

THE IMPLICATIONS OF DEVELOPING A STRATEGY FOR THE SCIENTIFIC KNOWLEDGE OF THE COMPANIES' ECONOMIC PERFORMANCES

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Abstract: In order to accomplish the envisaged aims of this paper, interdisciplinary research has its own methodology consisting of specific methods and techniques to which, the particular methods for each disciplines participating to the complex research and allowing an integrated study of the issues, are added. The used methods and techniques will analyze, step by step, the multitude of information having as final objective: a faster development of advanced technologies in economic sectors and an implementation of the sustainable technological development directions at sectorial level; the increase in the firm's abilities to deal with the technological evolution and the competition on an European and international level; development of the research activities and of innovation on a firm's level in the field of high-tech fields; promotion of viable technological clusters capable of becoming competitors on the world market by supporting the formation and development of a clusters' network – including firms, research and development institutions, technical universities, and especially on a regional level in order to support the strategic development programs launched by the big companies or by the industrial associations.

JEL classification: F00, O14, O30, M15, L25

Key words: globalization, economic performance, technical progress, competitiveness

An essential characteristic of present society, which is in the process of integration and economic globalization, is the spread of a large quantity of various information, with companies' activity taking place inside of a fully developing informational society. Within this context, information must be analyzed from the high point of scientific knowledge, underlining the effects of technical and scientific progress on the development of society.

Technical progress is the elevation of the technical level of the work process' material elements, of the technological processes and that of the outcomes, starting from research and development as a sum of activities including conception, design, assimilation and introduction into the production process of the newest scientific knowledge. (P.Jica, Editura Politică, București, 1979, p. 30)

Scientific and technical progress is essential to social and economic development. The use of its results, with flexible fabrication systems, design, operative and manufacturing computer assisted technologies, determines major changes in work division both in the processing departments, but also between them and the sales departments, having in mind the qualification level of the workers, their professional structure, and also the work they put in.

Technical progress originates from important scientific discoveries in the fields of electronics, computer science, biology, chemistry etc. Because of this, and due to the fact that the period of time between the scientific discovery and its practical application through innovation has greatly diminished, scientific progress has become, in the most part, an organic component of technical progress, justifying using the terms scientific and technical progress together, to accentuate this. Therefore, technical progress cannot take place outside scientific progress, but, at the same time, it plays an important part in its evolution, seeing how for scientific progress we use technical, technological and material modern means, obtained through technical progress, without which the great scientific discoveries could not take place.

Concerning the interdependence between technical progress and economic progress, it is increasingly obvious that contemporary technical progress is the main factor in economic growth and progress, as:

- it determines the growth of the work efficiency in great bursts and in all fields of activity, with contemporary technical progress being a great time, space, substance and energy saver;
- it modifies the nature of human labor, in the sense of eliminating physical and routine mental effort and in that of relatively increasing the creative work for complex information
- it generates important changes in the structure of man performed activities, which also leads to changes in the fields and branches of activity.

Nowadays, technical progress has proved to be the main growth economic factor of any country. The accumulation of capital and its transformation into investments with the purpose of increasing the volume of technical and technological means is fairly limited. On the other hand, this accumulation determines the decrease of the consumption fund, followed by the decrease in the population's standard of living. Furthermore, practice proves that beyond a certain level the economic efficiency of the existent technical means tends to decrease down to only the effects obtained in proportion to the work effort put in.

There is no need to overstate the importance of new technical methods, created as a consequence of technical progress and towards the evolution of the most diverse fields of human activity and existence.

Technical creation is defined by the level of innovation and is governed by laws which presuppose a certain level of scientific knowledge, resources, efficient intercommunication systems, market economy principles and a permissive political system. (Virginia Ciobotaru, Editura ASE, 2001)

Because they are conscious of the increasing importance of information in the social and economic progress, developed and even some developing countries allocate significant financial, material and human resources to activities which create information, especially to scientific research and innovation.

Statistics show that, in developed countries, the GDP cut assigned to financing scientific research and technological development tend to equal the annual budget of developing countries, and this is happening due to the fact that in contemporary economy there is the need for organizing creative work in complex divisions, capable of using modern techniques and technology.

Also, in more and more countries, strategies concerning information generating activities are being advanced, especially for those activities which lead to innovation and integration within the micro and social-macroeconomic development strategies.

The concept of „innovation policy” was born in the early 80's and it contains a complex of means through which state organisms in the developed, market economy countries, get involved with the purpose of stimulating and consequently cultivating these activities.

The policy of innovation in developed countries has continuously extended its frame, with the result of traditionally financing national research and creating and financing some research and development projects first thought by the European Union.

The difference between scientific knowledge and the technological one consists in that a certain level of scientific knowledge will always provide a specific pallet of technological options, which are, in fact, the representative options for the desired production. But quantifying and identifying knowledge in general imposes numerous constrains to what does or does not work, technologically speaking. Knowledge is made out of subjects which a company already owns and subjects which it knows where to find. Science offers the possibility to find the necessary information on the technological alternatives which a company does not yet own, but it does not make the acquisition process a free and efficient one. It is plausible that a great volume of scientific knowledge will lead to the reduction in acquisition cost for necessary information.

Observation concerning the importance of development activities underline an added characteristic of the technological growth and knowledge process, which is the special attention towards improving and modifying the already existent knowledge in relation to new outcomes of creation. Although a precise lining between the two components is difficult to achieve, we can point out the preference towards renewing already existing products instead of bringing forward completely new ones. Present activities are tightly connected to the technological knowledge we gained in the past, and so the internal pressure plays an important part in the daily evolution of the knowledge we posses. Although development activities focus on improvements, small retouches, individually, insignificant, taken into consideration as a whole, the outcome consists of a substantial added value. By discovering an important innovation, a time period begins to unfold, where small improvements or creations based on that major discovery take place. Every major invention represents the beginning of a sequence of activities dependent on a somewhat laid out road, along a few decades, which can only be understood in the future as a part of a historic process.

As new scientific technology opens new paths, at the same time it creates discontinuities uninfluenced by the legacy. In that sense, scientific research does not have a place in this technology generated phenomenon that is depended on the laid out path. This seems partially true, as the possibility of important scientific discoveries does not rule out the impact of the forces that are dependent on the path, it does not exclude the influence of technological heritage on future economic performances.

It is why the economic and technological aspects are strongly connected to the conversion of new scientific discoveries into tangible benefits for the wide public. There have been situations where the ability to understand new scientific knowledge has been so low, and its economic exploitation was so improbable, that we needed to develop a new science or subject in order to make it more accessible.

Reaorganizing the production and the advantages that it brings to democracy, autonomy and social justice will become effective only as a result of political and social will. Society finds itself at a turning point, technologically, economically, and organizationally speaking, which offers the possibility to renegotiate some legal, political and productivity terms of the knowledge society.

In the social, economic and political conditions created by the market economy, a company can achieve its duties and responsibilities through an objective internal and external analysis, respectively by determining its strengths and weaknesses, by detailed study of the economic environment, of the opportunities and dangers that it shelters, projected in the design of many alternative strategies, and then implementing the chosen strategy.

The process of underlying the strategy takes into consideration some tendencies in the social and economic evolution determined by the globalization phenomenon, by the technological performances, the know-how and the formation and functioning of the European Union.

Top technologies are a key element to conquering the markets and maintaining company competition and national economies. In Romania, as also in all other Eastern Europe states, the general law of economic and social progress and the increase in work productivity and economic efficiency can only manifest itself by putting in practice vast restructuring, retechnologizing and modernizing national economies, by amplifying partnership and collaboration relations with the developed countries of the world.

New technologies, as a direct result of scientific research and technical progress, include both technical perfection of the means of production, the appearance of new products, and the increase in the quality of the economic goods that come as a result, the modification in production structure, the perfection of production organization, the implementation of some modern management methods and techniques, the improvement in using production factors, and, in general, any other means of productivity and economic efficiency growth.

The reach of economic performance, through international transfer of technology, is a complex issue, which needs to be both the option of every economic agent, and the option of central and local public administration.

The high level of development reached by national economies and the world economy allows for each technological problem to find itself with multiple solutions, in which the importance of different elements vary, for example: types of equipment, value of acquisition, maintenance and repair costs for the equipment etc.

In the process of retechnologization, both at a micro and macroeconomic level, an important part is potentially played by the international transfer of technology and other ways of international economic collaboration and cooperation.

Technical and scientific cooperation is made through joint research and development programs, the exchange of technical and scientific information, common research institutions, the transfer of technologies etc. Scientific and technical cooperation at a world scale, from an economic standpoint, has the purpose of solving some global issues of mankind with the break through of some major scientific research, such as: fighting environment pollution, curing diseases that were incurable up to now, bringing inside the economic circuit areas of the planet that are arid, researching outer space, exploiting underwater resources, eradicating hunger etc. At a micro economic level, technical and scientific cooperation implies the concentration of partner companies' potential and it allows the outcome of some important mutual advantages, more specifically: the relative reduction of research spending, which makes possible the expansion of the researchers' area appealing to the partners, without any additional funds for their potential financing; the decrease in research time and surpassing competing companies, especially in the phase of applying the scientific discoveries to production.

With regards to Romania, retechnologizing the economic structures represents an essential element in overcoming the current crisis. In this sense, bringing in foreign capital, in all its forms, but moreover, as international technology transfer, must become a national

priority. Even more so, Law no. 35/1991 concerning the regimen of foreign investments in Romania, ensures guarantees and facilities to foreign investors, as well as the complete and unlimited use of results.

The complexity of the changes manifested in the economic field, in the context economic globalization, has determined the intensification of the permanent adaptation process of the management content of economic institutions. Determining the economic efficiency of the investments must be based on a systemic approach, due to the interdependence among economic processes, and between branches and enterprises. We say this because the favorable effects of the investments on the modernizing an enterprise do not manifest themselves solely on its activity, but also in the economy of other enterprises with which it is in relations of productive cooperation.

Sustainable economic growth has always been determined by innovation and transfer of technology. The approach to the efficiency of the investment project in the transfer of technology, within a systemic and dynamic vision, also implies taking into consideration some essential premises, such as rational management and protection of resources, keeping an ecological balance, watching out for peoples' state of health.

The great challenge for corporations, in the following decades, is to identify all the elements of the value creating cycle and to grasp the way in which it must circulate and interact in order to sustain organic development and significant growth of the value creating capacities. This is the level at which companies will compete in developed economies and this will be their competitive advantage in the global economy. To establish and maintain such a level of competitive advantage, a company must create the environment and the instruments to allow identification and measurement of the flux of intangible values and to promote the discovery of the best ways to improve the value creating cycle. This will need a deterministic model and an ability to work in a spontaneous, creative, non-deterministic manner.

The creation of value will become an inherent part in our occupation. The company will provide the employees the support to create value and they will understand how their participation to the increase of the company value can improve their own value. This implies the use of a mechanism which encourages and rewards the creation of value. Of course, people as individualities will have to commit to the obligations that result from the functional requirements of their positions, reaching the objectives and specific planning of the companies, but they also must be encouraged to continuously look for new creative ways of achieving these goals and to create value. Consequently, the company will need an instrument to entrap all fluxes of value.

The companies that will embrace the big picture of value creation (tangible and intangible), will benefit from alliances and successful partnerships with their employees, with other companies, communities and various groups. These relationships will slowly replace the current tendency to create value only through acquisitions and by exploiting tangible resources.

It is recommended that when the beneficiary enterprise has assimilated the know-how, the techniques and the means of exploiting the new technologies, it must make permanent efforts in order to perfect the methods, procedures and techniques they have acquired, so that it is capable to solve most problems that are met within processes of administration, production and commercialization.

Knowledge management has become, over the last years, an extremely interesting topic for those dealing with business strategies, offering the possibility for competitive advantages and long-term substantial increase in efficiency. Developing a knowledge

strategy in accordance with the economic realities allows companies not only to survive but also their future development. Strategic alliances determined by knowledge, influenced by the characteristics of markets and companies, of the knowledge which represents the object of alliance, and last but not least of the contractual arrangements, are more and more prominent in the world economy.

The management of research and development must be based on the special valences of this new and modern international flux, which makes it superior to the classic forms of the world economic circuit and which must be projected into stimuli of the intensification of research and development company participation to the international scientific and technical cooperation.

Acknowledgment

This work was supported by the strategic grant POSDRU/89/1.5/S/61968, Project ID61968 (2009), co-financed by the European Social Fund within the Sectorial Operational Program Human Resources Development 2007-2013.

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