a person must assume the tasks of writing, photography and editing that were previously performed by different professionals.

- Content Curator: detects content circulating on the Web, making content from other sites available to the community.
- Online Reputation Manager: in charge of brand image, acting in three areas: researching brand reputation; monitoring the brand with tracking techniques and tools; and managing the organization's image.
- Content Manager: analyzes web content, videos, podcasts and images, with knowledge of visual creation, document organization and content management.
- Web analyst: measures, collects, interprets and analyzes the information generated on the web.
- Record Manager: search, management and control of data and information about the brand or company, being a complementary figure to the Community Manager.
- Digital Information Architect: designing user interaction on the web, organizing and structuring the contents, as well as giving coherence to the web architecture.
- Web usability expert: must ensure that the navigation of the website is simple and meets the user's needs, and must have experience in market research, analytical mindset and knowledge of sociology.
- E-Commerce specialist: in charge of online sales, directing the sales strategy and making sure to resolve errors that arise in the purchasing process.

Among many others, two of the organizations that have addressed the issue of new digital professions are the Instituto de Innovación Digital de las Profesiones (INESDI) - Institute for Digital Innovation in the Professions - of Spain and Forbes magazine. According to a study conducted by INESDI Digital Business School (2020) conducted in 2019 in the cities of Madrid and Barcelona, they found extremely important data on the areas in which digital professions are developing.

I try to make a very tight summary of the excellent information provided by INESDI (2020: 9-78), first I place the nine areas or major divisions of digital jobs, then I list the 25 most important digital professions today, in the third column I place the name of the position as well as its year of creation, then give a job description, present the mission of each position and finally put the estimated salary band in thousands of euros per year:

Table 1. The 25 New Digital Professions in Spain

| Scope | N. | Position | Description | Mission | Salary |
|----------------------------|----|------------|---|--|-----------|
| 1.-Digital Strategy | 1 | CDO (2014) | Chief Digital Officer, director of digital transformation and corporate hacker. | Define and implement the digital strategy in the company, in order to ensure the achievement of digital business objectives. | 90 to 200 |
| | 2 | CTO (2019) | Chief Technology Officer, director of digital transformation and technology. | Define and implement the technology strategy, ensuring architecture, transaction and | 80 to 150 |

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|----------------------------|---|-------------------------------------|--|---|---|
| | | | | operation, security and innovation. | |
| 2.-Digital Marketig | 3 | Digital Marketing Manager (2014) | Attraction marketing specialist. | Creation, definition and execution of the digital marketing plan; reporting of performance indicators and cross-cutting actions. | 50 to 80 |
| | 4 | Inbound Marketing Specialist (2015) | Attraction marketing specialist. | Design the funnel and strategy of the corporate marketing methodology to attract and retain loyal customers in a non-intrusive way. | 35 to 45 |
| | 5 | SEM & SEO (2015) | Search Engine Marketing Specialist (SEM) and Search Engine Optimization (SEO). | Define and create paid search engine campaigns based on keywords, oriented to conversion and achievement of web objectives. | 25 to 38 |
| | 6 | SEO Specialist (2014) | Search Engine Optimization Specialist. | Increase user visits and potential customers through organic search engine optimization. | 25 to 38 |
| | 7 | Trafficker Digital (2019) | Expert in campaign management and online traffic. | Design, planning, execution and measurement of advertising campaigns on different digital platforms, social networks and Google. | 28 to 38 |
| | 8 | Growth Hacker (2018) | Expert in viral developments. | Approach the market with a focus on innovation, scalability and user connectivity. | 20 to 40 |
| | 9 | CRO Specialist (2019) | Web conversion specialist. | Optimize the web conversion rate through the combination of different discipline and by measuring the user's buying process. | 30 to 45 |
| | 3.- Digital Communication & Social Media | 10 | Digital Communication & Brand Manager (2018) | Responsible for digital communication and brand development. | To make known and enhance the identity, image and brand of the organization in the market, through channels and |

| | | | | | |
|---|----|--|---|--|----------|
| | | | | relationships with managers, partners and customers. | |
| | 11 | SEO Content Manager (2014) | Responsible for multi-format digital content with SEO knowledge. | Definition and implementation of the strategy and content plan for the web, blogs, social networks or any other support. | 25 to 40 |
| | 12 | Social Media Manager (2014) | Responsible for the social media strategy. | Creation, development and implementation of the social media strategy, at brand, product and service level. | 35 to 50 |
| | 13 | Community Manager (2014) | Responsible for managing communities and social networks. | Manage the community of the brand, company or product on the Internet, acting as a liaison point. | 25 to 45 |
| 4.- Big Data & Business Intelligence | 14 | Digital Analyst (2014) | Digital Analyst. | Give meaning and significance to the data collected through online measurement tools (site centric and user centric). | 35 to 65 |
| | 15 | Big Data & AI Analyst (2015) | Big Data & Artificial Intelligence Analyst. | Give sense and meaning to the data collected in big data integration projects. | 45 to 65 |
| | 16 | Customer Intelligence & CRM Analyst (2014) | Customer Intelligence & Customer Relationship Management Analyst. | Use analytical methods and techniques to gain insight into the customer and their impact on the business. | 35 to 60 |
| 5.- Technocreativity | 17 | Creative Tech & Digital Designer (2018) | Multi-platform digital designer. | Identify creative, communicative and usable solutions for the subsequent development of digital graphic products. | 23 to 38 |
| | 18 | UI / UX Designer (2017) | Interfaces & User Experience Designer. | Define the user experience (UX) in users' digital environments. | 25 to 55 |
| 6.- Customer Experience | 19 | Customer Experience Manager (2019) | Customer Experience Manager. | Align customer expectations and perceptions with the value propositions | 40 to 60 |

| | | | | | |
|--|----|------------------------------------|---|---|-----------|
| | | | | offered by the brand. Analysis of their impact on the bottom line. | |
| 7.- Digital Bussines & E-commerce | 20 | Digital Bussines Manager (2019) | Digital Bussines Manager. | Creation, definition and execution of the company's digital business plan; management of digital business models (ROI). | 70 to 120 |
| | 21 | E-commerce Manager (2014) | E-commerce Manager. | Lead and manage the organization's e-commerce, with the objective of providing optimal service and the best possible ROI. | 70 to 100 |
| | 22 | Digital Account Manager (2017) | Digital Account Manager. | Account management in digital projects or digital business management. | 45 to 60 |
| 8.- HR & Employee | 23 | Digital HR Manager (2017) | Digital Human Resources Manager. | Lead, drive and accelerate the process of attracting and retaining human resources, promoting competitive ways. | 50 to 90 |
| 9.- Tech & Bussines Innovation | 24 | Al Bots Manager (2019) | Expert in Artificial Intelligence solutions for bots. | Identifying use cases of conversational technologies, creating and leading the promotion and implementation. | 40 to 50 |
| | 25 | Product Owner & Scrum Master(2019) | Expert in agile methodologies. | Conveying customer needs to teams to enable the development of products suitable for each case. | 35 to 45 |

Source: Own elaboration. With information from INESDI Digital Business School (2020). Top 25 digital professions 2020 [Top 25 digital professions 2020], pp. 9-78.

INESDI (2020: 14-15) manages nine areas of digital professions in 2019, where it mentions that the three most demanded correspond to these:

Again in this edition, and as a pattern repeated since the first one, the most sought-after professionals are those with profiles associated with the field of Digital Marketing, which groups 38% of the analyzed job offers. This is followed, with 12 points less (26%) and, in second place, also consolidated, by

Digital Communication & Social Media. In third position, with 15%, we find Digital Business & E-commerce.

In the case of Mexico in the year 2015, Forbes Mexico (2015) warns that new technology and sustainability are creating employment opportunities since the beginning of the last decade, following the OCC World portal, marked the new jobs that already stood out in 2015, pointing out the following with their respective salaries:

- Data scientist: Oracle and SQL database management. 20,000 to 50,000 pesos.
- App developer: C++, PHP, Java and HTML5 programming. 15,000 to 65,000 pesos.
- Digital marketing specialist: Google Analytics, SEO, SEM, AdWords. 67,000 pesos.
- IT security analyst: ISO 27001 certifications. 30 thousand pesos.
- E-commerce manager: between 63 thousand and 97 thousand pesos.
- Cloud services specialist: 80 thousand pesos (with 5 years of experience).
- Renewable energy engineer: 28 thousand pesos.
- 3-D printing specialist: small niche in expansion. More than 20,000 pesos.
- Content marketing expert: between 48 thousand and 78 thousand pesos.
- Architect of sustainable spaces: 60 thousand dollars a year.

In the update of its report Forbes Mexico (2020) notes: "You may not be familiar with the term Chief Digital Officer or CDO, but this will be the most demanded digital professional in 2021, according to the specialized employment portal Jobatus". Where ICTs are changing the future of work in a vertiginous way, Esther Román, the owner of Jobatus, says: "In fact, as time goes by, new job opportunities are emerging and the need for these workers in companies is accumulating" (Forbes México, 2020).

For 2021 Forbes Mexico (2020) points out these seven professions, makes its job description, but does not provide salaries: 1) Chief Digital Officer (Chief Digital Officer or CDO); 2) Artificial Intelligence Specialist; 3) Data Scientist; 4) IT Director; 5) Customer Success Manager; 6) Chief Information Security Officer; 7) Ecommerce manager.

According to the report to be released by CodersLink Agency (Vázquez, 2022) in 2022: "...revealed that the highest paid engineering roles in Mexico by 2022 are Solutions Architect and DevOps; while Chief Technology Officer (CTO) is the highest paid management position". With information from 2021, Vázquez, C. (2022) mentions the 15 information technology (IT) jobs, giving description and the monthly salary range they can receive in Mexico, which are the following:

1. Big Data Engineer: 47 thousand to 104 thousand pesos.
2. DevOps Engineer: 38 thousand to 82 thousand pesos.
3. Information systems security manager: 33,000 to 76,000 pesos.
4. Mobile application developer: 15 thousand to 49 thousand pesos.
5. Application architect (technology): 30,000 to 60,000 pesos.
6. Data architect: 24 thousand to 132 thousand pesos [sic].

7. Data Administrator: 19 thousand to 33 thousand pesos.
8. Data security analyst: 23 thousand to 47 thousand pesos.
9. Data Scientist: 18 thousand to 60 thousand pesos.
10. Network/cloud architect: 30 thousand to 71 thousand pesos.
11. Network/cloud engineer: 41 thousand to 90 thousand.
12. Senior web developer: 27 thousand to 55 thousand pesos.
13. Site Reliability Engineer: 20.5 thousand to 36 thousand pesos.
14. Systems Engineer: 23 thousand to 63 thousand pesos.
15. Software Engineer: 16,000 to 70,000 pesos.

To close this part of the interesting article by Olvera, E. (2022), I take up again the average salaries that are immersed in information technology (IT), applicable for Mexico in 2020:

- CEO Director: 84,911 pesos.
- CTO: 77,706.55 pesos.
- Artificial Intelligence Developer: 55,993.22 pesos.
- SAP Consultant: 49,419.65 pesos.
- Software Architect: 47,405.56 pesos.
- DevOps: 45,119.97 pesos.
- Business Intelligence: 40,528.17 pesos.
- Data Scientist: 40,147.06 pesos.
- Infrastructure Manager: 40,498.71 pesos.
- Scrum Master 38,380.95 pesos.
- Project Manager 38,337.08 pesos.
- IT Consultant: 34,894.85 pesos.
- Back End Programmer: 27,632.19 pesos.
- Sysadmin: 27,350.51 pesos.
- IT Sales: 26,978.87 pesos
- Teaching: 13,154.71 pesos.
- Technical Support: 13,065.62 pesos.

Apaza Paucara (2018: 75) in his recommendations on the adaptation and orientation of new professional profiles in the area of digital marketing raises:

Knowing new profiles demanded by the global world in the area of digital marketing requires rigorous training, training with networked technologies for the labor supply, as much as the identification of the labor profiles and competencies that are currently required in the market.

As for Artificial Intelligence (AI), the trend in applications is that it will grow exponentially over the next few years. Andreas Kaplan and Michael Haenlein (INESDI, 2020: 87) define it as: "the ability of a system to correctly interpret external data, to learn from that data and to use that knowledge to achieve specific tasks and goals through flexible adaptation".

The so-called intelligent machines (robots) have been acquiring the capacity to imitate human reasoning in basic aspects through AI, which has progressively integrated them into different areas of domestic life and medicine, as in the case of

microsurgery based on robotic arms. Joana Sanchez (INESDI, 2020: 88) mentions that according to Business Insider there are four types of artificial intelligence:

- ❖ Level 1. AI in its most basic form: it starts from a database to perform its task, as well as knowledge to use that information. Deep Blue (IBM's supercomputer to defeat Gary Kasparov at chess) is an example of this level.
- ❖ Level 2. AI with limited memory: algorithms that have the capacity to record or 'remember' past experiences in order to predict or apply them in their decisions. This level has been applied in recent years in mobile devices, voice assistants, chatbots, and could also be used in the management of autonomous cars.
- ❖ Level 3. AI based on the theory of mind: the ability to process and show emotions is a desire in the next steps of AI, no longer as a mere device or algorithm. It is in the experimental phase, with the beginnings of capturing people's moods.
- ❖ Level 4. Self-aware AI: this would be the highest level of artificial intelligence and is currently at a merely theoretical stage.

For Pineda de Alcázar (2020: 42 and 44) there are three fields where robots learn more quickly: image and voice recognition, as well as automatic translation of human languages, adding: "And as in the future there will be more and more intelligent robots, first present on screens and smartphones and then in homes and everyday life, we will have to make decisions to face this not too distant future".

According to Joana Sanchez (INESDI, 2020: 90-91), artificial intelligence has presented these main applications during the last years: 1) Predictive analytics; 2) Chatbots; 3) Intelligent communication; 4) Digital twin. Artificial intelligence machines can make everyday activities easier, those that respond to repetition and automation tasks, therefore instead of displacing humans they complement them, highlighting that fundamental decisions will always be under human control at all times (Pineda, 2020: 49).

CONCLUSIONS

1. Online education allows students and people in general to have academic preparation without having to make use of traditional or conventional education, where they no longer have to physically travel to school centers, nor attend classes at rigid or forced schedules, in addition to the possibility of lower tuition fees.

2. Learning, unlearning and relearning, as A. Toffler made it known, has lifelong application; the individual who does not submit himself to permanent relearning and who does not know how to search for information to solve the problems that arise, will be condemned to suffer from 'illiteracy' in this new century.

3. In the asynchronous teaching model, the teacher prepares his class and leaves it recorded, so that students can watch it when they have time, with no interaction between teachers and students. In asynchronous classes the student enjoys flexibility of schedule, evolves at his personal pace of study and at the same time becomes more responsible and self-taught.

4. Self-learning always arises from the student's own initiative, seeking by himself the information or the subject of his interest, it implies two powerful verbs: to want and to know. Self-taught education opens the mind and makes it possible to study

new subjects, thus creating a sense of responsibility that grows with time, as well as allowing the constant updating of informed individuals.

5. The characteristics and nature of the new digital media has led to the emergence of new professions or professional roles, among the top five that generate higher income according to INESDI: Chief Digital Officer (CDO); Chief Technology Officer (CTO); Digital Business Manager (Digital Business Manager); E-commerce Manager (E-commerce Manager); and Digital Communication & Brand Manager (Digital Communication & Brand Manager).

6. Artificial intelligence (AI) is capable of imitating the cognitive functions that humans perform constantly and repetitively, making it clear that the trend is that its applications will grow exponentially in the coming years. Of the four recognized levels of AI, the first two have current application in people's lives, from the computer that was programmed to defeat G. Kasparov at chess to the chatbots used today. The third level of AI is in an experimental state and tries to capture people's moods, while the fourth level is only in a theoretical state.

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