MEASURES INVESTIGATING THE CHARACTERISTICS OF ACCOUNTING IN KNOWLEDGE-BASED ECONOMY. STUDY REGARDING THE EVOLUTION OF THE ROMANIAN ICT INDUSTRY IN 2007-2011

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Abstract: *Our interest in this subject resides in the need to understand the new meanings of accounting and financial reporting considering that the importance of knowledge-based assets is increasing. Therefore, we have been interested in understanding some of the defining and essential aspects of a knowledge-based economy and we have tried to identify one of the Romanian industries, most marked by knowledge and intellectual capital and, in the end, we wanted to point out the main features of an accounting in knowledge-based economy. One of this paper's objectives is to carry out a study at the macroeconomic level regarding the ICT Industry, a valuable element of knowledge-based Romanian economy, in the last half decade as well as of its constituent sectors: Telecommunications, Software and IT services and Hardware and electronics. The information contained in this study is based on the annual analyses of the Institute for Computer Technology, which, in its turn, is mainly based on processing the balance sheet data of the firms in the ICT industry in Romania and, also, information communicated by companies or provided by public institutions like NIS, NRB and NCA. The study is framed within the area of quantitative research, in a preponderantly inductive approach, using interpretative methods in order to understand the effects of economic conjunctures on the ICT industry, a knowledge-based industry, as a constituent element of a knowledge-based economy. We have noticed that the Telecommunication sector is the most unfavourable evolution during the entire length of time valuated, generating a negative influence. Even since 2007-2008, which corresponds to the economic boom, the growth recorded until then was attenuated. The slight increase of several indices (turnover and the production sold – returns form services, more exactly) and the slight reduction of the other indices part of the analysis (added value, export, number of forms and personnel) are the result of telephone market saturation, competition increase and the continuous tax reduction. The following years corresponding to the time of economic contraction negatively affected the evolution of the Telecommunication sector.*

Keywords: *knowledge based economy, accounting, ICT industry, Romania*

JEL classification: *M41, D83, O11*

1. Introduction

The notion of knowledge-based economy appeared for the first time in the speciality literature in 1969, in Peter Drucker's studies, being subsequently used by other specialists in economics and included by national and international bodies in official documents. Although, there has been for almost five decades a certain preoccupation for defining and the concept of knowledge-based economy, there is not a unanimously accepted definition, the notion being closer to a rhetoric metaphor than a concrete reality which should point out in detail the essential features (Kleith, 2002). According to Peter Drucker (1993), knowledge-based economy is the structure in which the capital, natural resources or labour are not considered fundamental economic resources anymore. The main economic resources, the most important in the new economy, is knowledge and generating and exploiting knowledge represent the predominant part in creating wealth (Department of Trade and Industry, United Kingdom, 1998 in Carayannis, 2006).

The current paper's main objective is to identify the main features of a knowledge-based economy, to present the evolution of the IT industry in Romania in the last years and to outline some of the main characteristics of accounting in such economy. The paper is structured as follows: after a short introduction presenting the objectives pursued in the present study, there is the theoretical framework and the stage of knowledge regarding knowledge-based economy, then the research methodology is succinctly described; then follow discussions on the analysis of the evolution of the IT sector in Romania and, in the end, the main conclusions of our research are outlined.

2. Theoretical framework. Stage of knowledge
Defining aspects of knowledge-based economy

According to most of the authors, knowledge-based economy is that economy "where production, distribution and use of knowledge and information is the key factor of economic growth" (OECD, 1996; McKeon and Weir, 2001 cited by Forbes, 2006; Chen and Dahlman, 2005; Forbes, 2006; Raj and Seetharaman, 2012); "it has in view, because it is an economy, the money, in the context of knowledge acquisition, production and selling" (Stewart, 1998); "an economy more dominated by the global influences and by the speed, often in real time, of the communications and information, no matter the distance" (Archibugi and Lundval, 2001); "such an economy is built on an efficient informational infrastructure and technological adaptation and the emphasis is on innovation, education and human resource development" (Forbes, 2005); "it is characterised by the transformation of knowledge into raw materials, capital, products, factors of production essential to economy and by economic processes within which generating, selling, buying, storing, sharing and protecting the knowledge become predominant and decisively condition the achievement of profit and ensurance of long-term economic sustainability" (Nicolescu and Nicolescu, 2005); "it is a state of economic being and a process of economic becoming that leverages intensively and extensively knowledge assets and competences as well as economic learning to catalyse and accelerate sustainable and robust economic growth" (Carayannis et al., 2006); "the economy in which the combination of diversity and ability of the knowledge owner has shaped

innovative thinking and technologies which have led to the emergence of intellectual property assets and consumer goods" (Heng et al., 2012).

The current interpretation of knowledge-based economy is concentrated on the importance on knowledge or human capital for the economic growth (Lin, 2006). In modern economy, the performance of an economic system is decisively influenced by the policy of intangible assets and their use. They are the result of the intellectual capital used as a factor of production in order to obtain a new value by accumulating knowledge (Burja and Burja, 2011).

Fuller (1995) argues that knowledge-based societies are not industrial societies, but knowledge –based societies are permeated by industrial values. According to Weber (2011), the fact that international government bodies consider knowledge as the main power factor for the nations, shows that the knowledge economy – specifically ICT, education and innovation – should be taken into consideration in the planning national strategies. Perhaps for this reason, the most penetrating and most frequently utilized definition regarding knowledge-based economy is that of the Word Bank (2010), as a directly involved body in the development of knowledge-based economy in the world. The definition contains four pillars: economic and institution management, education and skills, information and communication infrastructure and innovative system.

In contrast to the World Bank's approach regarding knowledge-based economy, Stewart (2001) states that it stands on three pillars: the first is knowledge – the most important factor of production. In knowledge-based economy value creation results from information; the second column belongs to knowledge-based assets, among which the intellectual capital has become the most important, consisting of talent, skills, know-how, know-what, human relations and other capabilities which create value; the adaptation to knowledge-based economy is the third column and consists in adapting a new business vocabulary, new technologies and strategies, new management techniques, new corporate governance techniques and new accounting models.

Knowledge-based economy points out the organizational and technological complementarities among the extended information encoding, storing and transmitting possibilities, provided by the new technologies, "the human capital" made up of individuals capable of using these technologies and a "receptive" organization of the enterprise (due to the evolution of knowledge management) to use the maximum potential of productivity. It is certain that in the global economy certain "intangible" activities related to research, services and education, receives a higher importance (UNESCO, 2005).

Analysing the totality of definitions and arguments presented in this chapter, without allowing us to express distinctly our own variant to define knowledge-based economy, we agree with the definition made by Nicolescu and Nicolescu. In our opinion, the elements characterising this variant to define knowledge-based economy refers first of all to the economic roles and functions held by knowledge within the economic processes, which emphasizes the multidimensionality and their particular character. Another particularity is given by the transformations that knowledge is subdued to within the economic circuit, which lead to a plus of added value. In comparison with the preceding variants there are other defining elements that can be distinguished such as the relation of conditionality between securing the economic performance and ensuring the economy' sustainability and the set of

processing and use of knowledge capital processes together with the other classical resources. The qualitatively superior character and the specificity of knowledge-based economy are not limited only knowledge, but they incorporate also the contributions of economic sciences, being relevant the importance held by knowledge within economic circuits. Once the importance of the new type of economy is perceived, several countries have adopted policies and strategies to build it. Concretely, at the EU Lisbon Summit it was established that for the countries of this organization that by 2010 they must build the knowledge-based economy.

3. Research methodology

The purpose of this research is to perform a retrospective of the speciality literature at the national level and, especially, at the international level regarding aspects of accounting in knowledge-based economy. The conceptual delimitation regarding knowledge-based economy was the first stage in the research, followed by the outline of some of the characteristics of accounting in the knowledge economy. The international literature materialized in the theoretical contribution of some researchers such as Kleith, Carayannis, Forbes, Drucker, Chen and Dahlman, Stewart, Fuller, Weber, Raj, Seetharaman, Lin etc. At the Romanian level, researchers like Nicolescu, Burja, Feleagă and Malciu, bring an important theoretical and empirical contribution to this field. In order to review the speciality literature, we used the qualitative research with fundamental-type descriptive-conceptual perspective, according to the deductive method, starting from concepts and theories existing at the level of knowledge-based economy and of accounting practised in this new economy.

Due to the active implication of informational technologies and communications in all economic and social sectors, the ICT industry in Romania has become the most dynamic sector of national economy. Although it is a new industry in comparison with the classical branches of economy, it has developed in a pace comparable to that of European countries. The industry contains goods and services in the field of information and communication technology, which have a triple strategic vocation (MECMA, 2011). On one hand, by improving the penetration rate of the IT sector in the Romanian society and economy and, also, by applying IT solutions in different fields, it contributes to the reduction of costs and transactions and facilitates communication. On the other hand, the IT applications contribute to the expansion and/or optimization of national value chains of other industries and, last but not least, it is an important exporting sector by outsourcing or integrated solutions export.

Considering all the reasons presented above, the secondary objective of this paper is to carry out a study at the macroeconomic level regarding the evolution of the ICT Industry, a valuable constituent of knowledge-based Romanian economy, in the last half decade as well as of its constituting sectors: Telecommunications, Software and IT services and Hardware and electronics. The information contained in this study is based on the annual analyses of the Institute for Computer Technology, which, in their turn, was based mainly on the processing of balance sheet data of the firms in the ICT industry in Romania and, also, information communicated by the companies or provided by public institutions such as NIS, NRB and NCA.

The study is framed within the area of quantitative research, in a preponderantly inductive approach, using interpretative methods in order to understand the effects of economic conjunctures on the ICT industry in Romania, an industry based on

knowledge as a constituent element of knowledge-based economy. The data gathering is a simple process in this case, consisting in accessing the webpage of the Institute for Computer Technology through an IT programme installed on a personal computer which allows downloading files in an intelligible format. The data presented in these files are stored and processed by simple arithmetical calculations. Data processing is made by tabular calculation. After collecting and processing primary data, the results thus obtained are analysed form a quantitative point of view, both as absolute and relative values and as evolution in tie, by being represented graphically. By comparing values and evolutions, we will conclude the results through a qualitative analysis.

4. Results and discussions

The last five years represented a period in which the ICT industry, a constituent of Romanian economy which tends towards a knowledge-based economy, has been confronted with diametrically antagonistic phenomena. The period of continuous economic growth of the main indices culminated in 2008, the effects of the world crisis being felt only in 2009, when most of the indices analysed (except for export) considerably diminished. The growth was resumed in 2010, yet the ascending line did not experience the same amplitude. Even though, the ICT industry exited the crisis much quicker and easier than other economic sectors.

Analysing each sector's influence on the industry as a whole in 2007-2011, we can see that the *Telecommunications* sector had the most unfavourable evolution during the length of time valuated, generating a negative influence. Even since 2007-2008, which corresponds to the economic boom time, the growth so far has been alleviated. The slight increase of several indices (turnover and production sold – here returns from services, more exactly) and the slight decrease of the other indices analysed (added value, export, number of firms and personnel) are the results of the saturation of the telephone market, the increase of competition and the continuous tariff reduction. The following years corresponding to a period of economic contraction, have negatively affected the evolution of the Telecommunications sector. The diminutions recorded are the result to the dependence of the sector on the domestic consumption, the latter, in its turn, being seriously affected by the crisis, yet, by the end of the interval, we can see a slight diminution of contraction.

Considering the overall sector, the turnover considerably reduced every year, beginning with 2008. To the reduction with 18.48% of the turnover in 2011 compared to 2008 the subsector of mobile telecommunication contributed negatively, where Orange, Vodafone and Romtelecom, the first three companies, summed up reductions of 930 million Euros. With a similar evolution of the turnover, the returns from services provided diminished with 5.9% in 2009 compared to 2008, with 8.1% in 2010 and 4.7% in 2011. The same unfavourable phenomenon manifested with the added value which lost in the five years analysed 23.4 percentage points, reaching in 2011 to a value of 2 billion Euros and, thus, the contribution of the Telecommunications sector to Romania's GDP was reduced with 1.66%. Regarding the exports, they decreased continuously, from 801 in 2007 to half in 2011. The saturation of the mobile telephone market and TV analogical cable services, in the context of economic crisis, generated the stoppage of increases in 2008 and the expansion of broadband Internet services and digital TV managed to compensate only with a slight attenuation of decreases. The hostile economic environment, the

ill-fated effects of the world crisis and the rough competition on a decreasing market have generated the bankruptcy of many companies and accelerated the consolidation within the sector. Thus, the Telecommunications sector lost 880 firms in 2011 compared to 2007, in a consecutive decrease every year (see Table 1). The number of employees had a similar situation, the companies, due to re-engineering and cost reduction reasons, made redundancies (10,840 employees in the interval analysed).

Table 1: The ICT Industry on sectors in 2007-2011

Length of time / Indices	2007	2008	2009	2010	2011
Telecommunications sector					
Turnover, mil euro	5,093	5,136	4,744	4,398	4,189
Production sold, mil euro	4,521	4,728	4,447	4,088	3,895
Added value, mil euro	2,557	2,498	2,252	2,052	1,959
Export, mil euro	801	785	623	422	400
Number of firms	3,930	3,576	3,360	3,185	3,050
Personnel	53,040	49,760	47,280	44,100	42,200
Software and services sector					
Turnover, mil euro	2,084	2,510	2,181	2,404	2,596
Production sold, mil euro	1,467	1,859	1,697	1,873	2,010
Added value, mil euro	872	1,041	985	1,090	1,183
Export, mil euro	505	642	725	840	930
Number of firms	15,170	15,990	15,620	15,330	15,000
Personnel	53,970	54,280	55,120	56,430	58,520
Hardware and electronics sector					
Turnover, mil euro	1,102	1,473	1,629	2,467	2,640
Production sold, mil euro	821	1,243	1,517	2,396	2,584
Added value, mil euro	304	254	238	261	282
Export, mil euro	702	1,581	2,030	3,060	3,390
Number of firms	928	888	769	707	650
Personnel	16,720	19,950	15,840	17,480	18,380

Source: personal processing of annual reports of the Institute for Computer Technology, available online www,itc,ro, accessed on 15.01.2013

Unlike the Telecommunications sector, the situation in the *Software and services* sector is different in the length of time valuated, the interval 2007-2008 corresponds to a period of significant growth (20.4% - turnover, 26.7% - production/services sold, 19.4% - added value, 27.1% - export, 5.4% - number of firms and 0.6% - number of employees operating in the sector), followed by a dark year in the sector's evolution, when most of the indices analysed (less export and personnel) diminished. 2009 caused the decrease of the turnover with 13.1%, yet it resumed its increase in 2010 and 2011 (+19%). The trajectory of the turnover was immediately taken over by the evolution of returns from production/services sold (-8.6% in 2009, +10.4% in 2010 and +7.3% in 2011) and added value (-5.4% in 2009, +10.7% in 2010 and +8.5% in 2011). The Software and services sector contributed with 0.98% to Gross Domestic Product in 2011.

Analysing the data presented above, we can state that this sector has overcome the economic moment crisis, reaching in 2011 to superior values compared to 2008. This positive phenomenon is the result, first of all, of the (+13% in 2009, +16% in 2010 and +11% in 2011), which managed to diminish the decrease of returns on the domestic market. In 2010 already, European markets resumed the demand for software and the need to reduce costs, some foreign companies transferred their activities towards countries like Romania. The sales of software solutions, the external contracts of local companies and the returns of the software service and development centres of the multinationals have brought important benefits to our country.

Passing to the microeconomic level analysis, we can notice the disappearance of 990 firms in 2011 compared to 2008, with a linear decrease situated around 2% annually (in most of the situations it is about small and very small firms). In spite of all these, the sector holds over 80% of the companies of the entire ICT industry in Romania. Even in the economically difficult conditions, the firms in the system continued hiring people in the period analysed (+0.57%, +1.55%, +2.38% and +3.70%), yet with a more rigorous selection of personnel. The number of employees increased with 4,550 people in 2011 compared to 2007 (little compared to the years preceding the crisis when a number of 7,000 people used to be hired annually), covering in the present only 1/3 of the graduates in the field (Vuici, 2012: 17).

Being in a positive trajectory, the *Hardware and electronics* sector recorded increases during the entire period analysed, no matter the economic conditions, positively influencing the indices of the entire industry. The only of this type in the ICT industry, it managed to maintain an ascending line even in 2009, due to the impulse given by the production at Nokia, the multiplication of foreign companies and the reduction of the activity of domestic producers. The evolution of the turnover recorded continuous growth, yet bouncing. If in 2008, the indices increased with 33.7%, in 2009 the increase was of only 10.6%, the situation repeating in 2010 (+51.4%) and 2011 (+7%). A similar trend recorded the production sold (+51%, +22%, +58% and 8%) and exports (+125%, +28%, +51% and 11%). We cannot say the same thing about added value rate whose maximum was recorded in 2007 (304 million Euros), decreasing with 16.4% in 2008 and with 6.3% in 2009. A timid increase is felt only in 2010 (9.7%) and 2011 (8%). Spectacular for this sector is the continuous growth of export, from 0.7 billion Euros in 2007 to 3.4 billion Euros in 2011, with a positive influence on the same index of the ICT industry, as a whole. Resuming the order from Europe has brought benefits both for the EMS (Electronic Manufacturing Services) contractors as well as for the producers of electronic components and sub-assemblies.

The number of firms in the sector considerably reduced every year (with 30% less in 2007 than 2011). The number of employees varies in a sinusoidal manner, with an increase of 19.3% in 2008 and a sudden decrease in 2009 (-20.6%). In 2010, employments are resumed in the sector, generating the increase of personnel with 10.3% and 5.1% in 2011. The significant reduction of increases in 2011 of any of the indices was marked by the unfavourable situation of Nokia in the second half of the year. Even though, the figures of this financial year exceed the figures of 2008 (+79% for turnover, +108%for production, +114% for exports and +11% for added value), generating a positive balance sheet for this sector. The causes of this evolution were the revival of the external consumption (the foreign producers were

the first beneficiaries), less affected by the effects of the crisis, unlike domestic firms which depend more on the domestic market.

Characteristics of accounting in knowledge-based economy

In knowledge-based economy, knowledge-based firms give much importance to intangible assets. Cozma and Popa (2007) outline a few premises which have led to the prevailing of tangible over intangible in the structure and value of contemporary economic organization. They are:

- the increase of competition as a result of the globalization phenomenon, emphasising the organization's orientation towards the client;
- the increase of the consumers' exigencies, forcing the organization to focus on creating and providing value to the market through: innovation, aesthetics, unique experience;
- the alert technical-scientific profess;
- the development of the informational society, which transformed the information into a strategic resource;
- the diversification of the communication ways and the cancellation of distances;
- the penetration and integration of technology in all the fields of social and economic life, including people's personal life.

The category of intangible assets contains, according to Blaug and Lekhi (2009), the knowledge, human capital, know-how, informational data, reputation and organizational practices. The immaterial character of these assets makes them difficult to quantify, even though the economic advantages generated by them are obvious. The OECD (The Organization for Economic Cooperation and Development) specialists consider that the "notion of intangible investments contains the totality of expenses made by societies for a long period of time, excepting the purchase of tangible assets, in order to improve the results. Thus, together with the investments in land, buildings, technology, the intangible investments contain investments in personnel training, organization of production, purchase and use of programme-products, commercial and technological relations with other companies, the study of the market and others (Feleagă and Malciu, 2004).

When we use the term intangible, we are thinking of an accounting notion and the international accounting norm the standard IAS 38 (Greuning, 2009: 237) defines intangible assets as being those assets "non-monetary assets which are without physical substance (immaterial), held in order to be used for the production of goods or services to be rented to third parties or to be used for administrative purposes". Intangible assets can be found in an enterprise under different shapes and according to the possibility to identify, measure and evaluate them are contained in the patrimony of the entity, while others non-identifiable and intangible, although obvious they are not reflected in accounting records. Their value is given by the existence of earnings present or future of the enterprise, but being difficult to establish it in a credible manner although their contribution to the increase of the efficiency of the entity is obvious, they get not to be reflected either in the annual reporting. It unnatural the shareholders and stakeholders' perception and leads to the empowerment of the entity (Smith and Parr, 2008: 14).

In the last decades, due to the significant increase of diversity of intangible assets, the researchers' attention was reoriented from tangible assets to knowledge-based assets. These are in contrast to tangible assets due to the fact that they can be easily identified, classified, valuated and emphasised in financial reports. In order to understand which activity is value surplus generating in a knowledge-based economy is absolutely necessary and it is extremely important to adapt the contemporary financial statements to the economic reality. *The knowledge-based assets* have been in existence for a long time. According to Cohen (2008), when the first inhabitant of caves lit the fire, he had extremely important knowledge. It can be said that he had an intangible assets by his ability. Following the same rationale, Cohen appreciates that the invention of the alphabet, of the numeral systems or the creation of the calendar represented for those times very valuable intangible assets. The inventors of those times never intended to patent their inventions or to ask for copyrights, yet, if they had done this, where would we have been today? It is worth noticing that the terms "intellectual", "intangible" or "knowledge-based" capital have, from the point of view of their use, an interchangeable character. In the accounting, management and law literature, the terms *intangible, knowledge-based assets* and *intellectual capital* have in view the same aspect: an intangible potential generating future benefits.

More recently, the sphere of intangible assets has become considerably larger, from consecrated intangible assets like: licence, software and trademark, to more dynamic elements like: human resources, organizational competences and innovation oriented intellectual processes. Based on the studies performed in European universities participating to the EU Meritum Project (Blaug and Lekhi, 2009) there are three categories of intangible assets which detach: the "human capital" generated by the employees' abilities and knowledge; the "relational capital" regarding the suppliers, consumers and research networks; and the "structural capital" targeting both the infrastructure assets and the intellectual property.

Due to the expansion of definitions aiming to contain more dynamic intangible elements, there are difficulties in valuation, according to Blaug and Lekhi (2009). They continue by stating that the synthesis documents do not provide nowadays comprehensive analyses of knowledge-based companies, a fact which raises problems for investors, shareholders, accountants, management. The non-physical nature of the intangible assets makes it difficult to quantify their exact value. Also, different components forming the intangible assets, being deeply interconnected, makes them even more difficult to identify and quantify. For example, in the process of employee training there cannot be assurances that the benefits of these training courses will remain within the firm. Therefore, the dissemination of knowledge makes it difficult to estimate the gains in productivity associated to them. Just like research and development, the rest of intangible assets have a high degree of risk and also a special importance in creating the value surplus. Although they have an obvious value, it is not measured appropriately and, at the moment, it seems very difficult, even impossible to measure in a credible manner these assets.

To underline the essence of the problems regarding what we previously stated, Arthur Levitt's comments are interesting, in 1999, cited by Smith and Parr (2008: 102): The dynamic nature of today's capital markets creates controversial. The new types of services and new technologies spurred are creating new industries and these new industries make up a new economy. The shift from an industrial economy

to a more service based one is, actually, a shift from "bricks and mortar to technology and knowledge." The major problem arising from these changes refers to the way in which information is presented in the financial statements and to the "maturation" of the existing models of financial reporting. We know, for example, to calculate the value of the production stock, to valuate a real estate or even to give value to a firm, yet it is very difficult for us to assess the list of users of an e0commerce site or the amount of research and development invested in a software programme. And because all these intangible assets get a higher and higher amplitude, both in terms of size and area of applicability, the users of accounting information resulted from financial reports can ask themselves whether the real value – and what determines that value – is chronologically reflected in these synthesis documents.
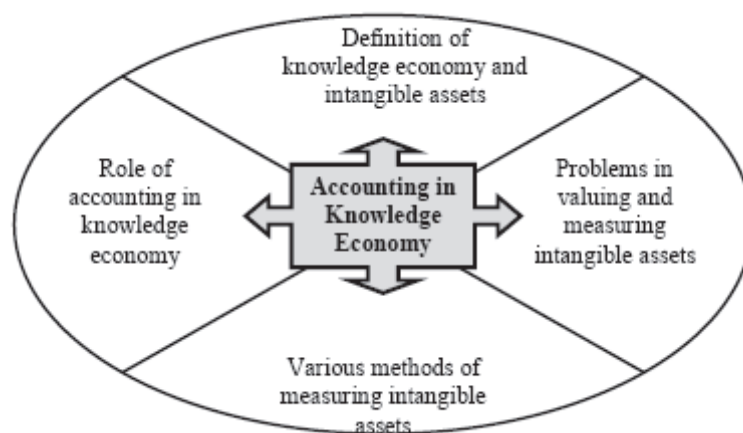

Figure 1: Accounting studies in knowledge-based economy
Source: Raj and Seetharaman (2012)

The objectives of accounting in knowledge-based economy should have in view the aspects presented earlier and synthesised in what follows, without having, though, the pretention that the list is exhausted: to define the concept of intangible asset in such a manner that it can contain in its structure the entire mass of knowledge-based assets, essential components of the knowledge economy; to identify the recognition criteria of intangible assets, taking into account those which are effectively used to create value, but which skip an appropriate identification or quantification; to appropriately classify the intangible assets; to draw up appropriate accounting policies to accurately appreciate the degree and diversity of intangible assets; to evaluate the intangible assets, to find appropriate quantification models of real value of all the knowledge-based assets; to improve the depreciation model of intangible assets and their depreciation duration. Let's not forget that they depreciate much quicker from a moral point of view than a physical asset (for example, a soft). How and how much the intangible assets depreciate is many ties simply a presupposition rather than an action supported by rigorous proving elements; the emphasis should be on an efficient financial-accounting reporting of the company's intangible assets, in a more coherent and broad manner, transparent, and with an optimal frequency so that the divulging of accounting information satisfy each user's needs.

In practice, it can be seen that more and more firms invest in different intangible assets to bring on the market innovative products. Considering all these, national and international accounting regulatory bodies have in view the expression of the role of intangible assets in economy, by introducing some systematic and comparative reporting, which should reflect as accurately as possible their diversity and accurateness.

5. Conclusions

Our interest in this research subject resides in the need to understand the new meanings of accounting and financial reporting considering the fact that the importance of knowledge-based assets is growing. Thus, we have been interested in finding out some of the defining and essential aspects of a knowledge-based economy and we have tried to identify one of the Romanian industries most marked by knowledge and intellectual capital and, in the end, we have wanted to point out the main characteristic of accounting in a knowledge-based economy. .

As we have presented earlier, we followed the analysis if indices in the length of time 2007-2011 for three sectors of IT industry and they are: telecommunications, software and services and the hardware and electronics sectors. We noticed that the *Telecommunications* sector is the one with the most unfavourable evolution for the entire period analysed, generating a negative influence. Even since 2007-2008, which corresponds to the period of economic boom, the increase recorded so far was alleviated. The slight increase of some of the indices (turnover and production sold – here returns from services, more exactly) and the slight reduction of the other indices analysed (added value, export, number of firms and personnel) are the result of the saturation of telephony market, the increase of competition and the continuous tariff reduction. The following years correspond to a period of economic contraction which negatively affected the evolution of the Telecommunications sector.

One of the limitations of our approach targets the fact that we have not measured the added value in these sectors of IT industry, the result of only knowledge-based assets. This limitation allows us to overcome it in a future study. In this paper we wished to draw the main characteristics of accounting in the knowledge based economy although the link to the dynamic of Romanian IT industry is not so strongly and clearly highlighted.

Regarding the characteristics of a knowledge-based accounting, we must admit that these are still quite poorly underlined in the literature in the field. As we have seen, some categories of assets are very difficult to track in accounting, to measure and quantify their contribution to the creation of added value. Therefore, accounting and financial reporting are now facing new challenges regarding the recognition, accounting and reporting of these categories of assets, the more vulnerable and difficult to quantify the more valuable.

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