

INFORMACIJOS IR ŽINIŲ VALDYMAS

Priorities for innovation development of Ukrainian enterprises

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The definitions of the category “innovation” and types of innovation are being considered in the article. Innovations are crucial for the competitiveness of a national economy. Today, they are the main competitive advantage of modern enterprises. A research of the innovation potential of Ukrainian enterprises has been done. The paper includes indicators of innovation activity in Ukraine and their comparison with those of the EU member states: proportion of innovative enterprises, share of enterprises with adopted innovations by the type of innovation, expenditures on research and development. The international position of Ukraine by elements of the Global Competitiveness Index, the sub-index of innovation and its elements has been considered. The paper answers the question of the key aspects of innovation development of Ukrainian enterprises.

Key words: *innovations, innovation activity, innovation potential, enterprise, Ukraine*

Introduction

The creation and development of knowledge-based competitive economy is impossible without using innovations. Today, innovations are one of the main competitive advantages of modern enterprises. The sustainable growth of an economy requires creating an effective innovation system which includes innovative enterprises, universities, government research institutes, and combined R&D infrastructure. Henry Chesbrough (2005), who has created the concept of “open innovation”, has

emphasized: “Most innovations fail. And companies that don’t innovate die.”

The Austrian economist Schumpeter (1934, 1942) is ahead of other economists of the 20th century in considering the role for innovation in the process of economic development. He considered innovation as the driving force of economic and social evolution. Schumpeter (1934) defined innovation as consisting of one of the following five elements: 1) introduction of a new good; 2) introduction of a new method of production; 3) opening of a new market; 4) conquest of a new source of sup-

ply of raw materials or half-manufactured goods; and 5) implementation of a new form of organization. Central works of Schumpeter are well-known: “Theory of Economic Development” (1934), “Business Cycles” (1939), “Capitalism, Socialism and Democracy” (1942). Many scientists in their researches have emphasized the importance of innovations especially of technological innovations, for a company’s productivity. Before the 70s of the 20th century, most of scientists concentrated on technological innovation. Myers and Marquis (1969) defined innovation as a total process; they focused on industrial innovation and studied the factors underlying innovation. Drucker (1985) defined innovation as a specific instrument of entrepreneurship. He said: “A business has two – and only two – basic functions: marketing and innovation. Marketing and innovation produce results: all the rest are costs”. The role of Marketing in innovation was considered by Kotler (1994, 2011). Aghio, Bloom, Blundell, Griffith, Howitt (2005) have investigated the relationship between product market competition and innovation. It should be noted that the first definition of marketing innovations was given by Levitt (1962).

The theoretical and methodological aspects of innovation management were considered in scientific works by Trott (2011) and diffusion of innovations by Rogers (2003). Different aspects of product innovations were studied by Rainey (2005), Damanpour and Evan (1984). The process innovations and their classification into technological and administrative were considered in scientific works by Daft (1978), Damanpour and Gopalakrishnan (2001), Meeus and Edquist (2006), Birkinshaw (2008), Light (1998) and others. There are vast

researches in Ukraine, which have considered issues of innovation development and have defined innovative perspectives for Ukraine: Chukhno (2005), Galchyns’kyi, Semynozhenko, Kinakh (2002), Geiets (2002, 2006), Chemodurov (2013), Miroshnychenko (2013) and others.

Ensuring the competitiveness of Ukrainian enterprises requires the creation of an effective mechanism of innovation activity support at the state level. The Ukrainian enterprises, especially industrial, must re-focus their activity with consideration for the global experience and current trends in the field of innovations. These actions will allow realizing the innovative potential of the Ukrainian enterprises to its full extent. The aim of the article is to define the key aspects of the innovation development of Ukrainian enterprises.

Definition and types of innovation

The word “innovation” originates from the Latin (stem of “innovatio”) dating back to the middle of the 15th century. It is the noun of action from the past participle stem of “innovare”. Innovation means “restoration, renewal” (Online Etymology Dictionary, 2014).

The famous Austrian economist Schumpeter (1934, 1942) was one of the first scientists, who emphasized the positive impact of the innovative component on the activity of enterprises. Schumpeter described innovation as a “creative destruction” essential for economic growth (Schumpeter, 1934).

There are many definitions of the word “innovation”. The main of them are illustrated in Table 1.

There are many different ways to classify innovations and to interpret their types.

Table 1. Definitions of innovation

<i>Authors</i>	<i>Definitions</i>
Schumpeter (1934, 1942)	Innovation by the entrepreneur leads to gales of “creative destruction” as innovations cause old inventories, ideas, technologies, skills, and equipment to become obsolete. The question is not “how capitalism administers existing structures, ... [but] how it creates and destroys them”.
Myers and Marquis (1969, pp. 7–10)	An innovation is not a single action but a total process of interrelated sub-processes. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is acting all these things in an integrated fashion
Drucker (1985)	An innovation is a specific instrument of entrepreneurship ... the act that endows resources with a new capacity to create wealth
Kotler (1994)	An innovation is a new way of thinking, which in turn can lead to controlling costs by creating more efficient ways to develop products, fostering creative ways to collaborate with outside resources, or improving business processes in a way to reduce spending, while also improving performance and outcomes.
Leonard and Swap (1999, p. 8)	The end result of a creative process is innovation which is “the embodiment, combination, and/or synthesis of knowledge in novel, relevant, valued new products, processes or services”.
The Law of Ukraine “On the innovation activity” (2002)	Innovations are newly created (applied) and (or) improved competitive technologies, products or services, as well as organizational and technical solutions of manufacturing, administrative, commercial or other nature, which significantly improve the structure and quality of production and (or) social sphere.
Rogers (2003, p. 12)	An innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption.
Rainey (2005, p. 590)	A change or improvement that has positive outcome(s) with respect to customers, stakeholders, and the organization.
Oslo Manual (2005, p. 46)	An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. The minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm. This includes products, processes and methods that firms are the first to develop and those that have been adopted from other firms or organisations.
World English Dictionary (Collins, 2009)	1) something newly introduced, such as a new method or device; 2) the act of innovating.
Andrew, DeRocco, Taylor (2009, p. 8)	An innovation is now understood to apply to all aspects of a business... “including the business model, enterprise structure, value chain, proprietary processes, channels, service, brand, and customer experience”.
Trott (2011)	An innovation is a management process that continues to be at the forefront of economic and political debate about how to improve the competitiveness of economies and firms. Innovation is the management of all the activities involved in the process of idea generation, technology development, manufacturing and marketing of a new (or improved) product or manufacturing process or equipment.

Presented below is the most widely used categorization of innovations.

Five forms of innovations were pointed out by Schumpeter (1934):

- new product or service;
- new method of production;
- new source of supply;
- new market or application;
- new method of organising a firm or industry.

There are four types of innovations according to the Organisation for Economic Co-operation and Development (2005, pp. 16–17):

- product innovations;
- process innovations;
- organisational innovations;
- marketing innovations.

The Organisation for Economic Co-operation and Development (2005, p. 48) defines a product innovation as “the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics”.

Rainey (2005) maintains that product innovation involves the conceptualization, commercialization, development, design, and validation of a new product, which provides a higher value or utility to all the stakeholders of the product.

The product innovation includes six aspects (Rainey, 2005):

- examining the needs for new products, processes, and service;
- determining the proper direction and fit for new products;
- establishing the appropriate game plan of the entire management system for

developing and commercializing new products;

- selecting new-product opportunities for investment;
- enhancing the organizational capabilities to create successful new products;
- creating a new product and executing the new-product development program.

The initiatives, methods, techniques, and processes for making evolutionary improvements to products, products lines, services have been included to product innovation by Rainey (2005, p. 594).

According to the Organisation for Economic Co-operation and Development (2005, p. 49), a process innovation involves “the implementation of a new or significantly improved production or delivery method”.

Process innovations cover:

- significant changes in techniques, equipment and/or software;
- new or significantly improved methods for the creation and provision of services;
- significant changes in the equipment and software used in services-oriented firms;
- significant changes in the procedures or techniques that are employed to deliver services;
- significantly improved techniques, equipment and software in ancillary support activities, such as purchasing, accounting, computing and maintenance;
- the implementation of new or significantly improved information and communication technology if it is intended to improve the efficiency and/or quality of an ancillary support activity.

The process innovations can be divided into two types (Daft, 1978; Meeus and Edquist, 2006):

- technological process innovations;
- administrative process innovations.

Technological process innovations cover new elements introduced into an organization's production system or service operation for producing its products or rendering its services to the clients (Abernathy and Utterback, 1978; Damanpour and Gopalakrishnan, 2001).

Administrative process innovations include new approaches and practices to motivate and reward employees, devise the strategy and structure of tasks and units, and modify the organization's management processes (Daft, 1978). Administrative process innovations mainly affect changes in the organization's management systems, as opposed to technological process innovations which mainly produce changes in the organization's operating systems.

The process innovations have an internal focus. The goal of process innovations is to increase the business process efficiency of an organization by lowering its production costs and facilitating the production and delivery of goods and services to customers.

The Organisation for Economic Co-operation and Development (2005, pp. 51–52) defines an organisational innovation as the implementation of a new organisational method in:

- the enterprise's business practices (the implementation of new methods for organising routines and procedures for the conduct of work);
- the enterprise's workplace organisation (the implementation of new methods for distributing responsibilities and decision making among employees for the division of work within and between enterprise activities (and organisational units), as well as new concepts for the structuring of activities, such as the integration of different business activities);

- the enterprise's external relations (the implementation of new ways of organising relations with other firms or public institutions, such as the establishment of new types of collaboration with research organisations or customers, new methods of integration with suppliers, and the outsourcing or subcontracting for the first time of business activities in production, procuring, distribution, recruiting and ancillary services).

The intention of organisational innovations is to increase an enterprise's performance by:

- reducing administrative costs or transaction costs;
- improving workplace satisfaction (and thus labour productivity);
- gaining access to non-tradable assets (such as non-codified external knowledge);
- reducing the costs of supplies.

The first scientist who defined a marketing innovation was Levitt (1962). He argued that even product innovations demanded a creative thought and imagination about a new marketing method (Levitt, 1962).

The Organisation for Economic Co-operation and Development (2005, p. 49) gives a definition of a marketing innovation. It is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

The intention of a marketing innovation is to increase an enterprise's sales:

- better addressing customer needs;
- opening up new markets;
- newly positioning an enterprise's product on the market.
- marketing innovations include significant changes:

- in product design that are part of a new marketing concept;
- in product form and appearance that do not alter the product's functional or user characteristics;
- in the packaging of products such as foods, beverages and detergents, where packaging is the main determinant of the product's appearance.

In accordance with Andrew, DeRocco, and Taylor (2009, p. 8), the innovation assessment took into account two types of innovation output:

- tangible outcomes: new products, knowledge, formulas, designs, and expertise that are easily quantified and can be legally protected through patents or other intellectual-property vehicles;
- intangible outcomes: new processes or ways of doing business that lead to a competitive advantage, such as a new company's wide production process that results in a higher quality and greater productivity. Intangible outcomes aren't themselves easily quantified but can have a major impact on quantifiable results, such as overall business performance. They generally cannot be legally protected.

There are many classifications of innovation types. For the purpose of this article, we will use the most general classification of the Organisation for Economic Co-operation and Development, which distinguishes between four types of innovations: product, process, organisational, and marketing innovations.

The innovation potential of Ukraine

Despite the fact that in the last years there has been a positive dynamics of the innovation activity of Ukrainian enterprises,

its level is low. According to the State Statistics Service of Ukraine, the share of innovative enterprises was 17.4%. The level of innovation activity has not reached the level of the early 90s of the 20th century. In 1992–1995, the share of innovatively active enterprises ranged within 20–26%. At the end of the 1980s, the share of enterprises that developed and adopted new or improved the existing products in the industry was 60–70% (Bubenko, 2008). Today, in the European Union (EU) more than half of all enterprises (52.9%) reported innovation activity. The highest shares of innovative enterprises were observed in Germany (79.3%), Luxembourg (68.1%), Belgium (60.9%) and Portugal (60.3%). The lowest shares were recorded in Bulgaria (27.1%), Poland (28.1%), and Latvia (29.9%). In Ukraine, the share of innovative enterprises is 3.0 times lower in comparison with the average level of the EU countries, 4.6 times lower than the maximum level, and 1.6 times lower than the minimum level of the EU countries (Fig. 1).

Industrial enterprises of Ukraine are more focused on the implementation of technological innovations; the share of their implementation had a positive dynamics during 2006–2012. The proportion of industrial enterprises that adopted the product innovations was 11.7% and the process innovations – 12.4% in 2010–2012. Ukrainian industrial enterprises don't use the potential of introducing non-technological innovations (organizational and marketing); the share of this type of innovations was 6.2% in 2010–2012 (Table 2).

During 2008–2010, the proportion of innovative enterprises among the EU Member States that adopted technological innovations was 23.0% and the enterprises

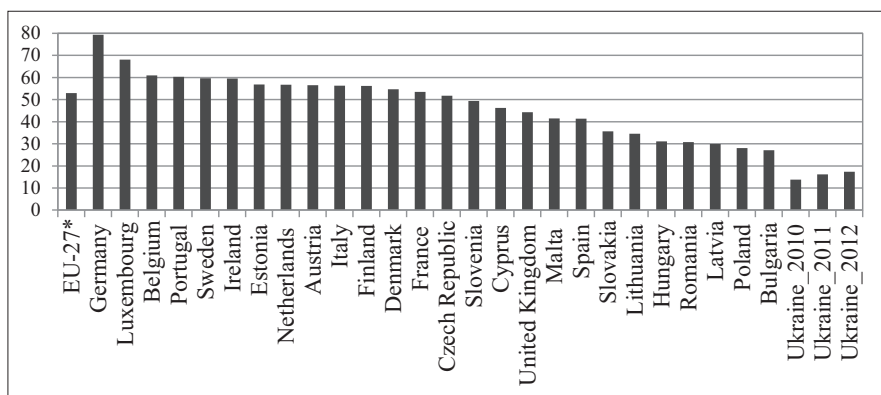


Fig. 1. Proportion of innovative enterprises among the EU Member States* (2008–2010) and Ukraine (2010–2012) (% of all enterprises)

Source: Eurostat, the State Statistics Service of Ukraine. * Excluding Greece.

Table 2. The share of industrial enterprises of Ukraine that adopted innovations by type of innovations, 2006–2012 (% of all industrial enterprises)

Industrial enterprises adopted	2006–2008	2008–2010	2010–2012
Technological innovations			
Product innovations	9.9	10.6	11.7
Process innovations	9.6	10.6	12.4
Non-technological innovations			
Organisational innovations	3.9	4.0	3.1
Marketing innovations	3.8	4.0	3.1

Source: the State Statistics Service of Ukraine.

that implemented all types of innovation (product, process, organisational, and marketing innovations) 50.7%. It should be noted that in the EU Member States where the share of innovative enterprises is high the proportion of innovative enterprises that combine all types of innovations also tends to be high. As already noted, in Germany, Luxembourg, and Belgium the share of innovative enterprises is the highest (more than 60%); in these countries, the proportion of innovative enterprises that reported both categories of innovation (technological and non-technological) was 58.7%, 61.5%, and 55.4%, respectively (Figs. 1 and 2). By contrast, the countries with a relatively low

share of innovative enterprises generally had proportionally fewer innovative enterprises that adopted all types of innovations. For example, only 34.5% of innovative enterprises developed all types of innovations in Latvia, 33.3% in Poland, 32.3% in Romania, and 29.5% in Bulgaria (Fig. 2).

The EU enterprises are more focused on raising the level of innovation novelty by investing considerable financial resources in technological innovations, namely in the conduction of research and development implementation. As compared to the European countries, the share of R&D expenditure in Sweden was 63.2%, in the Netherlands 62.5%, in Luxembourg 53.8%,

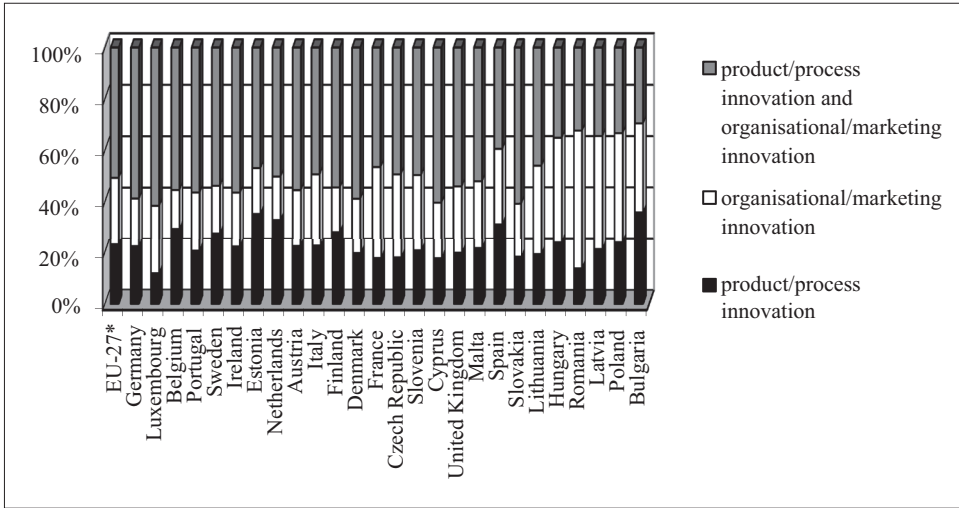


Fig. 2. Proportion of innovative enterprises among the EU member states* by type of innovations, 2008–2010 (% of innovative enterprises)

Source: Eurostat. * Excluding Greece.

in Belgium 42.0%, in Romania 13.4%, in the Czech Republic 23.2% of the total volume of expenses on innovations.

In Ukraine, the percentage of the total innovation costs of industrial enterprises is inefficient. About 60% of all expenses on innovations are the expenses on the purchase of machines, equipment and software, whereas expenses on R&D operations reach only 17.1% (Fig. 3).

Expenses on research and development investments exceed 1.5–2 times the investing in equipment in the EU Member States. In Eastern Europe, the investing is more focused on the purchase of machines, equipment and software, and the renewal of existing equipment. The correlation of expenses on research and the purchase of equipment is 1:3 in Ukraine.

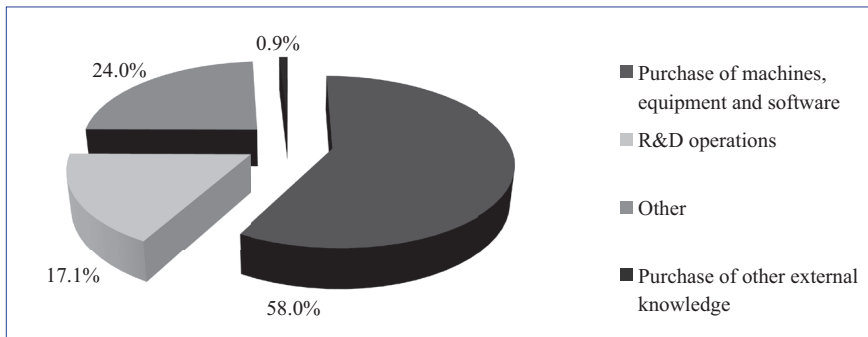


Fig. 3. The percentage of total innovation costs in industry in Ukraine, 2013

Source: the State Statistics Service of Ukraine.

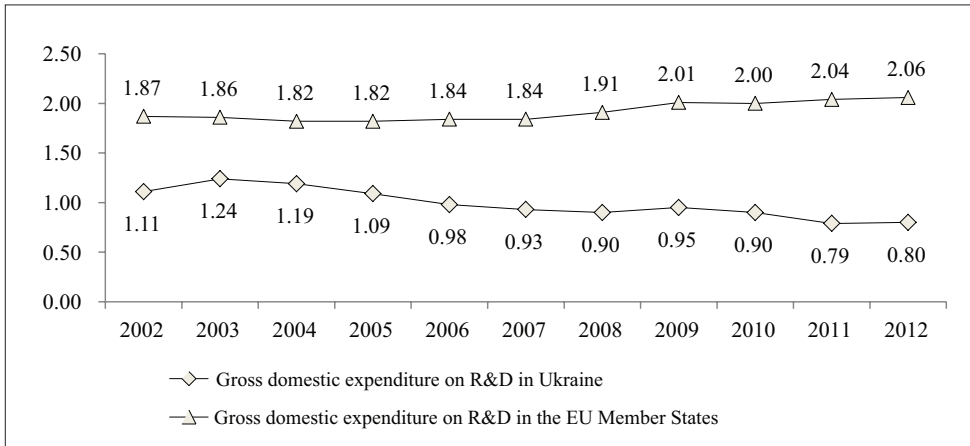


Fig. 4. Gross domestic expenditure on R&D in Ukraine and in the EU member states, 2002–2012 (percentage of GDP)

Sources: Eurostat, the State Statistics Service of Ukraine.

It should be noted that the share of the executed R&D in GDP has a negative dynamics in Ukraine (Fig. 4).

Experts estimate that the share of the executed R&D in the GDP of the USSR in 1950 amounted to 0.99%, in 1955 – 1.38%, in 1960 – 1.77%, in 1965 – 2.30%, in 1970 – 2.49%, in 1975 – 2.91%, in 1980 – 3.00%, in 1985 – 3.11%, in 1990 – 2.89% (Bubenko, 2008). In Ukraine, in 2013 the share of these costs was 0.81%, including from the state budget 0.33%, which is 1.7 times lower as compared to 1996 and 2.3 times in comparison with 1991.

According to the Eurostat, the average expenditure on R&D in the EU Member States was 2.06% of GDP in 2012. The highest share of expenditure on R&D (3.55%) was in Finland, 3.41% in Sweden, 2.99% in Denmark, 2.92% in Germany, 2.84% in Austria, 2.80% in Slovenia, 2.26% in France, 2.24% in Belgium, 2.18% in Estonia, and 2.16% in the Netherlands, and the lowest share was in Romania, Cyprus, Bulgaria, Latvia (from 0.42% to 0.66%).

Ukraine has an unstable dynamics by the international position of the innovation index. The ranks and score of Ukraine by sub-index of innovation and its elements according to the World Economic Forum Global Competitiveness Reports for the last five years are shown in Table 2.

In 2013–2014, by the “innovation” sub-index Ukraine occupied the 93rd place. Compared to data of the Global Competitiveness Report 2012–2013, Ukraine has shifted down by 22 positions. The rating of Ukraine by all elements of the sub-index of innovation has decreased. According to the “capacity for innovation” index, Ukraine has the biggest drop – by 44 positions. The main reason for such a drop is that the Ukrainian business has become less innovative.

According to the Global Competitiveness Report 2013–2014, the most problematic factors for doing business in Ukraine are:

- access to financing (16.7%);
- corruption (15.5%);
- inefficient government bureaucracy (13.4%);

Table 2. International rating of Ukraine by the sub-index of innovation and its elements, 2009–2014

Indicators	2010–2011		2011–2012		2012–2013		2013–2014	
	Rank /139	Value (1–7)	Rank /142	Value (1–7)	Rank /144	Value (1–7)	Rank /148	Value (1–7)
Innovation	63	3.1	74	3.1	71	3.2	93	3.0
Capacity for innovation	37	3.5	42	3.4	58	3.3	100	3.2
Quality of scientific research institutions	68	3.6	72	3.6	64	3.7	69	3.6
Company spending on R&D	69	3.0	75	3.0	104	2.7	112	2.7
University–industry collaboration in R&D	72	3.5	70	3.6	69	3.6	77	3.4
Gov’t procurement of advanced tech products	112	3.1	112	3.1	97	3.2	118	3.0
Availability of scientists and engineers	53	4.3	51	4.3	25	4.8	46	4.6
PCT patents, applications/ million pop.	64	0.4	71	0.3	51	2.1	52	5.2

Source: the World Economic Forum’s Global Competitiveness Reports.

- tax regulations (11.0%);
- policy instability (10.1%);
- tax rates (8.4%);
- others.

The ratings of Ukraine by 12 elements of the Global Competitiveness Index 2013–2014 among 148 countries of the world are presented in Fig. 5.

The data of Fig. 5 can be divided into competitive advantages, unimproved opportunities, and critical backlog of Ukraine by the Global Competitiveness Index elements. Market size, higher education and training are the competitive advantages of Ukraine (38 and 43 positions in the ranking). Health and primary education, infrastructure, labor

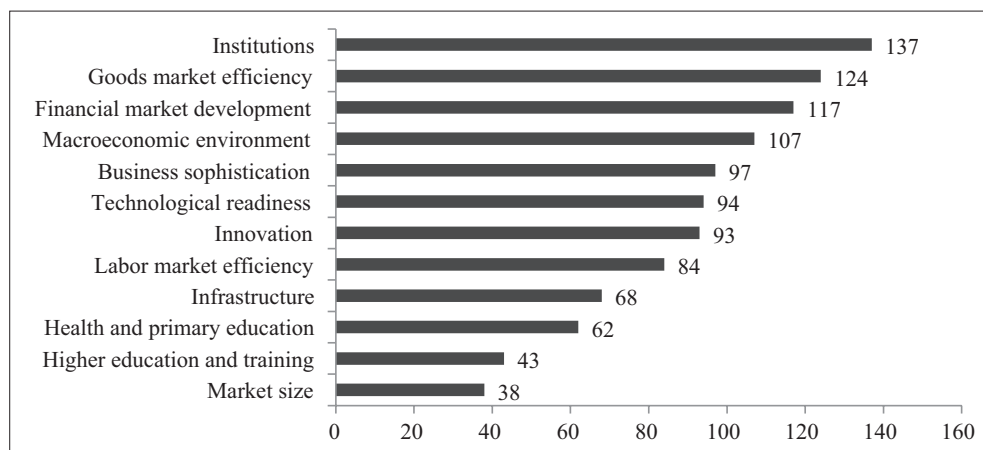


Fig. 5. Ratings of Ukraine by elements of the Global Competitiveness Index, 2013–2014

Source: the World Economic Forum’s Global Competitiveness Report.

market efficiency, innovation, technological readiness, business sophistication are unimproved opportunities (Ukraine's rating for these indices ranges from 62 to 97 positions). The critical backlog for Ukraine is the following components of the Global Competitiveness Index: macroeconomic environment, financial market development, goods market efficiency, institutions (107, 117, 124 and 137 in the ranking).

The key aspects of innovation development of Ukrainian enterprises

Ensuring the competitiveness of Ukraine's economy and bringing it to the European level require the creating effective mechanisms aimed at enhancing the innovation activity of Ukrainian enterprises and re-focusing it with consideration for the global experience and current trends in the field of innovations.

In Ukraine, the main subjects of innovation production are two sectors of economy: engineering and metallurgy. The structure of Ukrainian industry needs to be changed, since 2/3 of innovative products in Ukraine are produced by enterprises involved in the production branch of the 3rd and 4th technological models. This provides an evidence of the inefficient innovative potential realization of Ukrainian enterprises. The highest developed countries use the 5th technological model. It is based on the greater share of digital technology products, telecommunications and computing, communications, software. Formation of this model hasn't been finished. After two decades, a new, 6th technological model will be formed. The most promising directions will be biotechnology and genetic engineering, alternative energy resources,

aerospace development, membrane technology and quantum energy, energy-efficient and resource-saving technologies.

The creation of the 5th technological model in Ukraine requires transition to an investment and innovation model of economic development based on the adoption of an effective innovation strategy.

The legislative regulation in the sphere of innovation activities includes the following directions:

- governing direct financing of scientific, technical and innovation activity;
- determination and realization of the priorities for innovation and technological development, R&D, forecast of scientific, technological and innovation development;
- implementation of the state programs of Ukraine in the sphere of innovation development;
- co-ordination of legislative acts, their evaluation regarding the legal status of subjects of the innovation system;
- the national innovation system and issues of the legal provision of its functioning;
- public institutions working in the research and development spheres;
- state order for research engineering and competitive financing of R&D;
- the financial and credit support of innovation activity;
- tax incentives for innovation activity;
- innovation development of small and medium enterprises;
- research and production of science-intensive products;
- creation of territorial innovation structures (innovation clusters);
- stimulation of innovation activity on a regional level;
- legislative regulation of public-private

partnerships in the research, development and innovation fields.

The main legal acts, which regulate the relations in innovation area and determine strategy of innovation activity development, are:

- the Law of Ukraine “On Innovation Activity” (2002);
- the Law of Ukraine “On Special Regime for Innovation Activity in Technological Parks” (1999);
- the Law of Ukraine “On Scientific Parks” (2009);
- the Law of Ukraine “On Priority Areas of Development of Innovation Activity in Ukraine” (2011);
- the Resolution of the Verkhovna Rada of Ukraine “On Recommendations of Parliamentary Hearings on the Topic: “Strategy of Innovation Development of Ukraine for 2010–2020 under Global Challenges” (2009);
- the resolution of the Cabinet of Ministers “Conception of development of national innovation system” (2010);
- others: the Constitution of Ukraine, Codes, Laws, Decrees of the President of Ukraine, departmental statutory acts etc.

In order to increase the efficiency of innovation policy in Ukraine, favourable conditions for innovation development at the state level should be created:

- the increasing volume of financial resources for the innovative sector, especially the share of budgetary funds;
- ensuring proper monitoring and control for innovation activity financing from budgetary funds;
- creation of support tools for innovation activity, based on the global experience in the field of innovations;
- raising the level of coordination between

the government authorities and responsibility for decision-making in the field of innovation;

- formation of mechanisms and institutions to promote innovation and technology diffusion, expressed as a partnership between the public and the private sectors of the economy;
- creation of favourable conditions for the cooperation of enterprises in the precompetitive stage of innovations, international research and technological cooperation;
- improving the management of science, training the personal of scientific organizations by increasing their flexibility and structures, cooperation among the research divisions of industry, research institutes, and universities;
- encouraging the creation of new innovative enterprises and new innovative forms by decreasing the financial, bureaucratic and information barriers, support of innovative entrepreneurship, etc.

The main priorities for the innovation development of Ukrainian enterprises must be:

- the energy sector: the focus on energy transportation, use of energy-efficient and resource-saving technologies, and application of alternative energy resources;
- the transportation sector: a hi-tech development of the transport system, space rocket industry, aircraft engineering and shipbuilding, armament and military equipment;
- materials science: focus on materials production, machining and combination, establishment of nanomaterials and nanotechnology industry;
- the agricultural sector: technological renewal and agricultural development;

- the medical sector: development of equipment for high quality medical care, treatment, pharmaceuticals;
- the environmental sector: a wide application of technologies for cleaner production and environment protection;
- the IT sector: development of modern information, communication technologies, robotics.

Ukraine has the potential to become a good performer in the area of eco-innovations (energy saving and green technologies application). There are large R&D infrastructure, land and mineral resources, and human resources in Ukraine.

Focusing of eco-innovations helps Ukraine to decrease contamination by introducing the technologies that could solve specific environmental problems of the country. The main of them are the aftermath of the Chernobyl disaster and industrial wastes in the regions with the domination of ferrous metallurgy, chemical and coal industries.

Conclusion

Innovations play the key role in the economic development and ensuring the competitiveness of enterprises. Innovative processes in Ukraine are characterized by:

- the low level of innovation activity carried out by the enterprises;
- unstable dynamics of innovation expenses;
- insufficient volumes of innovation activity financing;
- own financial resources of enterprises dominating in their structure;
- reduced consumer demand for industrial products;
- the negative dynamics of innovative products export.

Overcoming the negative trends in Ukrainian economy requires an effective decision-making at the state level:

- an increase in expenses on the innovative sector financing;
- creation of an effective mechanism to support investment and innovation programs;
- fiscal promotion of innovation activity;
- promotion of the high-tech products' manufacture, support for the export activity of innovation enterprises, etc.

Ukraine has the potential for developing and introducing innovation:

- innovations in energy and relief of disasters (Ukraine has a unique experience in the liquidation of the aftermath of the Chernobyl disaster);
- development and modernization of nuclear power stations into thermonuclear ones can afford to export electricity to other countries;
- the use of Ukrainian rich black soil for producing natural, organic food;
- the use of processes based on digital technologies;
- development of technologies to increase energy efficiency, generation of renewable energy, substitution of hazardous materials and making other materials easier to recycle, etc.

The strategic directions of innovation development in Ukraine must include the main sectors: energy, transportation, agricultural, environmental, IT, medical, nanomaterials and nanotechnology industry. The development of science and innovative entrepreneurship will enable Ukraine to create conditions for the realization of the ideas of its researchers. The main factors, which attract foreign investors, are the powerful intellectual potential of Ukrainian scientists,

programmers and engineers, qualified personnel, a high level of education, the geographic and cultural proximity to Europe. Ukrainian industry can be transformed by using high technology. Innovation development must be declared as the strategic line of the economic and social development

of Ukraine. It is possible to create innovative companies on the basis of industrial parks located in the suburbs of industrial regions (Kharkov, Kiev, Lviv, Odessa, and Donetsk). In the nearest future these regions may become the world's scientific and educational centres.

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INOVACIJŲ VYSTYMO PRIORITETAU UKRAINOS ĮMONĖSE

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S a n t r a u k a

Straipsnyje pateikiama kategorijos „inovacija“ traktuotė ir apibūdinami inovacijų tipai. Inovacijos yra esminis veiksnys, lemiantis nacionalinės ekonomikos konkurencingumą, šiuolaikinių įmonių konkurencinį pranašumą. Straipsnis apima Ukrainos įmonių inovacinio potencialo tyrimo rezultatus, inovatyvios veiklos Ukrainoje rodiklius ir jų lygina-

mąją analizę su Europos Sąjungos šalimis; aptariama inovatyvių įmonių dalis, inovatyvių įmonių santykis pagal inovacijų tipus, inovacinės veiklos išlaidų struktūra. Pateikiamas Ukrainos reitingas pagal globalaus konkurencingumo indekso ir inovacijų indekso dedamąsias. Aptariami esminiai Ukrainos įmonių inovacijų vystymo aspektai.