

## INNOVATION AND INNOVATIVE PERFORMANCE IN THE EUROPEAN UNION

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### **Abstract:**

Innovation is the application of new and improved ideas, procedures, goods, services and processes that bring new utility or quality used in the application. Particularly, it is important the role of innovation in business and entrepreneurship, which is defined as a continuous effort to search for innovation and commercialization of their profit. Thus, innovation in a broader sense includes organizational, commercial, administrative and other types of innovations, useful ideas from small to large project of reorganization or change in business policy.

In developed economies, the special attention is paid to innovation and innovators, and inventiveness has high position on the scale of the system of values. The most valuable resources of the company are not considered in tangible property such as buildings, facilities or capital (this can always be found on the market), but the key parts are knowledge, experience and inventiveness contained in the industrial tradition of the nation and quality personnel. This paper consists of two related parts.

The first part refers to exploring the concepts of innovation. The second part deals with the innovations of the European Union, where performance is more closely meet with management of innovation in knowledge-based economy, investment in R&D programs and activities of the EU in the field of innovation and the innovational performance of the EU.

*Keywords: innovation, knowledge-driven economy, R&D (research and development), productivity, efficiency*

## 1. INTRODUCTION

Innovation is the application of new and improved ideas, procedures, goods, services and processes that bring new utility or quality used in the application. Innovation is every intervention that reduces inputs, i.e. production and administration costs, increases productivity and utilization of equipment or time, improves the quality of products or services, increases safety, reduces wastes, improves equity and other, and it also means any measure that increases competitiveness. Innovation is anything that each country can point out in a competitive and global marketplace, which can bring it an advantage, as well as the European Union. European Union can compete on world markets with her innovation and innovative performance, made impact on global production, lead it and reap the profits. Those issues will be the focus in this paper.

Today, the management of innovation applies to all types and forms of innovation and innovation processes. Etymologically, the term innovation comes from the latin word *innovare* - do something new.

Innovations in the narrow sense include intellectual property, which contains the following categories:

- **Invention** - the increase of production volume from the individual – manufactured to the mass production resulted in changes of organization. Technological development is the first heavy physical work replacing human power driven machinery driving fuel (steam engine and internal combustion engine), then (at least in mass production) reduced physical activity to a minimum in favor of intellectual labor (automation and robotization of factories), and finally today, eliminating annoying intellectual routines for freeingman creativity using modern computer programs.
- **Patent** - a patent protects an invention. An important feature of the patented invention is that it is the only institution that gives its owner the right to a monopoly through the duration of patent protection (up to 10 or 20 years from the date of filing).

To be patentable an invention must:

- solve a technical problem,
- be new (i.e. should not be included in the current state of the art, nor in any way made known before the publication in the Official Gazette of the Patent Office)
- have an inventive step (i.e. not obviously derived from the existing state of the art)
- be industrially applicable.
- **Licence** - while a patent defines only the principles of operation of the invention, the license generally includes a constructive, workshops, and supporting documentation (instructions for installation, use, etc.) necessary to run the production and placing the facility in operation or sale. Specify the scope of the supplied documentation, as well as relationships licensor and licensee defines the licensing agreement. The contract still forbids independent licensee received the documentation available, especially the provision of documentation to third parties without the consent of the licensor.
- **Know how** - the most complete form of the transfer of knowledge necessary for successful production, and with complete technical documentation (structural and manufacturing drawings, technical calculations, etc.) and contains a special knowledge and experience, operating on technology development or production, control, etc, and especially the specific procedures that are normally considered confidential, as well as experience and knowledge which are not contained anywhere in writing. It may include personnel training the recipients of know-how.
- **Other intellectual property** - the patents, of which the definition, protection, use and turnover are regulated by the Patent Act, the legislation protects and other forms of intellectual property. These are: topography of semiconductor products, design, authorship, seal, geographical indications.
- **Industrial design** - apart from appealing looks, or esthetic component that plays a key role in terms of fierce global competition, it also includes ergonomics, which ensures ease of handling and comfort. The designer must be involved in product development from conception phase and look for optimal solutions from the standpoint of ergonomics and esthetics and technology.

Under conditions of intense competition and saturated market companies do not innovate, they stagnate, and stagnation is the prelude to death. In a broader sense, innovation is any intervention that reduces inputs, i.e. administration and production costs, increases productivity and utilization of

equipment or time, improves the quality of products or services, increasing safety, reducing wastes, improving marketing, etc., or any measure that leads to increased competitiveness.

Particularly, it is important the role of innovation in business and entrepreneurship, which is defined as a continuous effort to search for innovation and commercialization of their profit.

## 2. PERFORMANCE IN THE EUROPEAN UNION

Europe is a continent that innovation plays an important role in the global technological evolution. If the European Union (EU) wants to ensure sustainable economic development, it must increase its efforts in the field of research. Positive results in the areas of new technology and innovation are essential to the EU, on the one hand, failed to meet the planned strategy of economic development until 2020 year, but also to try to reach the United States and Japan, the global leaders in technology innovations.

Although the EU, when we talk about Innovative achievements, still leads before Brazil, Russia and China, studies show that countries whose economies are on the rise easily out of the economic crisis, thanks to the increasing efforts and progress in research and innovation.

### 2.1 Management of innovation in an economy based on knowledge

Innovation is the main factor of development and competitiveness of enterprises, whose significance increases, especially today in time of knowledge-driven economy. Today's most developed economies, based on knowledge-intensive organizations, are the drivers of innovation management, where knowledge is seen as essentially process of creating the new values. Sources of innovation and knowledge go beyond research, and are located in different segments of the economy (e.g. learning by doing, or learning by using). In this context, it is essential that organizations based on knowledge manage innovative processes in order to increase the productivity of knowledge (concept that characterized the new economy of XXI century).

Therefore, innovation policy of the European Union is based on several factors that increase the rapidity of changes:

- ICT (Information and Communication Technology)
- scientific and technological progress,
- global competitiveness,
- the global market.

In one of the studies dealing with the characteristics of the contemporary management of innovation (European Commission, 2002) for the then 15 member states (EU 15), the following properties of a new economy based on knowledge and innovation management are identified:

- *New features of the market* - the global market is one of the distinctive characteristics of the global economy, which implies continuous emergence of new competitors, new technologies, shorter life cycles of products and dominant role of Knowledge. All these new features of the market increase the competitiveness of the company participants.
- *New types of innovation* - the global economy represent the right framework to generate innovative processes in various areas. Innovation emerge when the market stimulate new products, services and processes, and new business models that involve risks and new ideas.
- *New needs of stakeholders* - the number of stakeholders increases with the increasing need to innovate and market position.
- *New approaches to management of innovation* - innovation management encompasses all the key areas that must be managed for the successful development of new products/services, efficiently and continuously. It is believed that management is a major innovation driver of growth at the top and the bottom level of efficiency in all sectors where innovation is not limited only to products, but also the innovation of business and processes. The capacity of enterprises in the field of innovation management is between performance management of these key elements - the growth and efficiency.

**Table 1:** Two directions of management of innovation

GROWTH	EFFICIENCY
How to increase the growth of new ways of doing business	How to increase the efficiency and effectiveness
How to develop an integrated strategic plan in the field of technology and production	Which is the best route for their own R&D, technology and the creation of products/services
How to ensure that creativity is not a victim of bureaucracy	How to ensure the right information to be used in the selection process
How to ensure that ideas lead to successful products	How to manage with risk associated with introducing new technologies

Source: Stosic B., *Menadzment inovacija, Univerzitet u Beogradu, Beograd, 2007.*

- *New capability assessment of technological innovation* - the accelerated development of new technologies requires companies evaluate and implement appropriate technology, as a condition of competition.
- *The need for new tools of management innovation* - the development of management innovation based on knowledge implies adequate capacity to support the implementation of various tools (IMT - Innovation Tools Management).

The proposed selection criteria are the following IMT in relation to the economy based on knowledge:

- focus on knowledge - based (the degree to which the technique focuses on knowledge as the most significant advantage of companies in different areas: flexibility, cooperation, networking, internationalization, quick to market, knowledge management, entrepreneurship as a whole),
- strategic impact (high added value and long-term competitiveness),
- the degree of availability (methods and techniques that are not subject to special legal protection, and may be freely used - primarily general methodological approaches and non-commercial tools),
- documentation (level of standardization and systematization, methods and techniques, application of defined procedures),
- the practical usefulness of (orientation toward problem solving, real results)
- temporal aspects (tools of the older generation must be matched to the new environment of knowledge-based economy),
- resources required for implementation (time and others),
- possibility of measuring (quantifying the degree of possible results, the availability of real indicators of innovation in the enterprise).

Some of the measures of innovation performance, grouped according to three criteria: inputs, processes and outputs, are presented in the following tables (Table 1, Table 2 and Table 3):

**Table 2.**

<i>Objective Inputs</i>	<i>Measure</i>
Entrances	Focus on Innovation Time spent on innovation Percentage of budget allocated for innovation activities Success of the idea in the selection and implementation
Balanced Innovative networks within and outside the company	Level of innovation through the integration of organizational units and functions A mix of sources of innovation Percentage of innovative projects from outsourcing Number of strategic alliances
Coherent innovation strategy	Number, cost, price and perception of new products / services offered innovational projects

	Perception of the brand's Competitive position in the field Number and complexity of competitors, customers, partners and suppliers
Adequate infrastructure management innovation	Percentage of performance measures and rewards associated with innovational activities Quality of the ICT structure Available resources for innovation Free time employees in R&D Geographical diversity of products and sales Level of connectivity SBU and functional managers Cross-functional initiatives

**Table 3.**

<i>Objective Process</i>	<i>Measure</i>
Portfolio	Percentage of innovative activities aimed at radical, semi-radical and incremental innovation Balancing the portfolio in relation to time, risk, relapse and Technology Compliance innovation strategy and resource allocation
Realization	Effectiveness of production platforms Reduce development time/costs for new product/process Productivity of R&D Number of patents granted each year Costs, development time, delivery time, quantity and price

**Table 4.**

<i>Objective Outputs</i>	<i>Measure</i>
Long-term profitability	Price of shares Projected sales growth
Short-term profitability	Sales growth Percentage of sales from new products
Increasing the number of customers	New customers won through innovation Number of existing customers products/services that are buying new products/services Number of existing customers products/services that continue to buy existing products/services Market share
Customer loyalty	Frequency of repeated buyers Average annual sales per customer Customer satisfaction innovational activities Ratio new/old customers
Captured value	Profitability of innovation Revenues generated through the innovative efforts

### 3. CONCLUSION

Innovation is the main factors of development and competitiveness of enterprises, whose significance increases, especially today, in time of knowledge-driven economy.

Research and innovation help deliver jobs, prosperity and achievement of quality of life. The European Union leads the world in many technologies, and faces increasing challenges, not only from traditional competitors, but also from emerging economies. Joint programs can deliver results that member states cannot achieve in isolation each from other.

Europe is a continent that innovation plays an important role in the global technological evolution. If the European Union (EU) wants to ensure sustainable economic development, it must increase its efforts in the field of research. Positive results in the areas of new technology and innovation are essential to the EU, on the one hand, failed to meet the planned strategy of economic development until 2020, but also to try to reach the United States and Japan, a global leaders in technology innovations.

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