TRIANGLE EDUCATION-RESEARCH-INNOVATION, ESSENTIAL FACTOR IN ENSURING THE COMPETITIVENESS

Doina Maria TILEA¹
Daniela FEIER ²

"Dimitrie Cantemir" Christian University
The Faculty of International Business and Economics
176 Splaiul Unirii, 4 District, Bucharest, Romania,
Tel.: (021) - 330.79.00, Fax: (021) - 330.87.74
alinat75@yahoo.com¹
feier_daniela2000@yahoo.com

Abstract
Innovation activity is aimed at the generation, assimilation and exploitation of research-development in the socio-economic field. Innovation is defined usually as the production, assimilation or exploitation with success of the newness in economic and social area. In a dynamic economic environment, with a specific behavior for nonlinear complex systems, it poses a new challenge before organizations: innovation as an essential part of daily activities. Until recently, quality and productivity were key in ensuring the competitiveness of an organization, today it requires a new approach: product innovation and services innovation, which enforce the management innovation. Innovation involves, on one hand, creativity and on the other hand, placing with success the process of creativity. The research aims to produce knowledge, where knowledge is well caught in the working procedures so that they can sustain products, technologies and services, talking all in all about development.

The three key pillars of the knowledge society: EDUCATION - RESEARCH - INNOVATION do represent key factors in ensuring competitiveness and cooperation in the global socio-economic development. Training human resources for the new society / knowledge-based economy requires an integrative vision for the entire lifecycle with the adjustment means and methods specific to each stage in close correlation with the evolution of science and culture, knowledge in general. The orientation towards vocational education skills and capacities to accumulate and exploit knowledge, to solve problems, to develop capacity for innovation and creation, to stimulate curiosity and desire to explore, is a necessity in the context of education and research globalization.

Keywords: clusters, management of innovation, organizational culture, types of leadership

JEL Classification: M10, I23
Introduction

The three key pillars of the knowledge society: EDUCATION-RESEARCH-INNOVATION represent key factors in ensuring competitiveness and cooperation in the global socio-economic development. The theme of the conference includes a statement that of harmony, balance: TRIANGLE. Typically, when rostesti word "triangle" think of equilateral triangle with all sides and angles equal. Triangle is a symbol of stability: the more stable is the chair with three legs! Training human resources for the new society/knowledge-based economy requires an integrative vision for the entire lifecycle with the adjustment means and methods specific to each stage in close correlation with the evolution of science and culture, knowledge in general (Puia, 2008). The orientation towards vocational education skills and capacities to accumulate and exploit knowledge to solve problems, to develop capacity for innovation and creation, to stimulate curiosity and desire to explore is a necessity in the context of globalization of education and research (Bratianu and Lefter, 2001).

By launching the National Strategy on Research-Development and Innovation, Romania presents its political decision to build a knowledge-based economy, and the open international competition, to ensure a harmonious economic and social. The strategy aims to recover the existing gaps compared to European countries and prepares the RDI in Romania and to identify and strengthen the international openness, partnership and competition, those areas where Romania can excel.

The strategy includes a list of 25 priorities, grouped in 8 areas, described in this document as priorities of public research (Bratianu and Courage, 2007). The basic principles in the CDI are:

- evaluating policies, programs, projects;
- assessment of international public institutions (universities and research institutes);
- correlation of performance-finance institution;
- promote the career of the internationally recognized professional performance;
- support mobility of researchers; attracting young PhD students, post-doctoral researchers and scientists with experience, performance, regardless of nationality;
- enhance scientific ties and cooperation with Romanian scientific diaspora, developing international collaboration and support participation in programs and projects;
- support innovation including by increasing public demand for innovation;
- increase the share of state aid for innovation support;
- dialogue with society.

Innovation and increase performance organization

In order to achieve the aim of introducing and enhancing further the effectiveness of the intelligence-based production (low cost, increase quality, shorten cycle life), required the following actions:

- Using public investment in research on long-term risk;
- Using private investment in research in the short term, with immediate applicability;
- Encouraging collaboration between the academic and industrial intermediates and transfer of intelligence, spin-off site.

This will motivate individuals and companies. It also will promote also involve industrial partners in research and innovative activities, with centers of technological transfer and increased public attention to drapery and Technology (Plumb, 2006).

Innovation is the only process that can maintain "competition" and an organization not only in manufacturing introduction of new products and competitive, but also the application of new technical solutions which are found in patent literature, perhaps to bring in full contribution to transforming the company into an innovative, perfectly adapted to the ever changing market:

Management innovation consists of a complex set of policies, practices and procedures that stimulate, organize and evaluate the efforts and innovation within an organization and depends directly from the promotion of organizational culture that encourages free exchange of ideas and rewards creativity;

Factors that facilitate innovation are, predominantly, the organizational nature and rate of innovation of a company depends on the coordination of innovation available inside the
organization with a strategy for recovery of opportunities beyond.

An efficient management of innovation will always be possible to develop projects leading to development and differentiation from competitors across the company.

Current tendency in management innovation

Strategic management of the organization must propose and implement a culture of innovation, creating the organization that fosters innovation, taking it to a particular type of participatory management. The worker feels about the company when some of his ideas are materialized in certain products of the firm. Question: how can we make the organization to become responsive to innovation, you want innovation, to achieve and to work for it? The answer is that it takes a specific policy. The organization must have to understand that innovation is the best way to perpetuate the organization and that is the foundation of workplace safety and the success of the manager concerned. Then there is a need for a policy of abandonment of what is spent, that is no longer productive, and the mistakes, failures and bad sanitation efforts. This is correct for maintaining the health organization: a body capable of identifying problems and to eliminate other risks to poison (Popa, 2004).

As outlined in the Scoreboard of the European Commission in 2001 (Amza, 2008) there are gaps compared with the U.S. and Japan. Thus, recognizing these differences, the Commission has defined 5 objectives that will allow the European economies to recover part of the innovation deficit. These objectives are stated as follows:

- To ensure consistent policies on innovation;
- To create a regulatory framework more favorable to innovation;
- To encourage the creation and development of innovative companies;
- To improve the interfaces of the key innovation;
- To obtain a more dechisă to innovation.

Although Romania has an economy with a different structure of the economy in the euro area, there are many common points:

- Investing in education and cercetareste an important pillar of sustainable economic growth to reduce disparities towards the EU average. On the one hand, investment in research may increase the added value of local products and thus reduce the trade deficit. On the other hand, access to education and to stimulate awareness of the savings and investment, and opposed consumerismului increase labor mobility within the country.
- Investment in innovation can contribute to Romania's transition to a new paradigm of economic and social development, increasing competitiveness and the shift from investment-based economy and knowledge.
- Policies of social inclusion and employment growth and quality employment can help reduce inclinations to emigration.
- Strengthening the internal market, an important principle of the Lisbon Agenda is vital for Romania again entered the country, which still has problems adapting to the requirements and standards of the single internal market.

Performance on the Lisbon agenda not only differ widely from country to country, but in the same country, from region to region. Lisbon Agenda is an agenda that balanced development, it is practically post-accession strategy of Romania. For Romania to develop balanced in line with the Lisbon Agenda, the regions should be the first to understand, to take and implement the objectives and instruments of the Lisbon Agenda. The EU has understood this, and the Regions Committee, put in place a mechanism yet volunteered, of which Romania is not yet part of monitoring of the Lisbon Agenda at the regional level (Bratianu, 2007). Lisbon Agenda should be understood, and transformed from an abstract of the EU into a measurable objective for each region, in competition with itself and with other regions.

Research methodology

Triangle education-research-innovation is that the higher-education appear embryos research and innovation in research centers to develop the "learning" organization of courses, and large firms in developing the training. This triad is found in the specialist working in education, is a researcher and consultant.

Researches have focused on assessment of available organizations for innovation. At this stage we had more questions:
Where you get innovative organizations?
What kind of interviews will take?
What databases will be accessed? You must answer several questions:
- **Who?** (most important) - Defining the relevant population, specifying eligibility characteristics, defining the geographical area and time of measurement;
- **How?** - It's true that the sample size determines the error, but not always larger samples best answers;
- What is the method esantioare? - Critically important information should be based on probabilistic sampling;
- How to collect data? - There are some common methods:
  - The operator reads the questions, either face to face (the respondent at home, central location, office or on the shop) or phone and record the answers the respondent;
  - Answerer completed one questionnaire received by mail, e-mail or online;
  - The interview follows a predefined scenario and notes realities or behaviors.

In the stage of making instruments for collecting data, the aim was to translate the research questions, standardized questions to help your interviewers to collect correct information and fostered interest and cooperation of respondents to answer questions. The instruments used are standard questionnaires and observation sheets, cards, instructions and route sheets.

- The development of data collection involves several steps:
  - Develop questionnaire
  - Evaluation questionnaire
  - Customer Approval
  - Making cartonaselor and track records
  - Pretestarea
  - Making instructions
  - Multiplicity of instruments.

Data collection is a very important because regardless of the methods of processing or analysis used then they can not "fix" bad data. Sampling error occurs incidentally and the maximum may be determined. Typographical errors are related to faulty design and implementation of this process. They can not be measured, causing errors in data from sampling error.

Processing data - this phase involves the introduction of computer data, data validation and cleaning, the calculation of incidents and weights, determination of indicators and statistical tests.

Data analysis and performance reports are easier to understand and the information should be presented in a friendly, commenting only what is relevant and providing alternatives and recommendations for action. In this phase to find causation, considering the distribution of responses, significant correlations etc., Can be graphic, the data and comment is provided.

The target group was composed of innovative firms and other actors in innovation, such as universities, research centers, regional clusters, business incubators, technology parks, business associations and trade organizations in the public sector, chambers of commerce. Interviews were applied upon a number of 156 companies selected from different databases: the firms listed on the Stock Exchange, companies identified as being innovative in the various questionnaires issued by the Chambers of Commerce and Industry, from databases provided by associations Training of small and medium enterprises, the Association of businessmen, the big unions.

Questioned in universities is a big willingness to answer such questions open to research and attract firms, but a low ability to promote brand university, with its concerns and openings. We appreciate the need for greater openness to business, to be attracted to university orbits.

In the research centers there, as in the university environment, in an opening to provide information. We appreciate that the components are deontology and professional respect of certain values. And in this case is less attention given to promoting training and a certain lack of interest to survey the business environment.

Of the responses given by firms and production-oriented services, there is an acceptance of cooperation with academia and research. Reticencele are due to the high costs of innovation and lack of funding.

Instead of IT companies and advertising media, both in their responses to questionnaires and in preliminary discussions that followed or aplicării these surveys have shown a kind of disdain towards higher quality and authenticity of our research. These allegations, which may be classified as less academic, taking the area of journalism, it should be noted to see which are the causes that led to this state of affairs. In support of these allegations are correspondence and discussions consemnate. Una of explanations which we see that these companies have developed internally strong centers of research and
development, specialized profile business. This justifies the break between the academic and research institutions and firms in these sectors.

On the other hand, many leaders of such companies have stated that “the college graduate should forget everything that has to be invasive and format to the company. This shows that such firms are investing heavily in specialized training programs, so make the educational organizațiCe inside should be done: the problem lies in communication and external efforts to promote the university and ceretare centers must make for the business, including attracting top representatives in advanced training, like masteratelor or a doctorate, and corporate forms of university management.

Research result

When asked if employees are involved, 74% responded affirmatively rest said they are less involved. A big influence on the degree of innovation (72%) has a staff of managers and staff with higher education in general. Cooperation with other organizations is relatively high (65%), with activities given in the development of new products and consulting.

Concerns in intellectual property is placed around 40%. Universitas apply an innovative process to improve management organization (23.6%) and external communication (the same percentage of 23.6%). Organizașii are concerned with the formation cntinuă (82%), the share of staff with the title of doctor find high (58%). These concerns are balanced split between improving the quality of services offered (21.5%), development of new services (20%) and the correct identification of the needs of the public (20%).

Introduction of new teaching methods are options of over 73% of the answerer. It is noted, however, a lower apetență for advice (13%), promotional (21%) and marketing activities (14%).

The question you think is the driving force of the organization, 43.4% responded that the products and services offered by organizations and 39% market requirements. To increase the potential for the creation of knowledge, 34% see a solution in attracting European funds and 26% of national funds. In the last three years have been taken important measures to changes in research and innovation (31.8%) developed the concept of asigurăre inovare quality (36.3%).

Cooperation with research units and development is relatively good (51%), as with other universities (52%). There is, in scimb a weak concern for large enterprises cu cooperation and high technology which are innovative. 90% of the answerer showed that there were factors that influenced the organization of innovative activity. Most important role they have had staff qualified (70%) and purchases of equipment (50%). 82.6% believe that innovation is an important condition for competitiveness. The main options on innovation organizations are shown in figure 1.

![Figure 1. The main options for innovative process inside organizations](image)

Most of the participants stated that the firms in the sector lacks a coherent management policy to stimulate innovation - as expressed very plastic invited a "no policy at the level of firms, innovation is happening and no one knows that it made.

Why this reality? Most of those with whom we discussed is limited to the amount of innovation...
by bringing to market of new products - in some extreme cases, such a narrow perspective on innovation has been difficult dialogue with companies in sectors such as agriculture or industria Hotel (firms that do not see meaning of their involvement in this study, while no completed product innovations).

Much fewer are those who have a broader vision, which includes innovations that enable better performance of business activities - eg. innovation process and organizational innovation - and far too few managers have the innovation and marketing as an effective relationship with the company. Even in the case of organizations having a broad vision, most of the discussions held during the completion of questionnaires have stressed the lack of a coherent innovation throughout the organization (and not just the production department).

Another point where opinions differ from managers questioned the degree of novelty problem you need to submit an innovation to be considered as such. Some managers do not consider improvements to products, processes, organization or marketing innovations so as long as they do not present a new and unique market.

The main source of innovation is given by imports of equipment and technology, innovation is therefore less the result of the Romanian research and development. Foreign companies are those that promote the transfer of research and technology. Unfortunately, these shows are often produced with little value added or old technologies. Romania qualifying for 29 centers of excellence, but the relationship of business to business. However, it should be improved, business linkages and partnerships between the R & D and the education system to stimulate innovation and development. Although it was created for the technology transfer and have set up information centers and business incubators, they have not yet had a significant impact on national economy. Infrastructure to support technology transfer and innovation is weak, and its development remains a major government policy. In Romania there are 7 scientific and technological parks, uneven distributed in the eight regions. Currently, only three of them are operational (Galati, Iasi and Brasov). The other 4 do not work due to lack of residents' financial constraints and lack of partnership with local authorities.

There are a number of attempts at implementation in Romania of policies such as promotion of industrial property, assistance and advice for small and medium enterprises, "business incubators" and the interface of research in industry. However, lack of coherence and effectiveness in reality they only contribute to a sense of the overall progress of the economy. An exception is the region of Banat- Crisana, where groups were formed by active collaboration with research institutions and universities.

On the other side, the most innovative sectors: radio, television and communication equipment, machinery and electrical installations, means of road transport, mobile, react positively to the pressure of competition and exploit market opportunities for their products. However, not enough to reduce the distance from the Union.

Comparison with the European Union marks of some concern:

Only a small portion of Romanian firms bring innovations in key sectors of New Economii such as machinery and equipment. In reality, the only sector of activity where the innovation is higher in Romania than in the EU is that the Romanian firms feel the most pressure on competition in the international market, as antreprenori and the textiles, clothing, leather and shoes.

In Romania, unlike the European Union, increasingly fewer small businesses bring innovation, compared to large firms. Small, theoretically the main promoters of innovation due to the flexibility and adaptability of their internal do not have the financial power to innovate, are most open to risk and is non-innovative sectors such as retail trade. The result indicates a need for policies that lead to greater innovative potential of small firms and to assist in penetration in sectors where value added is high by abolishing barriers to access and market operation, and by channeling financial resources to innovative activities.

Large innovators are stronger, and those sectors of the state are turning to more innovation. The question how this correlate with the known fact that state-owned enterprises, especially large ones, are profligate and inefficient? Small firms located in sectors such as clothing, that are profitable by virtue of their subcontractors, are not necessarily innovative, but acts mainly to decrease the cost of activities. The structure of small and medium enterprises on the most important economic activities shows that 67% of total operating commercially.
Conclusions

An attempt to adapt the scoring table (Scoreboard) for innovation in Romania offers interesting signals. Technical compatibility is questionable, but we try to focus our attention on the limitations and the different interpretations that may be indicators in the specific context of Romania. We agree with the statement, that the scoring table is a kind of whole set of indicators ("flagship") after which you should focus more specialized scoring tables. We find this especially true for countries in transition: a relatively large contribution to the change in profile was initially involved in the industry, hotel industry, restaurants, transport and other services. Small and medium enterprises in Romania is in second place in the inclination to change the activity of construction firms, as Lithuania and Slovenia after the trade (Amza and Bratianu, 2008).

Finally some conclusions can be drawn:

- Increase public funding of R & D is an important and necessary but not sufficient, "too little in R & D is a sure recipe for failure in the context of globalization, competition and tightening of knowledge based economy" (Brezeanu and Novac, 2007). Instead, attention should be paid to all aspects of entry (in the first three categories of methodology) and evaluated carefully indicators "exit" (contained in the last two categories), and relations between them.

- The synthetic indicator of innovation (IBS) say something, but equally important is its annual growth rate. At the same time it should be noted that, as with any other aggregate index, the numerical value of IBS depends on the calculation. Therefore maintain that the analysis of individual indicators lead to more useful conclusions and, especially, more effective action.

- It strongly emphasized the importance of information and communication technology, the only area considered independently.

References