Innovation, Vector of the Knowledge-based Society

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Abstract: *The innovative potential of a nation is determined by its members' creative capacity, as well as by the design and implementation of strategies and policies that are meant to support the devise, experimentation and application of new ideas, respectively the transformation thereof both into tangible goods (products and services) and intangible ones (knowledge). The present paper approaches innovation as a vector of the new knowledge-based society, which consists of the main actions undertaken by the EU within the context of the "European Year of Creativity and Innovation", as well as of the actions promoted through the Initiative known as "A Union of Innovation", comprised by the Europe Strategy 2020. The final part of the paper illustrates the essential role of universities in developing knowledge-based and innovation-based society.*

Key words: innovation, knowledge-based society, intelligent growth, community actions, university.

1. Introduction

Knowledge-based society implies putting to good account knowledge – which is a key component of national intellectual capital – at a higher level. In such a society, knowledge – the result of all knowledge processes – is the main competitive advantage at national, organizational and individual level. The increasing complexity of activities, the information-based society, as well as the

accelerated rhythm with which technical and technological innovations are created require new competences, which result subsequent to the aggregation of the new knowledge that society members acquire through a continuous learning process. Consequently, in the knowledge-based society and economy, human resources are permanently included in the learning processes both at institutional level (in schools, high schools, colleges, universities, academies etc.) and at an organizational one (in private, non-profit and public organizations).

From this point of view, the European Union launched a long-term strategy which aims to promote a knowledge-based society that requires life-long learning in order to ensure the European citizens' sustainable prosperity and welfare.

Innovation plays a fundamental role in enhancing organizational competitiveness and, implicitly, the economic, social and cultural development of a nation. Within the context of the new society and, respectively, of a potentially new economy, the importance and significance of scientific and technological knowledge for economic activities has radically modified; the opinions according to which it is necessary for the innovation concept to be redefined theoretically are more and more insisting and convincing; according to these theories, the very concept of innovation must be included in a systemic model that is more complex than the traditional one, and that is also appropriate for contemporary realities; from a practical point of view, such a model would bring modifications in the innovation policy according to the new requirements [2].

The American Professor Peter F. Drucker considered that "knowledge-based society will inevitably become more competitive than any existing human society, simply because the more accessible information, the less excuses for lack of performance. There will be no "poor" countries, merely ignorant countries. The same principle will be applied to companies, industries and organizations of any kind. In fact this principle will be applied to human beings, too".

Knowledge-based society relies on innovation, the on-going training of its members, as well as on a large number of researchers, university teaching staff, and engineers, all of whom are part of a university and research centre network, as well as of innovating companies that provide high technological products and services which use information and put it to good account [8].

Knowledge-based society ensures – through its technological and functional vectors – human development while creating and maintaining balance between the economic, social and ecological dimensions. These vectors represent instruments that transform information into knowledge; thus, they transform informational society into a knowledge-based society. Knowledge-based society requires a converging action of these technological and functional vectors [1].

Innovation is a defining coordinate of the knowledge-based society. The innovative potential of a nation is determined by its members' capacity, as well as by the design and implementation of strategies and policies that support the creation, experimentation and application of new ideas, respectively the transformation thereof into tangible goods (products and services) and intangible ones (knowledge).

In a knowledge-based society, creative-innovative processes, respectively

production of ideas and the transformation thereof into competitive products and services, are fundamental, whereas intangible resources become more important than the tangible ones.

2. Community-run actions within the innovation sphere

The EU developed states have adopted strategies and policies that stimulate innovation and that ensure transition from the new economic, social and institutional structures that are specific to knowledge-based society.

Since 2009 an eloquent proof of the concerns manifested by the EU in the sphere of innovation has been represented by the European Commission, which initiated the campaign: „Imagine. Create. Innovate". This Campaign mainly aimed at promoting creativity and innovation in different sectors of human activity, as well as at drawing attention at the importance of creativity and innovation for personal, social and economic development. A key-factor for the future economic growth is the full development of the EU citizens' innovation and creativity potential, which relies on European culture and scientific excellences [4].

Today's world relies on fast innovation. Creative thinking is the key of success in a global economy, a fact which was admitted by the EU a long time ago. Creativity can be considered the supreme innovation source that transforms creative ideas into products and services. Creativity and innovation cannot create sustainable economies outside the observance of cultural diversity, which is a source of creativity and innovation itself [7]. Innovation is an integrating part both of the European Commission as regards climate change, and also of the plan for re-boosting EU economy.

Danuta Hübner, former commissioner for regional policy, stated that "due to an ever increasing competition and to the serious global challenges, innovative practices and creative solutions represent an opportunity towards ensuring economic growth and welfare within our regions and countries. Abilities, ideas, and processes – all combine in order to help us gain a competitive advantage. Europe must not react to the present crisis while reducing investments in abilities and innovation. We must be trustful and rely on the quality of our ideas, as well as on our adaptation capacity."

The projects performed by the European Commission within the campaign run in 2009 basically aimed at [6]:

- Cooperation between member states in domains such as education, culture, enterprises and workforce occupation;
- Creation of closer links between art, business, schools and universities;
- Encouraging young people to be entrepreneurs;
- Developing innovative abilities within public and private organizations.

Results of the Campaign run by the European Commission in 2009 were summarized in "The Manifest for Creativity and Innovation in Europe", which comprises seven major directions of activity and represents a support community strategy for creativity and innovation for the period of 2010-2020.

Consequently, the European Union supports through active policies creative-innovative processes, a fact illustrated by the Programme of the Cohesion Policy for 2007-2013, in which creativity and innovation are appreciated as sources of

sustainable development. Thus, over 86 billion of Euro, representing 25% of the total structural funds, have been allotted to the Agenda for Innovation, which includes research and innovation, ICT (Information and Communication Technologies) exploitation, measures for enhancing the entrepreneurial spirit, as well as innovation at the workplace.

3. A Union of Innovation

In 2010, the European Commission adopted the Europe 2020 Strategy, which is structured on three major coordinates [5]:

- Intelligent growth – the development of a knowledge and innovation-based economy;
- Sustainable growth – promotion of a more efficient economy ensured through an ecological and highly competitive resource usage;
- Favourable increase of inclusion – promoting an economy which has a higher rate of workforce occupation and can ensure economic, social and territorial cohesion.

These three important axes of development support each other and offer an overview of social market economy during the 21st century Europe.

Intelligent growth implies consolidation of knowledge and innovation, which are essential vectors for the knowledge-based society and economy. In order to achieve this goal, one must:

- Enhance the quality of learning systems;
- Enhance research performances;
- Promote innovation and knowledge transfer within the community by using informational and communication technologies;
- Cultivate the entrepreneurial spirit, which is market and consumers' needs-oriented.

One of the seven initiatives comprised in the Europe 2020 Strategy is the Initiative "A Union of Innovation". The objective of this initiative is the orientation of politics within the research-development and innovation sphere towards the challenges of a contemporary knowledge-based society: climate changes, energy and the efficient use of resources, health and demographic modifications. Each piece of the immense innovation chain should be reinforced as regards fundamental demand and commercialization. The European Commission will act in the following three directions:

- Accomplishing a European Space for Research, devising a strategic research agenda in compliance with a set of priorities, of which we mention: energy security, transports, climate changes, the efficient use of resources, health and aging, as well as ecological methods of production and land management;
- Improvement of the innovation-frame conditions for the business environment, creation of the Single European Patent, of a sole Court of law specialised in matters of patents, modernization of the design frame of copyright and trademarks, improvement of SMEs access in order to ensure intellectual property protection, enhanced creation of inter-operational standards, improvement of capital access and full use of secondary demand policies, e.g. through public acquisitions and intelligent regulations;
- Conclusion of European partnerships in the area of innovation between the European Union and member states in order to accelerate the development and usage of

technologies that are necessary for answering potential challenges;

• Consolidation and further development of the community instruments that support innovation (e.g. structural funds, rural development funds, Research - Development Frame - Programme, Frame – Programme for Competitiveness and Innovation, SET Plan) and a closer collaboration with the European Bank for Investments through the simplification of administrative procedures in order to facilitate access to finances, particularly for SMEs;

Figure 1 – BlackBerry 850 – the first product of the company. Laying keys under the shape of a berry led to the new name of the company.

• Promotion of partnership in matters of knowledge and consolidation of links between education, enterprises, research and innovation, including through the European Institute of Innovation and Technology (EIT), as well as the promotion of the entrepreneurial spirit by supporting young innovative enterprises.

4. University, a pillar of the knowledge & innovation-based society

Development of knowledge and innovation-based society fundamentally depends on universities, that is on the quality of processes and activities which are performed within them. Human resources are trained by universities and are going to be hired in private organizations, institutions and public authorities, NGOs, research centres, international organizations etc.

The activity performed within universities comprises:

- Acquisition of competences;
- Scientific research;
- Contribution to the development of the knowledge and innovation-based society.

Universities play an essential role in the new knowledge-based society:

- Scientific research processes produce, develop, store and disseminate knowledge;
- Didactical processes basically ensure knowledge transfer towards students, master's degree and PhD students;
- Knowledge that was assimilated and competences that were acquired during the three university study cycles (Bachelor's degree, Master's degree and PhD degree) will help potential students integrate into the labour market.

University, as a knowledge-based organization must produce three categories of intangible values:

• Concepts (ideas and technologies that result subsequent to the performed processes and activities);

• Competences (that help potential graduates adapt to the requirements on the labour market);

• Connections (creating partnerships with a view to extending the sphere of influence, and putting to good account opportunities).

The conclusion of partnerships between universities and research institutions, as well as private and public organizations, and NGOs, is essential for the knowledge and innovation-based society. If universities, innovative organizations and research institutions conclude partnerships, they have the chance to win grants and projects competitions, and also to obtain finance from national and international bodies.

Similarly, these partnerships facilitate the accomplishment of interdisciplinary studies and research projects through the

participation of universities, institutes, technical, economic, and healthcare research centres. The involvement of private organization in these projects confers these studies and research projects an applicative dimension.

Dissemination of scientific research activities, which is in fact ensured through grants and projects, is accomplished through the organization of conferences, symposiums and workshops, through the publication of scientific studies and articles in journals with an outstanding indexation etc.

Another important aspect is, in our opinion, the development of the entrepreneurial spirit within the university and post-university system by creating competences that rely on the entrepreneurial, innovative spirit, respectively on the individual's capacity to identify and put to good account potential business opportunities. The enhancement of the entrepreneurial spirit within the university curricula is a sine qua non condition at present especially because, on average, over two thirds of the active population performs its activity in SMEs.

In knowledge and innovation-based society it is important for university management to create and apply adequate development policies and strategies in order to improve performed activities and processes. We consider that the main goal of universities, as pillars of the new knowledge and innovation-based society, is to offer students, including master's degree and PhD students, who are potential actors on the labour market, relevant information and knowledge which, if understood and acquired, would later on become competences. In this context, we would like to include a comment. Academician Solomon Marcus underlined, in several conferences, the fact that knowledge is often received / memorised and repeated without being understood and, thus, knowledge is not transformed into competences for graduates. In our opinion, didactical academic activities should be reconsidered in order to ensure the acquisition of knowledge through modern and interactive methods, which rely on case studies, simulations, role plays, projects etc.

5. Conclusions

Knowledge-based society is based on innovation and the on-going training of its members, and it relies on a large number of researchers, academic teaching staff, engineers, all of whom are reunited in a network made up of universities, research centres and innovating firms that offer high technology products and services and that use information and put it to good account.

The EU supports through active policies creative and innovative processes, a fact which is illustrated by the Cohesion Policy Programme adopted for 2007-2013, in which creativity and innovation are seen as sources of sustainable development. Thus, a sum of over 86 billion Euros, representing 25% of the total structural funds, was allotted to the Agenda for Innovation, which comprises research and innovation, ICT (Information and Communication Technologies) exploitation, measures for the entrepreneurial spirit, as well as innovation at the workplace.

Intelligent growth, a coordinate of Europe Strategy 2020, implies the consolidation of knowledge and innovation, as essential vectors of the knowledge-based society and economy. In order to achieve this objective, the European Commission performs its activity in the following areas: improving the

quality of the learning systems; increasing performance in research activity; promoting innovation and transfer of knowledge within the community space, by using informational and communication technologies; cultivating the entrepreneurial spirit, which is market and users' needs-oriented.

The development of the knowledge and innovation-based society basically depends on universities, respectively the quality of processes and activities performed by them. Universities train human resources that are going to work in private organizations, institutions and public authorities, non-profit organizations, research centres, international organizations etc. The university, as a pillar of the knowledge and innovation-based society, must produce three categories of intangible values: concepts (ideas and technologies resulted subsequent to the performed activities); competences (that will help prospective graduates adapt to the requirements imposed by the labour market) and connections (creation of partnerships with a view to extending the sphere of influence and putting to good account new opportunities).

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