

## **INNOVATION AND COMPETITIVENESS OF MANUFACTURING ORGANIZATIONS**

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"The world is not necessarily more dangerous,  
but it is certainly less predictable,  
less stable and more contradictory [9]"

**Abstract:** The lack of development of business activities is usually caused by technological-manufacturing passiveness, the destruction of scientific technological development and reducing the capacity of innovation. Discrepancy between actual and expected, or desired economic responsibility is more often expressed in transactions of organizations, on the increasingly competitive market.

In terms of major disturbances, discrepancy leads to social problem, with features of a business crisis economy. Fall in business activity, by lack of resource investment, so that the organization commercialize the innovation by risk-taking venture, leads to loss of compensatory profits, realized by the manufacturer and loss of innovative profits realized by the innovator.

The paper analyzes the competitiveness based on innovation and sophistication factors and the importance of establishing and implementing effective production strategies by combining and linking resources of the organization with these factors, in order to maintain the organization and improve its competitive position in the segmented market.

**Key words:** Innovation, competitiveness, product, profit.

### **1. INTRODUCTION**

Competitiveness of manufacturing organizations is conditioned by the ability of the organization, that, based on available capacity, uses innovation, continuously improves and innovates its processes and products. In line with the vision and mission, the organization defines strategies that aims to achieve the set objectives in the most economical and effective way. One of the goals is to create and maintain competitive advantage in the market. Goals must be realistic and measurable so that the results show the success rate of the company in terms of feasibility. There are two key words in this paper which describe different concepts: competitiveness and innovation that have been shown to have a large degree of coherence and mutual interdependence. Hence the question - When the organization achieves competitive advantage in the market? The answer could be: *When a company makes profit that exceed the average for its industry, it is said that it possess a competitive advantage over its rivals. The goal of most business strategies is to achieve a sustainable competitive advantage [8].* Competitive advantage is dependent on the value created, value for consumers and producers. M.Porter identifies two basic types of competitive advantages: (1) The advantage of price (2) The advantage of differentiation. When a company is able to offer customers the same benefits as its competitors, but at a lower price, that is the advantage of prices. If it is capable to offer customers the benefits that go beyond the benefits of competitive products, it is an advantage of distinction. At the same time, he points out "In addition to value creating activities, company operates in the value system of vertical activities including the upstream suppliers and distribution channels in their lower course. In order to achieve

competitive advantage, company must perform one or more value creating activities in a way to create more overall value than its competitors. *Superior value is created through lower costs or superior benefits to the consumer (differentiation)* "[1]. Measuring the competitiveness of a country is performed by the so-called Global Competitiveness Index which is supervised by the World Economic Forum, whose results will be presented in the paper for the purpose of understanding the different global competitiveness of individual economies.

When it comes to innovation in the company, one of the key issues that deserves attention is: how long is possible to continuously innovate processes, that the effects of implementation of those innovations reach preferred, expected level. Simply put, whether the company is able to constantly innovate, whether a period of stabilization is necessary, and to what extent is that period dependent on the characteristics of business environment, or in what extend it is dependent on the efficiency of the business system.

Taking into consideration the reasonableness of the already identified problems, related to continuous application of innovation, it is safe to affirm that the essence of modern development of management makes managing the dynamic ability of a company. So, the question of competitive ability is related to the dynamic company's ability to respond to the impacts of changes in the environment on its operations and strategic position in the market. Companies develop strategies depending on: the business environment in which the company operates, allowed "freedom" to take risks on the enterprise market, and to thus do not jeopardize the vital interests of the organization and its stakeholders. A key issue which way the organization is going to depends on many factors, primarily of: activities performed by it, the competitiveness of industries in which it operates, industry perspectives, applied technologies used, the dynamics required for innovative change and its ability to synergy subsystems, primarily technological and marketing subsystem, to create, implement and improve market competitiveness, which is built on innovation.

Wide range of activities are considered under the innovation implemented by the organization, focusing not only on the processes and products, technologies, improvement of the human capital and knowledge, but also on changing some form of social responsibility that has to do with customizing the organization to modified market demands.

There are many definitions of the conceptual meaning of innovation. So for Afauh A. innovation involves the application of new knowledge, to offer a new product or service requested by customers [2]. Miller, L.W. and Morris. L. define innovation as the inspiration and creation, renewal, ambiguity and pressure on changes in the learning process, and the best, it is a way of learning [3]. Enhancing innovation in the organization is directly related to changes in processes, products and services. Changes in the methods used in the processes, change the product performance, reduce production costs, costs of sales and product delivery but also costs of the consumer after delivery which to a large extent, in addition to functionality and reliability of products, one of the most important demands of consumers and users. Changes in competitive ability of organizations, especially small and medium companies based on innovative activities, have identified consumer demands for the activator, in terms of product characteristics, and increasing demands in terms of eco-innovation, access to resources, innovation of set of measures to support the development of business and more comprehensive use of information-communication technologies in the way of knowledge, directed toward the development of information society. Component of eco-innovation becomes one of the key factors for business development and competitiveness of the organization. It includes the optimal use of resources with the expressed requirements (standards) for the protection of

the environment. Important components of eco-innovations are: clean technologies, refurbishing capabilities after the expiration of the physical life, eco design, ecological packaging and labels. In organizational terms Eco - innovation are committed to effort in establishing and building the eco - innovative clusters and networks. According to the place of occurrence, sources of innovations can be divided into: external and *internal* sources of technological innovation. At external sources can include innovative solutions developed with institutions in the environment: scientific research institutes, higher educational institutions, organizations for the protection of intellectual property, chambers of commerce and other organizations engaged in scientific research. Internal sources of innovations include activities that contribute to the advancement of technological development with the point of generation within the organization which primarily refers to: research and development manufacturing processes and evaluation processes that indicate the need for changes in performance of products and processes to meet customer needs. The transitional economies, as it turned out, are especially "sensitive and vulnerable" to requests that come from the market in terms of competitiveness of products and services, keeping in mind the results of the transition process and to a large extent, default structural reform of the economy. The problems of building a strong foundation for sustainable growth and a dynamic investment activity were reflected in the development of innovation processes due to which there was no activity in international trade and domestic markets. At many sectors, such as energy sector, innovative solutions are missing, although it has already been known that the future of this sector, is in solutions that go beyond the traditional supplies of oil and gas. Movement in a new direction is definitely a regard for the need for change in processes, products, organization structures, human resources and strategies to achieve the success in the long run, provide sustainable economic growth.

The focus of this paper is to analyze the factors of innovations and sophistication in terms of business environment and competitiveness of the economy: the capacity for innovation, the qualitative marketing, research and development, understanding the factors affecting the global competitiveness in order to eliminate restrictions and create the environment for the business development within companies and the economy that can bring superior value in the market.

## **2. COMPETITIVENESS OF REGIONAL ECONOMY**

The appearance of the global economic crisis and its impact on regional economy, further influenced each economy (especially the weak economies in transition) to see from the standpoint of their own reality, prospects for future economic development. Different options for the achieving the projected growth in economic activity, based on economic models implemented so far, in a changing environment that characterizes the decline in purchasing power in the market and significantly worsening conditions of supply of inputs for production, and suggest a different approach to building competitiveness, which is according to research by the Global Competitiveness Report in the Table 1, Global Competitiveness Index 2010-2011 show that countries in the region are significantly lagging behind in the terms of global competitiveness and for the leading economies in the world and developing countries. Serbia's economy growth is built on a model that encouraged the growth of domestic consumption and the development of the less tradable services (trade, financial intermediation, etc.). The development according to model that was used, had a destructive effect on the industrial production, manufacturing, investment in research and development, on invention and innovation in local companies. This made the economy and processes in the manufacturing companies even more

technologically underdeveloped, with extremely reduced competitiveness, probably in the long run.

Recovery and revitalization of the economic potential for the the medium and long-term return on a satisfactory rate of GDP growth implies that economic growth is directed towards export-oriented production, to increase production for export Re-industrialization, i.e. development of export-oriented manufacturing sector is a key task in the process of recovery of Serbian economy. Intensive development of export-oriented industries based on innovation as a prerequisite for the achieving market competition, is the backbone of the new economic development model, but it must take into account the need for the development of certain sectors of services, because the development of export services sector also (and export-oriented manufacturing) could generate positive effects on balance of payments, employment and economic growth.

Certain kinds of tradable services with the application of new knowledge and innovations based on the application of information technologies, can be very labor intensive, which would allow, in the the case of potentiating of their development, that a significant part of added value in fact be generated on the market in Serbia Table1 shows the index of global competitiveness of the eight countries in the region, according to which Romania takes 67<sup>th</sup>, and the Serbian takes 96<sup>th</sup> position of 139 countries.

**Table 1. Global Competitiveness Index 2010-2011**

S.no	COUNTRY	RANKING
1.	Hungary	52
2.	<b>Romania</b>	<b>67</b>
	Slovenia	45
	Montenegro	49
3.	Bulgaria	71
4.	Croatia	77
5.	Albania	88
6.	Macedonia	79
7.	<b>Serbia</b>	<b>96</b>
8.	Bosnia and Herzegovina	102

**Source:** Word Economic Forum: The Global Competitviness Report 2010-2011

Objectives, which are expressed through increased competitiveness and business development in foreign markets, creating new jobs, reduction of regional disparities and others, are not realized at the level planned, and according to some other indicators of economic development Serbia is even further behind, not only the developed western economies, but also from the economies of other transition countries and countries in the immediate environment. Range of 45 -to 102 seats shows that there are some considerable differences between countries in the region from the aspect of Global Competitiveness Index. This certainly allows companies in certain economies, to continue to preserve and promote significant competitive advantage, with the promotion of innovations and changes, not only on this market region.

Table 2 shows the ranking of competitiveness of Serbia in the period from 2008-2011, with indicative worsening factors such as the decline in commercial invention (from 102 onto 125 position and of innovations from 80 onto 88 place). According to these two criteria, Serbia is at 107 position out of 139 countries, indicating the need to further analysis of causes that led to the weakening of the key factors for innovation and competitiveness of manufacturing companies in Serbia and not only on this sector.

Business un-inventiveness is caused by reasons of decrease in the overall activity of the industrial sector, which is estimated to be on level of 50% achieved in the transition period of the nineties [5]. Decline in industrial production during the period of strong orientation towards the Liberal market economy (from 2000-2010) talks about the fact that market itself is unable to determine the development of profitable business; that business and investment activity in addition to the basic requirements (institutions, infrastructure, macroeconomic stability, social care and primary education) require institutional effectiveness and inventiveness and sophistication of the business. Answers to some questions such as: Why the market does not attract new competitors? What is the impact for investors to lose interest for the investing in the industry either through:

- a partnership with existing companies,
- purchase of existing business or
- activating new investment through Greenfield investments

**Table 2. Rank factors of Serbian economy competitiveness**

	Rank	Score
GCI 2010-2011	96	3.8
GCI 2009-2010	93	3.8
GCI 2008-2009	85	3.9
<b>Basic requirements</b>	<b>93</b>	<b>4.1</b>
<b>I</b> Institutions	120	3.2
<b>II</b> Infrastructure	93	3.4
<b>III.</b> Macroeconomic environment	109	4.0
<b>IV</b> Health and primary education	50	6.0
<b>Efficiency enhancers</b>	<b>93</b>	<b>3.7</b>
<b>V</b> Higher education and training	74	4.0
<b>VI</b> Goods market efficiency	125	3.6
<b>VII</b> Labor market efficiency	102	4.1
<b>VIII</b> Financial market development	94	3.8
<b>IX</b> Technological readiness	80	3.4
<b>X</b> Market size	72	3.6
<b>Innovation and sophistication factors</b>	<b>107</b>	<b>3.0</b>
<b>XI</b> Business sophistication	125	3.2
<b>XII</b> Innovation	88	2.9

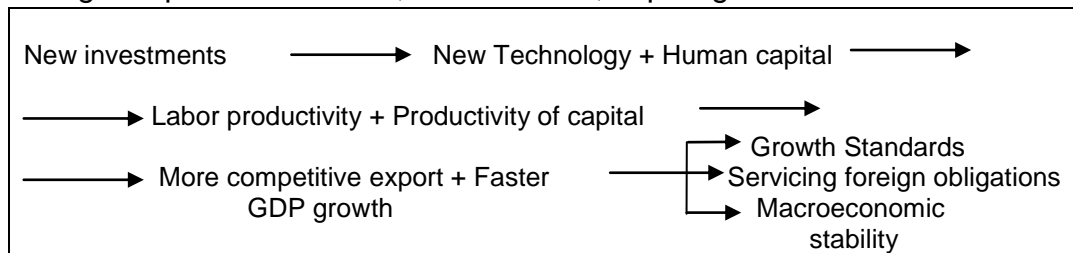
*Source: World Economic Forum: The Global Competitiveness Report 2010-2011*

The market will be desirable and perspective for the investors if companies can identify conditions which allow them to obtain resources under known conditions on the longer term, if they can have stable fiscal policy factors, and if they can produce superior value to the market, in the presence of competitors.

### **3. INVESTMENT AND PRODUCTIVITY OF LABOR AS A COMPETITIVE ADVANTAGE OF THE ECONOMY**

Investment is a primary component of economic development of an economy. Experience of European countries that have successfully made the transition and structurally adjust the economy, show that each of them performed the transformation of

their economies with a share of investment in GDP which was not lower than 25% . Foreign direct investment (FDI) that allow the use of new technology, replacement of obsolete machinery and equipment and technological processes, are key precondition for the improving competitiveness and, on that basis, export growth.



**Figure 1. The effects of new investments**

**Source:** IMF, Working Papers, 2003, No. 23.

Serbia is in the a group of countries that take a longtime to overcome the gap of economic underdevelopment. Only the additional investment (especially FDI) in modern technology and human capital (knowledge, specialization, etc.). could raise the growth rate to a higher level and thus provide three objectives at the same time :

- a) raise the standard of living (per capita GDP) to a higher level
- b) facilitate the servicing of state obligations to creditors,
- c) establishing macroeconomic stability that will contribute to long-term development activities

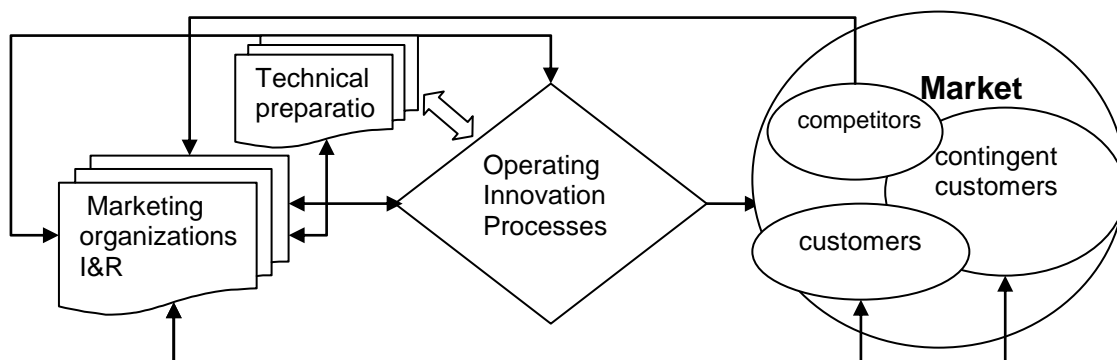
Increase of revenues from exports of tradable and non tradable goods is one of the conditions and prerequisites for the creating a dynamic economic development in the long run. To raise the rate of economic growth and achieve a constant increase in GDP and living standards, Serbia has achieved global competitiveness, especially in the countries with which it carry out most of its foreign trade and capital flows and to which it has most of the foreign debt. The processes of economic globalization and multi-polar connection of different types of economic activities require economic policy to develop competitive advantages of the Serbian economy, not just comparative advantage. Comparative advantage is traditionally associated with for the production factors, such as natural resources and labor costs, therefore, for something that a country has in better arrangement, quality, or to a greater extent than other countries facing international trade. Comparative advantage is a given, more or less fixed character, as opposed to competitive advantage, which is based on qualitative factors, which may affect corporate strategy and economic policy. From this point of view for the dynamic development becomes more important, the ability of combining production factors and the organization of production, distribution and marketing of the given factors of traditional comparative advantages.

At the center of activities aimed at strengthening the competitiveness of Serbian economy, it must be to raise productivity, which can be achieved primarily by increasing investments and their share in the GDP. Factors that directly contribute to increase productivity are technological progress, the rate of use of production capacity, scope and qualifications of the employees, management capability, organization of production, the disposition of resources, raw materials and energy sources. High productivity and superior products are foundation of competitive advantage , both large , as well as small and medium enterprises.

#### 4. INNOVATION AS A FACTOR IN INCREASING COMPETITIVENESS

The basis for sustainable economic development inters of activity of a competitive market are investments and technology, and it is in Serbia, in past two decades, brought to the level of sustainability, which is unable that contribute to understanding solutions that provide competitive ability. For the development of new technologies, as it shows in industry practice of EU countries, investments are needed annually on average from 7-8 thousand Euros per employee. These investments are much lower in Serbia, which reflects the technological, and thus a total of developmental delay. For this reason and the fact that the country has insufficient accumulation which would be supported through the Development Bank of the introduction of modern equipment and the knowledge in the economy, we need foreign investments, including foreign direct investments are that presents the most appropriate form.. They not only imported material and equipment, but new technology, as modern management, that provides export market and provides additional training of labor. Of course there is the potential of local investors, and potential incentives for development through the activation of domestic savings. At both cases the business environment and legal framework limit the activation and discourage this type of unused potential of making the investment highly uncertain and risky.

Modern principles of managing research and development are based on the cooperation of manufacturing organizations, institutions engaged in scientific research work and which have a particular type of potential (in belief that Serbia still has a comparative advantage in human capital), market actors - users and participants in supply chain. Figure 2 shows information flows between industrial organizations and actors in the market. Innovative changes, in operational processes are created based on feedback that come through the analysis of data obtained from the market and the ability and availability of the organization to implement the required solutions identified.



**Figure 2. Creation of innovation process, based on understanding requirements from the market**

Key decisions about innovation, come, on the basis of understanding the market requirements, primarily from existing customers and their preferences. Interactive relationship between the organization realizes in communication marketing with existing and potential customers. At relation of knowledge, the field of business organizations can be roughly divided into: technological and market innovation.

Technological knowledge of innovation is related to the technology that organization uses, the components used in manufacturing, a way of connecting components, processes and techniques which are applied and form an integral part of the product. Today, in terms of reduced purchasing power, understanding the technological and structural requirements at production, may be crucial for determining the characteristics

of products, especially for the innovations that directly and indirectly affect the reliability for the producers and consumers and affect both price and market competitiveness of products.

An important segment of the market increasing product competitiveness are therefore technological innovations, changes, in the products that can extend the technical life of the product and make the product more attractive for the consumers. Repairs of mechanical parts represent the way to ensure effective and economical operations, while innovations (which are planned and allowed in design stage of products) effective ways for the reduce of the operating costs of the organization (the reduction of stocks of spare parts, reducing downtime in production processes and operation of technical systems) and One way for the achieving and maintaining organization's strategy for the leadership in costs [4].

## **5. CONCLUSION**

Key role in achieving and maintaining market competitiveness of companies are innovations and changes, in products, technologies, operational processes, strategies, knowledge at the disposal of employees of the organization. For the overall enterprise market adjustment time, we need a change and continuous improvement of business environment primarily an institutional framework that would be able to support the efforts of organizations for the expectations, the required competitiveness.

Raising the productivity of the economy of Serbia, and countries in the region, to the required level of competition, should enable them to successfully face the competition of manufacturers in foreign markets. Now it must be kept in mind that the boundaries between the traditional industrial sectors are not so clear, especially in the branches of a higher level of technological sophistication. Companies operating in telecommunications, information technology, pharmaceuticals, electronics, chemistry mutually connect and perform together in various groups and unions creating a specific market structures. Interactive organization of companies becomes one of the requirements for the achieving and maintaining market competitiveness. Globalization has muddled different economies and markets, that it is no longer possible to divide industrial sector and geographical area into a clearly separated and independent segments.

This indicates that there are, more than ever, enough reasons that organizations review the alternatives, as the innovativeness and competitiveness have become too important for the profitability, growth and development of the organization and its survival in the market.

Each organization, especially those that occurred or doing business in weak transitions, should within the subsystems of marketing through research and development of creating their own methodology for management innovations to keep pace with development of their innovation. Basically it is one of the key interactive activity that locates in essence of interactive communication with stakeholders in the market.

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