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SOME ASPECTS REGARDING THE COMPETITIV INNOVATION MANAGEMENT

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Abstract: *This paper presents some aspects regarding innovation in general and the innovation management especially. There are presented some definitions about innovation as process, level of application in an organization, innovation as a factor of economic growth, the impact of the innovation process, requirements from an organization for a competitive innovation.*

Key words: *innovation, management, economy, organization.*

1. Introduction

Innovation can be applied to multiple levels of application:

- Product Innovation, which involves a new product or a product with significantly improved characteristics or its use destinations.
- Innovation Process, which involves the implementation of new or significantly improved processes (technologies, transport or delivery systems etc.).
- Innovation marketing, this requires the implementation of concepts or methods of selling new or significantly improved to increase goods and services demand or entering in new markets.
- Organizational Innovation, which requires the implementation of new managerial methods or significant changes in organizational structure.

Innovation Management is a set of coordinated actions to direct and monitor the process of innovation, which includes all interrelated and interdependent activities in order to achieve and implement an innovation.

Therefore, the process of innovation consists in generation, identification, collection, evaluation and selection of ideas, innovation project development, protection and exploitation of innovation and marketing. This set of activities is carried out within an organization, company, firm, company, association, authority or institution, part or combination thereof, whether incorporated or unincorporated public or private, with its own functions and administrations [1].
Within each organization develops an innovation policy which is a statement of commitment by management to the highest level of the intentions and general guidelines on management innovation.

2. Innovation - economic growth factor

The need for innovation is driven by the need for change due to diminishing natural resources, global warming, the realization of products to offer to humanity alternative energy, consuming products designed to protect the environment, organic products, products with optimal energy

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consumption. Also changed social environment, population increased in number, has evolved, increased competition, the competition between producers in step with market demands.

The impact of Research and Development, R & D, on growth is visible in [9]:

a) Impact on productivity:

- R & D activities are increasing labor productivity by introducing new technologies (products, processes).
- The impact of new technology on productivity depends on complementary investments involved organizational changes (structure, procedures, and changes in management).
- The impact on growth also depends on the level of investment in society as human resources training.

b) Type R & D investments:

- The most important effect on economic growth is given by R & D applied (industrial), funded by private companies, preferably as a result of public initiatives (see Table 1).
- Public investment in R & D has a positive effect on private investment, because they reduce uncertainty degree and increase the recovery degree expected from the R & D investments of private companies.

c) Waiting time:

- The impact on economic growth due to higher industrial investments in R & D becomes visible after approx. 3-5 years of their performance and this period tends to be reduced quickly.
- The impact of public investment in R & D is not visible until 7-8 years and tends to extend to 20 years.
- Complementarity with positive effects between the two types of investments (private and public) depends very much on institutional characteristics and the links between decision-makers of the two areas (see Table 1).

Activities and decisions on innovation include:

Å studying and directing activities to implement all innovation projects of the company;

Å deciding on identifying opportunities, investment, planning innovative projects to be launched, and monitoring them.

Activities in innovation management are required [4], [5].

Åinnovation strategy;

Åorganization and culture of innovation;

Å innovation life cycle processes

Table 1

	PUBLIC INVESTMENTS	PRIVATE INVESTMENTS
Principal purpose	Production and circulation of knowledge	Using knowledge for use it in production
Operational principles	Scientific freedom Priority rule Wide dissemination	Industrial secret Hierarchical control
Typical results	Publications Scientific papers Conference presentations	Prototypes Construction documentation Application software coded
Waiting time	Long time Without time pressure	Short or medium time Strong time pressure
Performance criteria	Precompetitive research Demonstrators	Applicability Producibility, Repetability, Measurability
Satisfaction	Free knowledge Scientific community Values community	Economic value

(management idea, business model development, process, product / service) as well as continuous improvement, and launch;
- determinants of innovation management (human resource management, knowledge management, process management, project management, controlling and IT;
- innovation results, requiring the systematic assessment of the results of innovative activities.

The components of an innovation strategy in a company are:
- vision: while prospecting the company's results, the structure, and its size;
- objectives: achieving goals that support the vision, quantified factors as time, investment grade; the company must determine strategic directions of innovative activities and identify goals in each of them;
- ways of achieving the objectives: diversification, specialization or combining production, designing new products / services, processes, entering new markets, etc .;
- resources: investment funds, human resources, material and financial resources;
- terms of the strategy.

Through this activity is desired:
- expanding the structure and number of contacts between innovative SMEs - research - innovation - technology transfer - market.
- stating that the partnership between the intellectual and industrial property on the idea of technology transfer in favor of the market.
- identifying innovations, inventions, companies innovative, users of new technologies in order to achieve technology transfer and national and international partnerships.
- dissemination of information and best practices to broaden the number of companies accessing Innovation Programs, the Structural Funds, FP7 / research for the benefit of SMEs, Eureka, EENet, BISNet.
- Promoting innovative methods and methodologies, knowledge and technology transfer.
- identifying strategies and solutions to increase competitiveness through innovation and technology transfer.
- brokerage and matchmaking events sites to become a pole of discussion, facilitator of partnerships between inventors - research units / innovation / technology transfer - market.

3. Requirements Imposed to an Organization for Competitive Innovation

In a competitive market evolves a multitude of organizations with an interest in innovation, they should periodically evaluate the external environment (market) and internal (technological possibilities) both: the current and perspective.
In analyzing the external environment is recommended for the organization to consider:
- issues related to the market, buyers tastes;
- legislation, regulations specific to innovation, including intellectual property,
- technical, economic and social aspects.

Being an managerial activity, innovation process must undergo this known steps: planning, implementation, monitoring and control, followed afterwards to draw conclusions, retouching, and corrections.
Obviously, the process does not end at that point, knowing that organizations are perceived as living beings, their role in the regular analysis capabilities present and future in terms of innovation, lead by evaluating existing practices in innovation management, the performance innovation and organizational culture, skills, equipment and investment opportunity from internal / external collaboration, creation of business models, product

enhancements, all from an ecological, economic and aesthetic considerations.

The organization must establish vision on innovation. This activity is the prerogative of the "top" management involves systematically identification of opportunities for innovation, capable of leading to value creation.

When was establish the innovation strategy, organization must define innovation objectives, targets set by the vision of innovation. Goals must be measurable through measurable indicators such as: time, investment, quality, meeting the expectations of the participants, which means setting deadlines, costs involved and acceptance criteria, compliance benefits.

Innovation goals enabling innovation management performance evaluation and control.

Evaluation innovation capability of an organization should be made taking into account the areas with critical impact on innovation:

ÅInnovation Culture
ÅStrategy
ÅCompetence and Knowledge
ÅTechnology
ÅProcess
ÅProduct and Service
ÅStructure and network
ÅMarketplace
ÅProject management innovation

A summary analysis of key factors and the evaluation indicators of the evaluation process is presented in Table 2.

Table 2

	Areas	Critical factors	Evaluation Indicators
1.	Innovation culture	- Receptivity to innovation; - Attitude towards change; - Working atmosphere based on trust and mutual respect; - Transparency of decision-making; - Motivation at all levels; - Management style.	- Organization attitude in innovation; - Innovation initiative in organization; - Internal and external partnerships.
2.	Strategy	- Innovation Strategy in the medium and long term; - The organization's policy on investment and development trends; - Innovative vision; - Internal / External environment (economic, social, political); - Appetite for risk.	- The organization's vision on innovation; - The existence of a strategy for innovation; - Understanding and implementing innovation strategy. - Innovation project evaluation.
3.	Competence and Knowledge	- Professional qualifications; - Experience; - Availability for learning; - Readiness for change; - Access to information.	- The performance of staff; - Motivating staff for innovation; - The level of staff training and awareness of innovation; - Staff access to training; - Access to external expertise and knowledge.
4.	Tehnology	- Access to technology; - Ability to absorb foreign technology.	- The level of technological innovation, the novelty of the technology supplied; - Sustainability technologies

			implemented; - Intellectual property rights.
5.	Processes in organization	- Parties; - Access to resources; - Environmental factors.	- Risk (implementing innovation may eventually uncertain, requiring procedures to eliminate / reduce / prevent the risk); - Understanding and implementing innovation strategy; - Innovation planning, monitoring and measuring results; - Evaluating and applying innovation project.
6.	Product	- Access to resources; - Market access; - Trends and market behavior.	- The level of customer involvement in the innovation process; - The effectiveness of collecting information from customers; - The amount of sustainable technology, green, recycled raw materials used; - Tangible benefits, measurable innovation process; - Diversity of customer requirements, elasticity response to this organization.
7.	Structure and network	- Feedback from stakeholders; - Access to information; - Brand strength; - The legal framework on intellectual property protection.	- Involvement of all employees; - Multidisciplinary teams, multicultural; - Access to specialized resources; - Relationship with the organization for research to be abreast of the latest developments in its field; - The relationship with the external environment; - Relationship with customers in the innovation process.
8.	Market	- Trends and market behavior; - Parties; - legislative framework; - Environmental factors; - Moral and ethical standard; - Cultural specificity.	- The relationship with the external environment; - Relationship with customers in the innovation process; - The effectiveness of collecting information from customers; - The impact of innovation on business; - Diversity.
9.	Innovation project management	- Innovation project planning; - Management efficiency (time, cost, human resources, quality, communication, relationships suppliers); - The efficiency of management.	- Risk; - Flexibility; - Constraints (time, cost, requirements, etc.); - Planning; - Traceability of the project.

The evaluation process innovation capability is a periodic or continuous, depending on the organization's strategy on innovation management.

Evaluating the capability of the organization's innovation is a process that must follow the following principles:

- Objectivity,
- Independence,
- Accuracy and precision,
- Methodical and systematic process,
- Oriented improvement
- Privacy.

It is recommended that the organization must to establish and to document how the plans, conducts, controls and improves the assessment process innovation capability.

Investigative methods and tools must be specific ones appropriate scope and capable of providing relevant results to the investigation.

The tools used in the methods of investigation must be operational, adequate and calibrated according to the specific activity of the organization, domain and range to be used in varying sizes investigated.

For a successful implementation of innovation management requirements management involvement and commitment required of management at the highest level, which must:

- Establish guidelines on policy and strategy innovation;
- Establish innovation strategy objectives;
- Provide the necessary resources and to assume the risks related to the implementation the innovation process;
- Evaluate the innovation capability of the organization;
- To promote innovation culture;
- To facilitate a suitable climate for innovation.

For a succesfull innovation process, it requires that the management organization must to ensure a high degree of cooperation and interoperability between technically, financially and that administration of the organization departments, the responsibility to implement and to evaluate the performance of innovation management in the organization as management at the highest level.

Collaboration within the organization should materialize in collaboration between specialists in each field (engineering, management, marketing, etc.).

Through effective collaboration, a good idea of a person turns into an innovative solution if you combine thinking and efforts of many people.

Innovation management is considering at least the following responsibilities:

- To implement innovation policy and strategy;
- Ensure the effectiveness and efficiency of innovation management;
- Establish an operational plan;
- Initiate and lead the process of innovation;
- Report of management at the highest level about progress and efficiency [9].

4. Innovation Process Management

The innovation process is specific to each organization and varies depending on the type, size and degree of its development. Activities related to the process of innovation, must be determined tailored to the size, structure and organization-specific characteristics [3].

Activities should be analyzed, evaluated and monitored continuously, especially improved and upgraded.

Each stage and phase of the innovation process at any level of development, must be managed as a system. This system himself should be a network of processes involving interfaces adaptable and consistent.

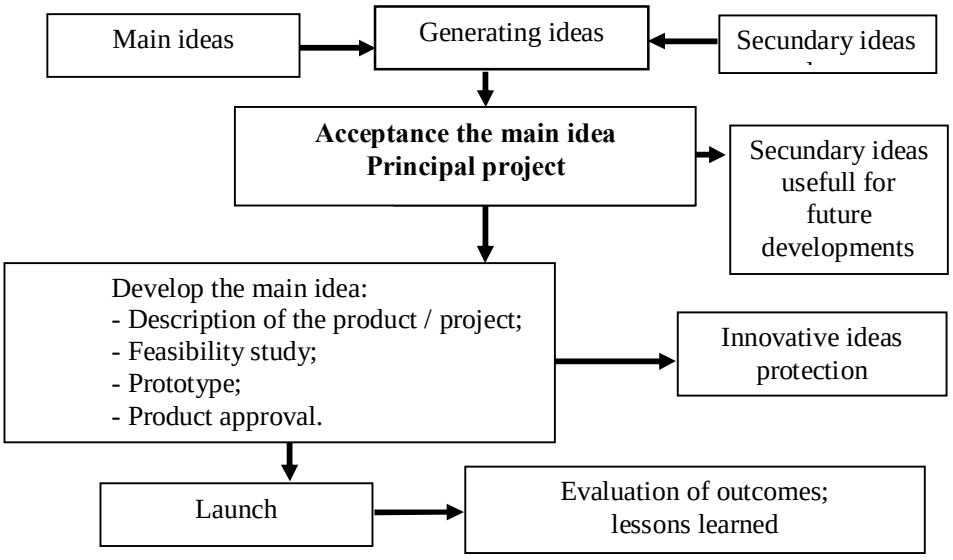

Fig. 1. *Stages of innovation process*

As seen in Fig. 1 the innovation process begins with the generation of ideas, which involves, following a meeting of collective direct interest in innovation, generating ideas that become: the main one, universally accepted and others that become secondary. Why secondary? Probably at that time cannot be achieved practically or no concern for the market or the price is too high, or the available technology is insufficient, etc. These secondary ideas are the basis of product development for future stages [].

Once accepted solution, the next stage, the project development, takes into account the feasibility study, financing search, find answers to questions like: Who does?, What to do?, When?, What means?, Quality conditions, planning stages, setting milestones.

In parallel with the prototype product, is necessary to protect idea / innovative ideas to the competent structures. The next step involves launch and evaluation [7].

5. Innovation Process Impact

Once completed, the innovation process should be followed by a analyze of its consequences, validation being performed by:

- The technical impact: effects expressed through innovative solutions to increase the lifespan of the product (service).
- The impact of technology: life expressed through increased awareness of the technology or technology change.
- The economic impact: expressed by increasing efficiency and profit.
- The social impact: expressed by increasing the number of jobs by ensuring occupational safety, ergonomic and functional contributions.
- The environmental impact: expressed in the areas of compliance.

The impact of the innovation process involves "adapting and integrating" new and innovative solutions recently discovered in the existing structure of the product / service / process, and can

contribute to a significant improvement of working conditions and transform the environmental conditions.

Results of the analysis of the impact of the innovation process should be concrete, reasoned, and to contain directions to be followed to improve the risk and increase the value of the results of applying innovation [8].

Innovation management must ensure continuity of innovation, having available the following means:

a) prognosis - forecasts achievable on short and medium term;

b) scenario: hypothetical framework that customizes changes in circumstances, trends in the political, economic and social;

c) the inventory of potential targets;

d) analysis of economic and social environment;

e) to analyze factors influencing the market: globalization, the internal regulations of the national / international emergence of new organizations, the disappearance of others, etc.

g) risk assessment that can be generated by the emergence of a phenomenon unknown adverse or negative consequences which cannot be predicted accurately.

6. Conclusions

Initiate an innovation project individually or jointly, in a national and international competitive environment in continues change, it is a strategic decision that requires the mobilization of knowledge and new information. Innovation management must be supported by an important management of strategic intelligence, to prepare strategic decisions for the purposes of organization, anticipation, positioning, use of know-how and the freedom to use and protect their assets.

Strategic intelligence role is to provide information support and knowledge of decision-making. This requires knowledge and understanding of the market requirements of current and future customers, knowledge of competitors, risks and constraints, identifying new markets for the products / services / processes, new partnerships, products / services / new processes, identifying constraints, internal and external opportunities, regulatory changes, technological changes, developing standards and technical specifications, financing etc.

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