

Innovation economic development

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Innovation is an economic science that studies the patterns of innovation changes in macro- and microeconomic systems. The subject of the study of innovation are: novations (innovations), innovations (novelty), innovative processes.

In the mechanism of the impact of innovation on economic performance can be divided into two components. First, extra costs associated with scientific achievements and their implementation, allow more to significantly reduce the current transaction costs of economic entities. Second, the application of scientific dosage allows to increase (often radical) the quality of the product and its consumer value (or creating new) [1, p. 7].

An innovative economy is a type of economic activity based on applying the achievements of science and technology in the production and distribution of goods and services. Scientific and technological development affects macroeconomic growth. N.D. Kondratiev justified the theory of cyclical fluctuations of the economy in the long run (long waves of Kondratiev). N.D. Kondratiev investigated the dynamics of the main economic indicators (prices, interest rates, wages, foreign trade) of the most economically developed countries in a hundred and forty years. He singled out 3 large cycles (waves) of changes in the world market:

- the first;
- the second;
- the third.

Cycles (waves) of changes in the world market shown in Fig.1.

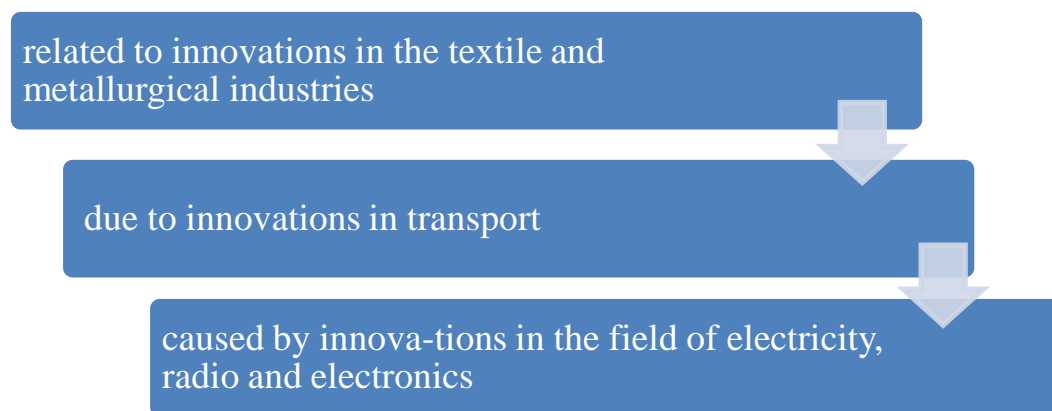


Figure 1. Cycles (waves) of changes in the world market

At the present time, the next economic cycle ends, during which the market situation was determined by advances in the field of microelectronics and information technologies. The main (basic) resource in the innovation economy is not the material factors of production, as in the industrial economy, but the intellectual work of researchers and developers.

The beginning of the innovative economy is attributed to the XX century, when the number of industrial workers was less than the number of other categories of workers.

Characteristics of the innovation economy shown in Fig.2.

Innovative economy is characterized by:

- the intellectual property market is developing at a faster rate;
- the market of skilled labor is developing at a faster rate;

- market segments are developed, through which goods and services are provided for research activities;
- new subject markets appear that serve the turnover of goods and services created on fundamentally new scientific and technical ideas;
- new sectors of the financial market are being formed.

"Innovation" is interpreted as the transformation of potential scientific and technological progress into the real one, embodied in new services and technologies.

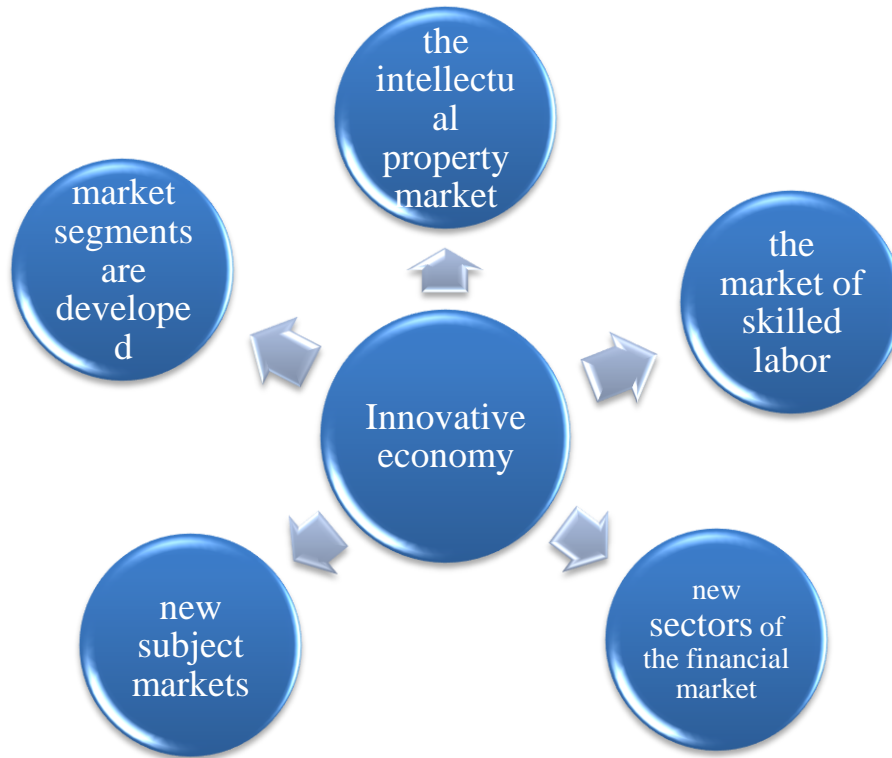


Figure 2.Characteristics of the innovation economy

Austrian scientist J. Schumpeter distinguished five typical changes:

- 1) use of new equipment, new technological processes or new market support of production (purchase and sale);
- 2) introduction of products with new properties;
- 3) use of new raw materials;
- 4) changes in the organization of production and material and technical support;
- 5) the emergence of new markets.

J. Schumpeter introduced the concept of innovation, treating it as a change for the purpose of introducing and using new types of consumer goods, new production and transportation means, markets and forms of organization in industry[2].

In accordance with international standards, innovation is defined as the end result of innovation, embodied in the form of a new or improved service introduced on the market, a new or improved technological process used in practice, or a new approach to social services[1, p. 7].

Innovations shown in Fig.3.

Innovation can be a new order, a new method, an invention. Innovation means that innovation is used.From the moment of acceptance to distribution, innovation acquires a new quality and becomes an innovation.

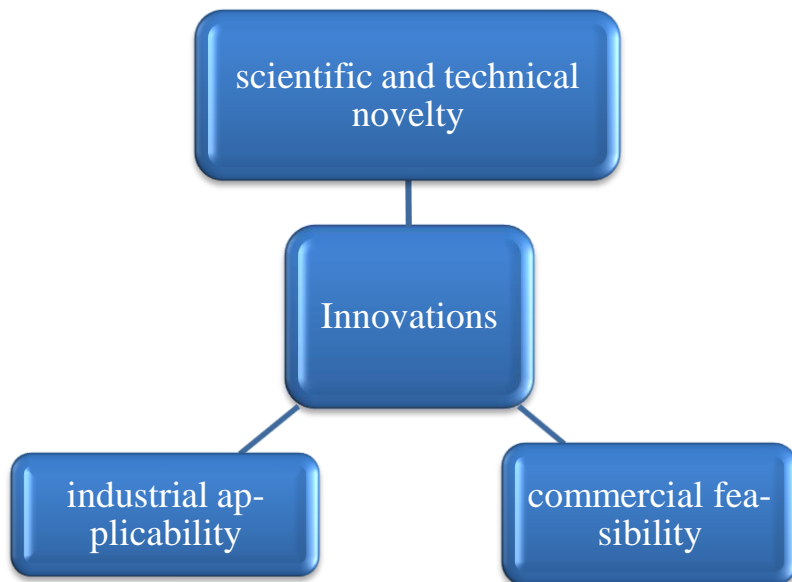


Figure 3. Innovations

Scientific and technological innovations should:

- 1) have a novelty;
- 2) satisfy market demand;
- 3) bring profit to the manufacturer.

The sequence diagram of the innovation process shown in Fig.4.

The emergence of innovation is the result of an innovative process.

The sequence of the innovation process:

- Research, which is a process of obtaining new knowledge, includes two consecutive elements (fundamental research, applied research).

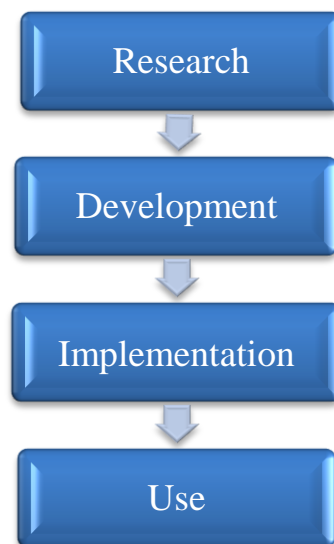


Figure 4. The sequence diagram of the innovation process

The main feature of research in general is the uncertainty of the possibility of their use, ultimately, in production. Fundamental research has the character of free search and any hard planning of their results is generally impossible: most of them do not give a positive result at all. Applied research, which is carried out based on the results of successful fundamental, also

often yield results unacceptable from the standpoint of modern industrial practice. In addition, the total duration of the research stage can be dozens of years.

- Development is the process of creating a model of the future production object (product) in the form of its scientific description. Research and development (R & D), the result of which is a generalized model of the product in the form, for example, of its structural and schematic diagram and the main operational parameters in the first place. Experimental development (RR), during which the generalized model develops to the level of working documentation describing all the components of the product and the exact product parameters (developmental design), the technology of its production (experimental and technological development), and the economic and management parameters production (pilot-management development).
- Introduction is a set of actions aimed at creating conditions for the preparation of the product and, in general, includes the following consecutive stages (construction, development of production).
- Use-sale.

In practice, the innovation process, as a rule, is transformed into an innovation project.

The life cycle of innovation shown in Fig 5.

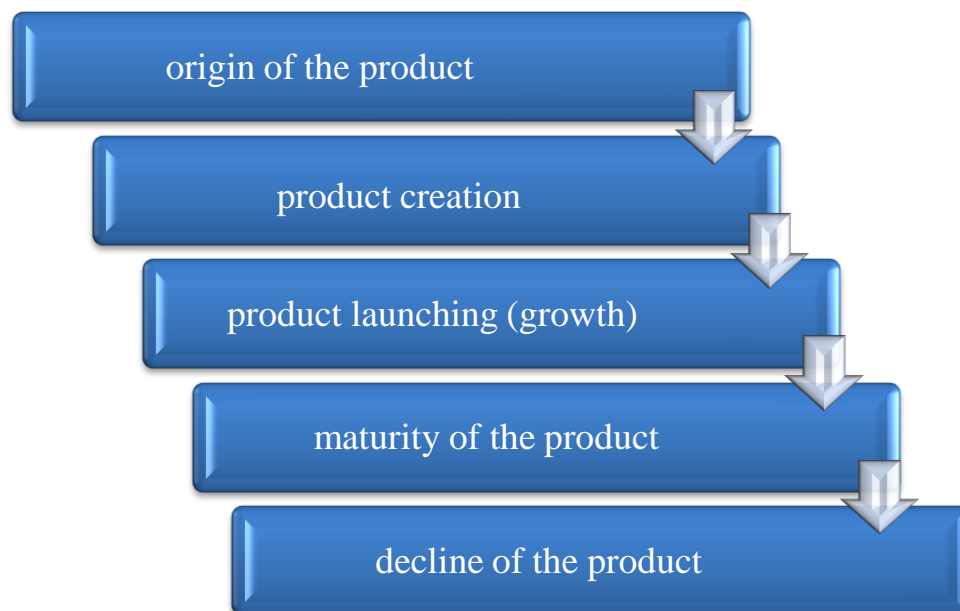


Figure 5. The life cycle of innovation

The life cycle of innovation:

1. Origin of the product, which includes: research and development, experimental and technological development
 - I. Product creation,
 - II. Product launching (growth),
 - III. The maturity of the product, which includes the continuation of production and use of a product that has lost its novelty;
 - IV. Decline of the product, which includes the end of its production and use.

The period of origin of the product is characterized by high costs for special scientific equipment, information resources, intangible assets - patents, licenses and other rights to use intellectual products.

The period of product creation is characterized by cost and expense, as new basic production assets are created.

In the period of product launch, the volume of production (pro-sales) is constantly growing. Gross income begins to compensate for costs and, further, surpasses them, as a result of which the enterprise makes a profit.

The maturity period of a product is characterized by an excess of gross income over costs and a lower profit, which is reduced by exhaustion. The reasons for this are the final cessation of the effect of novelty, a reduction in demand for the product, the desire to counter this trend by drastically reducing prices, selling inventory at lower-cost prices. The effect of the totality of these factors leads to the fact that at the end of the period the product begins to bear losses.

From the point of view of resource provision, the most rational are the successive innovations that allow the maximum use of the available immobilized assets and current assets. In practice, such an approach can lead to an enterprise's orientation solely to modifying innovations and, thus, to deprive the possibility of taking advantage of the radical ones.

The spread of innovations, as well as their creation, is an integral part of the innovation process.

The classification of innovations is presented in Table 1

Table 1- Summary table of classification of innovations

The characteristic of classification	Types of innovations
In terms of coverage of the expected market share	Strategic
	Local
	System
By the depth of the changes introduced	Modification
	Radical
	Improving
By the nature of the innovation process	Intra-organizational
	Interorganizational
By Activity	social
	Economic
	Technological
	Production
	Trading
	In the field of management
	Legal
	Pedagogical
Material and technical	
On innovative potential	Perfecting
	Radical
	Combinatorial
By complexity	Complex
	Simple
On the subject of application	For the manufacturer and the consumer
	For the whole society
	For the market
According to the cyclic development of technology	The largest
	Large
	Medium
	Small
Nature of innovation	Product innovation
	Process Innovations
	Organizational innovation
	Economic Innovation
	Social Innovations
Form of innovation	Discoveries, inventions, patents

	Rationalization proposals
	Know-How
	Trademarks, trademarks, logos
	New documents describing technological, production, management processes, structures
Type of effect obtained as a result of innovation	Economic
	Ecological
	Scientific and technical
	Social
	Integral
By the degree of radicalism	Basic
	Improving
	Pseudo-innovation (rationalizing)
[3, с.10]	

List of Literature:

1. Golubev A. A.. Economics and management of innovation activity: Textbook. - SPb :SPbSU ITMO, 2012. - 119 p
2. Traynin A. A., the Importance of studies of Joseph Alois Schumpeter for the modern stage of development of the theory of innovation.[Electronic resource]. URL: <http://iraqwieder.narod.ru/Schumpeter.html>.
3. Pecheritsa E. V., Shevchenko M. I. Monograph. Innovative technologies in the hotel business. – SPb: FAW VPO "Saint-Petersburg state University of service and Economics", 2013. - 129 S.

Annotation

To ensure the effective functioning of the enterprise, its innovation activity must be continuous. Innovation processes should overlap each other in time (replacing innovation). Innovation activity is a basic condition for enterprise competitiveness in the context of globalization.

Аннотация

Кәсіпорынның тиімді жұмыс істеуін қамтамасыз ету үшін оның инновациялық қызметі үздіксіз болуы керек. Инновациялық үдерістер уақытында бір-біріне сәйкес келуі керек (инновацияның орнына). Инновациялық қызмет жаһандану жағдайында кәсіпорынның бәсекеге қабілеттілігінің негізгі шарты болып табылады

Аннотация

Для обеспечения эффективного функционирования предприятия его инновационная деятельность должна быть непрерывной. Инновационные процессы должны перекрывать друг друга во времени (заменяя инновации). Инновационная деятельность является базовым условием конкурентоспособности предприятия в условиях глобализации.

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