"THE KNOWLEDGE TRIANGLE" IN A KNOWLEDGE-BASED SOCIETY

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Abstract: *The knowledge-based society is the stage where mankind is found and aims to raise the living standards of population but also to increase the level of knowledge. To achieve this latter goal, the states of the world, and especially those in the European Union, must ensure an adequate funding for its realization, and therefore in 2011 it was decided at EU level the achievement of an Innovation Union, in which are to be involved all the European countries, while to stimulate and finance research and innovation the Horizon 2020 program was proposed. The results of the Program, an "Innovation Union" have begun to be felt, so in 2011, the major companies headquartered in the European Union increased their investments in R&D by 8.9% compared to 6.1% in 2010. This increase was almost equal to that of the U.S.A. companies (9%), higher than the world average (7.6%) and superior to Japanese companies (1.5%). The sectors that used the research-development activity have tended to have increases in employment above average. I believe this information highlights the fact that the European Union may become attractive for research-development and innovation investments even for businesses outside the UE, and this can result in jobs creation and increasing competitivenees of this field of the states of the European Union. In the introductory part of the article, I have briefly presented general notions of the three component activities of the "knowledge triangle", in the second part I presented the knowledge society with several features, in the third part, I showed some provisions of the program to stimulate research and innovation Horizon 2020, in the fourth part, I presented an innovation activity connection to private enterprise and entrepreneurial initiative stimulation in the field innovation, and the conclusions shows that research does not stop with achieving the objectives and finding the outcomes research, but is it the background for further research, especially in the context of a new economy", where innovation through knowledge is the most important.*

Key words*: research, innovation, financing, knowledge society.*

JEL clasification*: E25, E26, O28, O31*

1. Introduction

Scientific research is a creative activity, which aims to enhance the volume of knowledge, including knowledge of man, culture, and to use this knowledge to acquire new knowledge etc.

Nowadays the concept of scientific research is used under the name of research - development.

Research, development and innovation, together, form the 'knowledge triangle' and represent the engine of economic and social development. The common concerns of all countries, for scientific research and science, appear as recognition of their role in ensuring the welfare and human civilization.

In the current context, scientific research should, too, be seen in the light of globalization. In this area there are also real-world problems:
- science and research must take into account: the globalization of the economic life, the deepening of international division of labor, increased international relations, the limited resources and their uneven distribution across the globe, environmental protection and sustainable development of mankind;
- the need for scientific research is a serious problem and requires great efforts which sometimes cannot be supported by a single state;
- the sustainable development issues have to be solved from an international perspective. (Plumb I. *et al*., 2007)

The innovation process requires specific skills, that is to seize market opportunities in conjunction with technological developments, to identify various technical solutions and so on, as well as abilities that are to be won by employees, managers or to be embedded into a business organization.
The success of a knowledge-base" society depends on the interaction with the business environment and the resources available in order to generate new products and processes. The mechanisms through which these objectives can be achieved are given by the innovation process itself.
Developed industrial countries have more or less from a "closed innovation system" to an "open innovation system". While the label "open" may include a number a factors (legal, economic etc.), developments of networks including public-private partnerships or university-industry links is a key element. (Maasen P. & Stensaker B., 2011)

2. The knowledge-based society

Knowledge-based society is a formal association of people with common interests who seek to combine knowledge from specific areas of interest, thus contributing to knowledge. Knowledge as a result of perception, learning and reasoning, constitutes the major component of any activity and in particular, of the socio - economic ones. Activities in the spheres of economic, social, cultural and other human activities are highly dependent on information and knowledge, which represent results, but also raw material of these processes.
Society has always relied on knowledge, even if promoted by empirical methods such as observations and experiences that led to generalizations passed down from generation to generation. Mutations produced in contemporary society consists in the introduction of new technologies, which removes the barriers of space, transmission, storage, sharing and storing information and knowledge, providing a favorable environment for fertilization of ideas, leading to increased potential for knowledge generation and transformed it into the most important asset of contemporary society. (M. Muresan, 2011)
It is now a certainty that knowledge organizations emphasize, not only new phenomenology, but also induce a different view on how to conceive and practice management. Because new types of actors, but also roles, appear, because the typology of management practices is changing radically, it was found that the activities related to the production of knowledge (innovation), its dissemination (communication) and its acquisition (learning) are not compatible with an authoritarian leading or an hierarchical strict and comprehensive control.
On the contrary, their subtle character blurs the distinction between the formal and informal side, while, the outside official controls that became inoperative, are no

longer justified. In other words, the separation between management and execution is irrelevant because, as of now, the act of management focuses on developing problems of strategic vision and on facilitating coordinated action of relevant and cooperative actors, which are self-responsible, including in terms decision. (Popescu V.A. *et al*., 2011)

The overall policy objective of the Lisbon strategy launched in a 2000 year was the transition of the European Union to a knowledge-based economy and society by a 2010 year. While this encompassing view implied a systematic approach, the European Knowledge landscape remains fragmented. The European Commission has been expressing the need to better integrate all the parts of the knowledge policy agenda for some time, noting in particular:

-the lack of innovation and entrepreneurial culture in research and higher education;
-a lack of investment, in particular private investment, in research and development (R&D);
-the difficulty Europe has in translating R&D results into commercial opportunities. (Hervás S. F. & Mulatero F., 2010)

Basic research is now carried out in a diversified institutional framework: universities, research institutes, companies and consortiums thereof. In some cases it can be transferred very rapidly in the correct application. On the other hand, it can lead to unexpected applications years later and in areas relatively distant from the original.

Currently the private sector finances supports more than half and two thirds from research and technological development in Europe. Private investment in research and development in Europe, after a relative decrease, register again, an increase in the recent years. Multinationals and international investments have remained high and even increased. Due to globalization of the economy, these companies have developed strategies for research and development on an international scale, with alliances, mergers and acquisitions that have increased in each sector.

It follows that investment in research and development from the private sector in Europe is lower than that of competitors in the United States and Asia, due, in particular, to lower research efforts of SMEs. In Europe, these trends are essentially represented by the companies that make or use technology and whose future depends on their own capacity to develop. But, only a limited number of small businesses exploit the potential of high technologies, while establishing companies that sell the results of research and development is still at low levels in Europe.

On the other hand, European financial market did not sufficiently discovered the economic value of investment in knowledge. Even if it started to grow, the amount of venture capital focused on innovation is still limited in Europe. Such capital investment in the high-tech sectors and in the creation of such companies is much lower than in the U.S. So the climate for private investment in research in Europe needs, greatly, to be improved. (Popescu D.I. *et al*., 2006)

The concept of knowledge society is used interchangeably with the knowledge-based economy (knowledge-based economy). The two concepts are related but not identical. Intensive use of knowledge, including knowledge generating, is the essence of some economic processes that have resulted. On the other hand, "society" is a more comprehensive framework than economy and progress towards the knowledge society will have, beyond the economic effects, the consequence of a better realization of the human personality. (Plumb I. *et al*., 2007)

The relationship between Knowledge investments, innovation and competitivenees is an important topic in both academic research and economic policy and has been

studied extensively over the past decades. Nowadays, investments in private and public R&D are believed to make up the heart of a modern knowledge economy in a knowledge-based society. (Van Hemert & Nijkamp P., 2010)

3. „Horizon 2020" programme for research and innovation stimulation

European Union in the context of the transition to the knowledge society aims to provide a framework for a smart, sustainable and inclusive growth. Knowledge society and innovation involves the integration of new technological infrastructure, the processes of research, development and innovations, as well as the educational ones, contribute directly to the development of intellectual capital, the main resource of current society. Knowledge generation, based on stimulating the use of intellectual capital is the key factor to increase competitiveness, to ensure sustainable growth and to increase social integration level. To achieve these strategic objectives, the European Union stated some precise targets. Because research and innovation targets set for 2020 includes the 3% of GDP for supporting this field, and for the field of education represents the diminishing school dropout to below 10% and the increasing number of tertiary graduates in the age group 30-34 years to 40% of the total population.

EU strategy provides better exploitation of the potential of economic growth, having as main priorities: research, development and innovation, as well as improving the educational process. The specific program for the research and innovation (Horizon 2020) provides:

✓transforming the European Union into an Innovation Union;

✓improving cooperation between the business environment the academic one by creating „Alliances based on knowledge ";

✓creating new partnerships between universities, research entities and companies in the business sector (communities based on knowledge and innovation);

✓improvement of research and innovation systems, especially of private ones.

The strategic framework on research and innovation 2014-2020 is correlated with the Union Strategy for 2020, following: ensuring excellence in science, providing industry leadership (including active support for the SMEs), providing an adequate response to societal challenges. To finance the „Horizon 2020" program, funds worth 80 billion are provided to implement these policies, which demonstrates their importance. (European Commission, 2011)

4. Stimulating entrepreneurial initiative

In times of rapid technological change, the need to prevent technological accidents at all stages (research, experiment, industrial use, consumption) should be well balanced with the need to maintain the pace of development and not to increase the already high costs of the more radical innovation.

Trade agreements between countries can have, also, lasting consequences for the locations of new industries. Mobilizing private finance for innovation system depends largely on the sophistication of financial market mechanisms for risk assessment of failures cost innovation and presentation. In most countries these market mechanisms are still immature. This creates financial bottlenecks that affect more advanced innovations that go beyond market borders, than the modest, incremental, innovations.

Resources released by these blockages can launch new businesses, so to resume the business cycle. This creates a challenge for governments, especially in countries where entrepreneurship in large business organizations and / or "governmental entrepreneurship" have traditionally played a leading role in the generation and exploitation of technological progress.
The main conditions that must be fulfilled for the entrepreneurial engine to operate efficiently are:
- A financial education;
- The proper functioning of the products;
- An appropriate regulatory framework for business: creating, trading, closing businesses,
- Development of entrepreneurial training and management skills;
- Facilitate SMEs' access to new technologies and information.
Financial markets can provide value and appreciation to the specific knowledge of the company, to a certain extent by share price, but this do not evaluate good the intangible assets. Labor market assigns value to knowledge embedded in individuals, certificates of education and training systems through awarded higher wages or business opportunities.
Another concern is the interactions between labor market and social esteem for determining long-term effectiveness, efficiency of human capital, regarding the formation and its allocation on the attractiveness of engineering or scientific careers. Government can intervene through its macroeconomic management: interest rate has an impact on the current value of knowledge embedded in capital goods and, more generally, on private investment in long-term research. Thus, when production is financed as a public good, is supported and researched as good for business and training, infrastructures that increase the profitability of some private investment in knowledge are achieved. (Popescu R., 2007)

5. Conclusions

Scientific research should not be regarded as definitive completed once obtaining final results. They concern, as task, as achievement for the moment, only reaching the objectives pursued at the beginning of research. But beyond these targets are foreseen other matters, most of which are new, that appear as possible and / or necessary future research topics. Because of this, research results can be used either immediately applied in a practical sense or in a theoretically sense. In the latter case, they will be prerequisites for future research. (Gheorghe I. G., 2008)
At this point mankind is in the third revolution that is driven by THE knowledge-based service sector. Although, over time, the laws of economics have not changed, however, the economy itself has changed in a fundamental way. There are several important aspects of the knowledge economy, which is also called, „the new economy", that are different and are marked differently from, „the old economy". These differences between the two as „economies" can be compared with the differences that led to the transition from the agrarian economy of the nineteenth century to the twentieth-century industrial economy. Thus, if in the industrial economy capital was more important than land, in „the new economy" innovation through knowledge is the most important aspect. Currently most aspects of the economy are characterized by it. In the global knowledge economy, the advantage of some nations over others will result, not only from the use of natural resources

owned or by cheap work force, but also from their ability to assert their intellectual capital.

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