

MINISTRY OF SCIENCE AND HIGHER EDUCATION  
OF THE RUSSIAN FEDERATION

SAMARA NATIONAL RESEARCH UNIVERSITY  
(SAMARA UNIVERSITY)

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# INNOVATIVE ENTREPRENEURSHIP

Рекомендовано редакционно-издательским советом федерального государственного автономного образовательного учреждения высшего образования «Самарский национальный исследовательский университет имени академика С.П. Королева» в качестве учебного пособия для обучающихся по основной образовательной программе высшего образования по направлению подготовки 38.04.02 Менеджмент

SAMARA  
Published by Samara University  
2022

УДК 338(075)+811.111(075)  
ББК 65.29я7+81.2Англ я 7  
Б695

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**Б695 Innovative Entrepreneurship:** study guide / *E.A. Blinova.* –  
Samara: Published by Samara University, – 2022. – 68 p.

**ISBN 978-5-7883-1752-6**

This book provides information on innovative entrepreneurship in two chapters: business environment for innovative entrepreneurs and management of innovative entrepreneurship.

The course is designed to provide a career development opportunity for practitioners from various backgrounds, to enhance and develop their entrepreneurial thinking in an organizational context.

The study guide is written in mathematical methods in economy department of institute of economics and management. It can be used by those who take «Innovative Entrepreneurship» course while studying at Master’s course 38.04.02 Management.

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ISBN 978-5-7883-1752-6

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## Preface

The course represents an advanced level of studying modern concepts and practices of managing the investment activities of innovative companies.

The study of this course is based on the discipline «Teambuilding in Project and Research Activities».

The knowledge gained by students in this course might be used in the courses «Space Economy», «Marketing and Logistics», «Quality and Product Lifecycle Management», «Lean Production Systems», «Intellectual Property Management», «Supply chain management», preparation for defense and defense of graduate thesis.

The main **goal** of the course is the formation of knowledge skills and abilities that allow to create innovative entrepreneurial structures with sustainable competitive advantages.

By the end of this course students will:

**Know:** features of development of a project concept in the context of a designated problem; the current rules and regulations of a project life cycle; how to conduct an assessment and analysis of the effectiveness of a project; different strategies of developing a teamwork; insights of leadership and organizing the work of a team; the features of delegating authority.

**Have skills to:** develop a concept of a project in the context of a designated problem; manage the progress of the project at the stages of its life cycle, taking into account the current rules and regulations; conduct an assessment and analysis of the effectiveness of a project; develop a teamwork strategy to achieve a set goal; organize the work of the team, provide leadership, contribute to the constructive solution of emerging problems; delegate authority to team members, distribute assignments and evaluate its implementation, give feedback on the results, take personal responsibility for the overall result.

**Be able:** to develop a project concept in the context of a designated problem; to distinguish the stages of a project life cycle in order to manage its progress; conducting an assessment of the effectiveness of a project and adjusting the process of its implementation; instruments for developing a teamwork strategy to achieve a set goal; to use methods of leadership and organizing the work of a team for contributing to the constructive solution of emerging problems; delegating authority, distributing assignments and evaluating its implementation, giving feedback on the results, taking personal responsibility for the overall result.

## **Introduction**

As the world experience of economic development shows, success is achieved by entrepreneurs in the case of using innovations. Innovative activity implies the introduction of advanced technologies and approaches into the activities of the organization. In this case, the products or services will be competitive and have advantages in the market.

The tasks of an entrepreneur are the choice of a field of activity, a business model, a time and place for launching a product, and others. The innovative entrepreneur must also organize research that generates new knowledge and a product development process that uses this knowledge. This is achieved through the interaction of managers and employees in the innovation process, the activation of their creative and organizational potential, the integration of the efforts of the entire staff of the company in achieving the goal.

From this course students will learn what and what for innovations are, their forms and factors. The types of entrepreneurship, its planning and running of a business will be discussed.

# Chapter 1 Business environment for innovative entrepreneurial activity

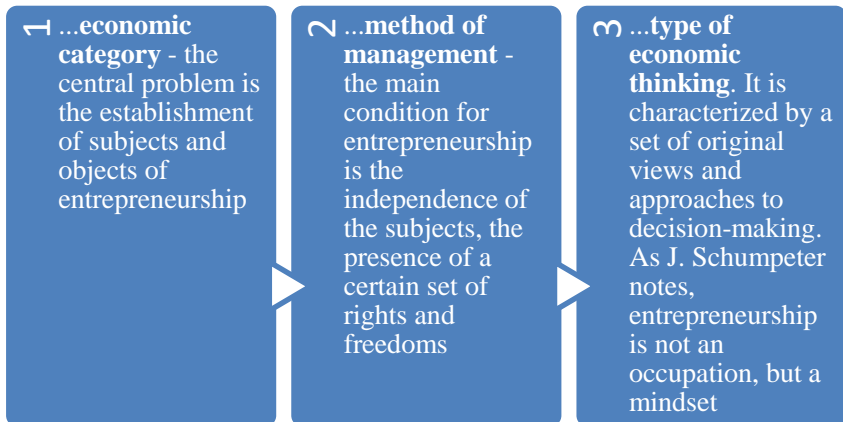
## Unit 1 CONTENT OF ENTREPRENEURIAL ACTIVITIES

### 1.1 Entrepreneurship and entrepreneurial ability

An indispensable condition for the functioning of a modern economic system is entrepreneurial, economic activity, the participants of which are entrepreneurs, who organize production at the expense of their own or borrowed funds and are ready, in case of failure, to risk their capital.

From the point of view of the economists, entrepreneurship in the modern science appears in three aspects.

Entrepreneurship is considered as...



In order to understand the content of innovative entrepreneurship, let us first trace the evolution of the concepts of "entrepreneur" and "entrepreneurship".

These concepts were first used by the English economist Richard Cantillon (1680-1734) [1]. In his opinion, an entrepreneur is a person acting under conditions of risk. R. Cantillon considered the source of wealth to be land and labor, which determine the real value of economic goods.

Later, the famous French economist Jean Baptiste Say (1767-1832) in his book "Treatise on Political Economy" [2] formulated the definition of entrepreneurial activity as a combination of three classical factors of production - land, capital, labor. He also pointed out that the "talent of English entrepreneurs" was one of the factors in the success of the development of industry in England. The main thesis of J.-B. Say is about recognizing the active role of entrepreneurs in product creation.

Alongside, English economists Adam Smith (1723-1790) and David Riccardo (1772-1823) presented the economy as a self-regulating mechanism in which there was no place for creative entrepreneurship. At the same time, in his main work "A Study on the Nature and Causes of the Wealth of Nations" (1776) [3], A. Smith paid attention to the characteristics of the entrepreneur. An entrepreneur, according to A. Smith, being the owner of capital, for the sake of implementing a specific commercial idea and making a profit, takes risks, since investing capital in a particular business always contains an element of risk.

Only at the turn of the XIX-XX centuries awareness of the importance and role of the institution of entrepreneurship began. The French economist A. Marshall (1907-1968) was the first to add to the above three classical factors of production (land, capital, labor) a fourth - organization. Since that time, the concept of entrepreneurship has expanded, as have the functions attached to it.

An American economist J. Schumpeter (1883-1950) in his book "Theory of Economic Development" (1911) [4] interprets the concept

of "entrepreneur" as "innovator". According to him, the function of the entrepreneur is to implement innovations that play a major role in the development of the capitalist economy, to ensure economic growth.

In his book "Innovation and Entrepreneurship" Peter F. Drucker [5] characterizes innovation activity and its close relationship with entrepreneurship as follows: "Innovation is a special tool that allows an entrepreneur to take advantage of the changes and turn them into new opportunities for, for example, opening a new business or providing a new service. All this can be presented as a separate branch of knowledge, you can learn it, and then use it in your practice. An entrepreneur should be in a targeted search for sources of innovation, change and their signs that indicate opportunities for successful innovation. And he must know and apply in practice the principles of successful innovation".

## **1.2 The essence of innovative entrepreneurship**

Entrepreneurship can be defined as a creative activity aimed at finding new areas of capital investment, creating new and improving existing products, industries, developing their own advantages, effectively using various opportunities for making profit.

Entrepreneurship is a special type of economic activity (aimed at making a profit), which is based on self-initiative, responsibility and an innovative entrepreneurial idea.

Entrepreneurial activity involves:

- ✓ proactive activities aimed at making profit or personal income, carried out at their own risk and their own property responsibility;
- ✓ organization of production activities aimed at the production of goods and the provision of services.

It can be concluded that entrepreneurial activity is the implementation of the special abilities of an individual, expressed in a rational combination of resources based on an innovative risk approach. The



entrepreneur uses the latest equipment and technology in production, organizes work in a new way, manages work differently, which leads to a decrease in individual production costs, on the basis of which the price is set. The entrepreneur arranges marketing activities as efficiently as possible. He, better than others, determines the market in which it is most profitable to buy the means of production, more precisely, he “guesses” for which product, at what time and in which segment of the market there will be the greatest effective demand. As a result, he makes more profit than ordinary businessmen. In addition, the entrepreneur is constantly at risk. He does not avoid risk, as is usually done, but deliberately takes it in order to get more income than others - a kind of compensation for this risk.

**Innovation** is the end result of innovation activity, which has been implemented in the form of a new or improved product sold on the market, a new or improved technological process used in practice.

There is a difference between “innovation” and “novelty”. Novelty is a patent-issued result of fundamental and applied research, development or experimental work to improve efficiency in any field of activity. Innovation is the end result of the introduction of novelties in order to change the object of management and obtain economic and other effects.

An innovation process is a set of time stages in the life cycle of an innovation from the emergence of an idea to its development and distribution. The scheme of the innovation process as the transformation of novelty into innovation is shown in figure 1.1.

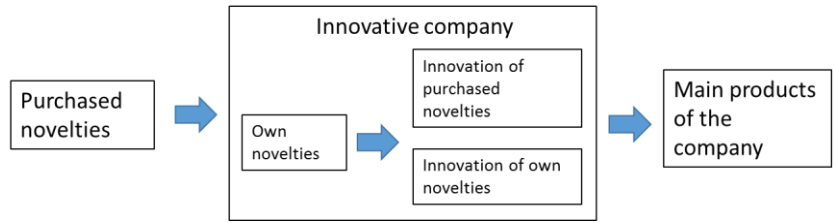


Figure 1.1 – Innovation Process [6]

Participants of the innovation process:

1. Innovators are generators of scientific and technical knowledge (they receive part of the income from the use of an invention);
2. The early majority are the first to innovate in production (they profit from the innovation in production);
3. Early recipients are the first to master the innovation (receive additional profit from the promotion of innovations on the market);
4. Laggards - those lagging behind with innovations (they receive part of the profit from production).

The entrepreneur's activity in the development of innovations can be represented as shown in figure 1.2:

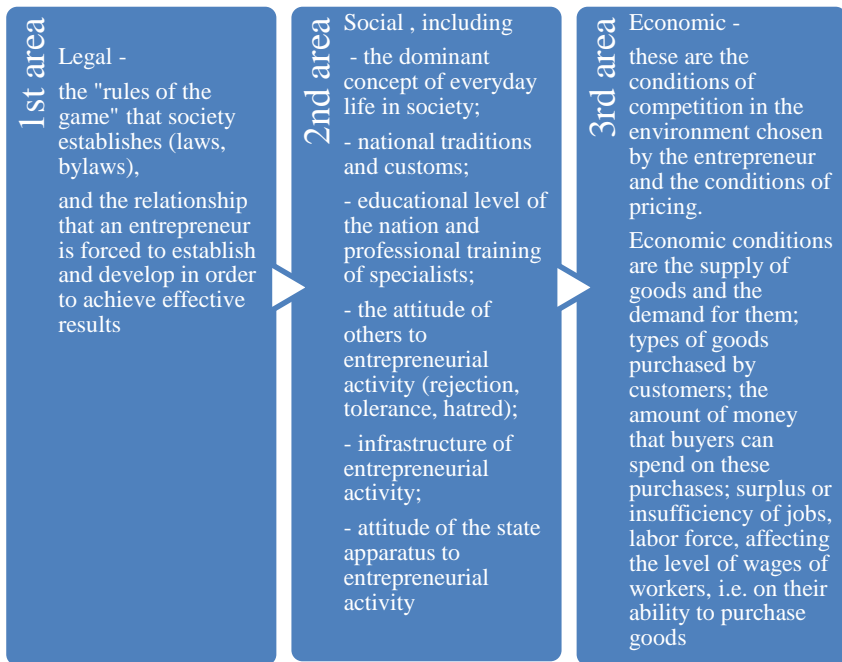


Figure 1.2 – Entrepreneur's activity development

### **1.3 Conditions and factors for the development of entrepreneurship**

For the development of entrepreneurship, it is necessary to form and develop an entrepreneurial space.

Entrepreneurial space is the sum of three areas:



#### 1.4 The firm as a way of organizing entrepreneurial activity

In modern theory, firms are understood as such enterprises, which along with the production sphere include a sales sphere. Formal features of firms include:

- ✓ a specific name that does not recur within a given registration area;
- ✓ legal address of the company;
- ✓ trade mark;
- ✓ emblem, logo, coat of arms;
- ✓ advertising slogan;
- ✓ stamps, seals, letterheads, etc.

The formal attributes of the company need to be registered in order to exclude the possibility of their use by other companies. They are subject to copyright, intellectual property of the company.

Meaningful characteristics of a firm are as follows:

1) firms are the most acceptable way of realizing the abilities and capabilities of the people who make them. Owning a company and participating in its activities allow a person to obtain a sufficiently high degree of economic freedom, which is extremely attractive to an individual;

2) firms are internally contradictory, conflicting systems. The basis of the conflict is the results of the enterprise. The internal conflict of the company is caused by the presence of owners and non-owners in it. It is important to avoid contradictions in the economic interests of the participants in the firm to the extent that the conflict will blow up the firm from the inside;

3) firms are complex communication systems. There are two types of communications: internal and external. Internal are a system of power, technical, economic and emotional relations between managers and subordinates, in the circle of the leaders and the subordinates, as well as between the divisions of the enterprise. External communications are the connections that a firm has with elements of the external environment. Among them are the relationship between the firm and consumers, resource suppliers, sales partners, competitors and the state;

4) firms are a way of enforcing contracts and property rights in the market;

5) firms are consumers of resources and, therefore, producers of products.

## **Questions to Unit 1**

1. What is entrepreneurship?
2. What are the basics of entrepreneurship as an economic activity?
3. What is innovation?
4. What are 4 types of innovation process participants?
5. What is the space for entrepreneurship?
6. What are the formal features of innovative firms?

## Unit 2 INNOVATION FACTORS

### 2.1 Where does innovation come from?

**Innovative activity** is the sphere of development and mastering of technical, technological and organizational innovations. These include not only innovative processes, but also marketing research of the sales markets of goods, their consumer properties, as well as new approaches to organizations of information, consulting, social and other types of services. Leverage in innovation is a factor, a small change in which can lead to a significant change in the result.

**Motives (factors) of innovation.** According to the American economist P. Drucker, the following factors can "push" an entrepreneur to actively search for an innovative idea:

- ✓ unexpected event – such as success, failure, unexpected external event;
- ✓ incongruence – it is the discrepancy between reality as it really is and our ideas about it ("the way it should be");
- ✓ innovations based on the needs of the process (the need of the process means its shortcomings that must be eliminated);
- ✓ sudden changes in industry or market structure;
- ✓ demographic changes;
- ✓ changes in perceptions, moods, or value attitudes of people;
- ✓ the emergence of new knowledge, both scientific and unscientific.

Most executives cite their desire to stay ahead of the competition and the impact of consumer pressure or pressure from foreign partners.

Steve Tobak, a leading Silicon Valley strategy consultant, author of a book "Real Leaders Don't Follow" [7] wrote for CBS news the secrets of a good innovative entrepreneur:

**Standing on the shoulders of giants.** Contrary to popular belief, innovation is often far more evolutionary than revolution, more practi-

cal and crafty than breakthrough invention. Most of the time you're re-purposing somebody else's idea.

**Left brain - right brain balance.** The whole left brain - right brain thing is a myth, but metaphorically speaking, I think innovation often springs from a combination of inspirational thought (right brain) and practical need (left brain). They say necessity is the mother of invention; it's probably more true of innovation.

**Belief that you're special.** Many, if not most, innovative people have this sort of childish belief that they're special, destined for great things. The thought of doing something new and different - changing the world, as it were - can be daunting. Unless you truly believe it's your destiny, you'll probably be too scared to even try.

**Questioning conventional wisdom,** the status quo. If you even mention how things *are done* or *should be done* to a true-blue entrepreneur or innovator, it's like nails screeching on a chalkboard.

**Vision.** Oftentimes, people just have a vision of how they think something should be. It's really that simple. But they're also driven to see it through, as in the next bullet ...

**Driven by the need to prove something.** Innovative people are definitely on a mission to prove something to somebody and half the time I don't even think they know who.

**Problem solving.** If you're not a problem solver, you're probably not going to come up with anything that anybody will find useful. Control freaks are natural problem solvers - they can barely walk down the street without seeing all sorts of things that can be done better.

**Passion.** Without passion and genuinely loving and caring about what you do, you simply won't have the resilience and stickwithitness to see innovation of any magnitude through. It's never just an idea - you have to actually do stuff with it.

**Focused brainpower.** Athletes will tell you success is all about focus: you can't hit a 100 mph fastball or catch a 30 yard pass with de-

fenders all up in your face without it. It's the same with innovation. Ironically, people who appear to be all over the map with ADD-like symptoms can have rare moments of clarity when it all comes together.

**Work stamina.** There's loads of talk these days about working smarter, not harder, taking more breaks, etc. While I'm a big believer in not killing yourself with work, if you don't enjoy working and work stamina isn't in your blood, you're not likely to innovate a thing.

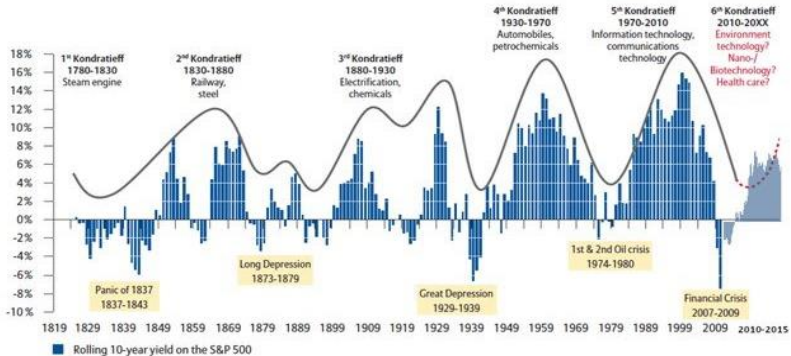
## 2.2 Kondratieff waves

An original innovative observation was made by Nikolai D. Kondratyev in the 1920s. He discovered the existence of the so-called “big cycles” or, as they are called out of Russia, “long waves”. N. D. Kondratyev pointed out the existence of a relationship between long waves and the technical development of production, showing the wavelike nature of their dynamics. He investigated the dynamics of innovation, distinguishing it from discoveries and inventions. The dynamics of innovations is investigated in the context of the phases of the big cycle. N. D. Kondratyev showed that innovations are distributed unevenly over time, appearing in groups, that is, in modern terms, in clusters. Recommendations of N. D. Kondratyev can be used to develop an innovative strategy.

Kondratieff first introduced the concept of long wave theory in his 1925 book, “The Major Economic Cycles” [8] Later in 1939 J. Schumpeter, suggested naming the long waves “Kondratieff Waves” in honor of the Russian economist’s work.

Economists estimate that the waves last for 40 to 60 years, with each cycle demonstrating alternate intervals of high and low growth rates. Since the 18th century, economists have identified five Kondratieff Waves (Fig. 2.1), with the first wave occurring during the invention of the steam engine and lasting from 1780 to 1830.





Source: Allianz Global Investors 2010 Report –  
 “The Sixth Kondratieff, long waves of prosperity”  
 Updated to Q3 2015 by deconstructingnsi.com

Figure 2.1 – Kondratieff Waves

The second cycle continued from 1830 up to 1880, driven by the growth of the steel industry and the railroads. The third, fourth, and fifth cycles lasted from 1880 to about 2005, and economists believe that a sixth cycle started in 2005.

## Questions to unit 2

1. What reasons can be for innovative activities?
2. Name the secrets of a successful entrepreneur according to S. Tobak.
3. Is innovation always a brand new product or service?
4. How long does big cycles last from the innovations point of view?

# Unit 3 MACROECONOMIC CONDITIONS FOR INNOVATIVE ENTREPRENEURSHIP

## 3.1 Innovation process models

The innovation process is considered as the process of transforming inputs (resources, information, etc.) into outputs (new goods, new technologies, etc.). The innovation process can be described by a black box model (Fig. 3.1).



Figure 3.1 – Innovation process

Any scientific discovery or technical innovation takes a long time to be realized. Thus, it is of particular importance to study modern methods of commercializing ideas and the vast experience of implementing innovations that has been accumulated in the leading countries of scientific and technological progress.

In general, interest in researching the problem of innovation arose in the world in the middle of the 20th century. In the 1950s, leading economists believed that the innovation process was linear and sequential and included scientific discovery, industrial research and development, engineering and manufacturing activities, marketing, and, finally, the appearance on the market of a new product or process (Fig. 3.2).

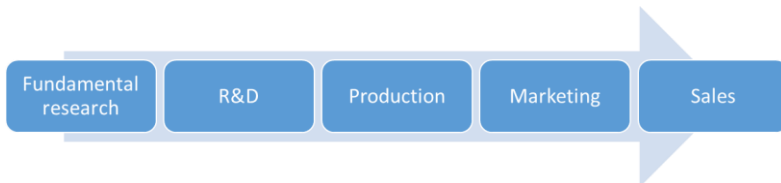


Figure 3.2 – 1G – 1<sup>st</sup> generation. Technology (science) push model

In this case, the ideas of creating new products arise within the R&D departments, and the market plays only a passive role, accepting the results of research and development. The so-called technology (science) push model dominated until the mid-60s. New empirical data based on the study of real innovations have proven that market needs are also important in the innovation process (Fig. 3.3). As practice has shown, only 25-30% of all ideas underlying innovations originated within R&D departments. Although these ideas are more important as they drive radical innovation.



Figure 3.3 – 2G – 2<sup>nd</sup> generation. "Market pull" ("need pull") model

The linear model of "market pull" ("need pull") of innovations has been widely used since the second half of the 60s. The model assumed that innovation arises from the discovery of customer needs, highly focused research and development, culminating in the introduction of new products to the market. Research and development are in this case a reaction to market demands. In the 70s of the XX century, linear models 1G and 2G began to be considered only as special cases of a more general process that unites science, technology and the market. There was a need for the emergence of new, nonlinear models of the innovation process. The English economist Roy Roswell analyzed world experience and, in addition to the 1G, 2G models, identified three more models (generations) of the innovation process corresponding to different stages of development of the economies of capitalist countries: a combined model (3G), an integrated model (4G), a strategic network model (5G). The third generation innovation process, according to Roswell, is still sequential, but with feedback (Fig. 3.4).

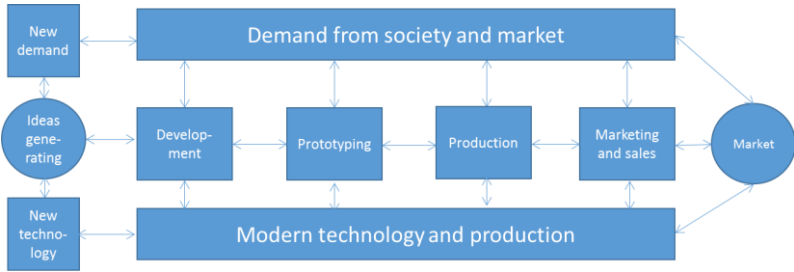


Figure 3.4 – 3<sup>rd</sup> generation 3G. Combined model

Today, no one denies that the sphere of R&D and new needs presented in the third model are the main sources of innovative ideas.

The integrated model (fourth generation) of the innovation process, which appeared in the practice of companies in the second half of the 80s, marked the transition from considering innovation as a predominantly sequential process to understanding innovation as a parallel process that simultaneously includes elements of research and development, prototyping, production, etc. (Fig. 3.5).

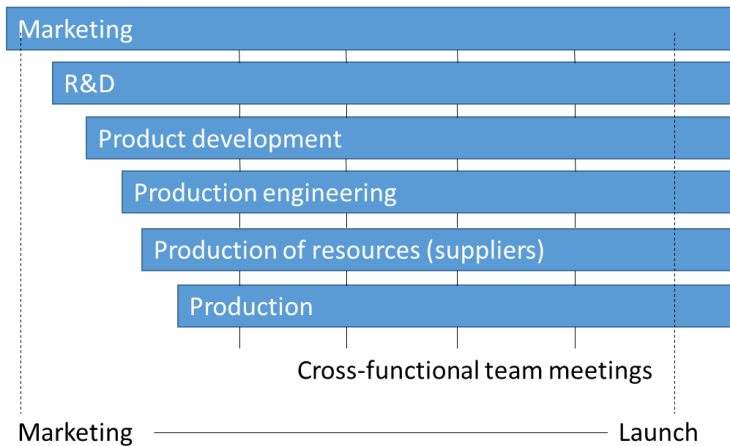


Figure 3.5 – 4<sup>th</sup> generation 4G. Integrated model

Figure 3.5 depicts the process of developing a new product at Nissan company.

### **3.2 The concept of the national innovation system**

The founders of the theory of the formation of national innovation system (NIS) are K. Freeman (Great Britain), B.-A. Lundvall (Sweden) and R. Nelson (USA), who analyzed the development of innovation in various countries.

Although national innovation systems are quite different from each other in detail, they have common features and the basic structure necessary for their functioning, which includes a set of interacting blocks. As a rule, there are five to six such blocks:

I. A creative block, or a block of knowledge generation (universities, scientific institutes, complex social networks that provide informal interaction of researchers from different institutes and universities).

II. Technology transfer block (various types of intermediaries, including non-profit funds of professional expertise, which form a special environment with wide network connections, capable of providing contacts between the authors of creative ideas and potential buyers).

III. Financing block. External funding is required to transform an idea into a prototype (phases of engineering development, production of a mock-up, creation of a prototype) and then launch it into mass production.

IV. Production block. There are two alternative options for organizing innovative production. The first is the inclusion of such production in the production structures of one of the large firms, which allows using the advantages of vertical integration and reducing transaction costs by abandoning an independent managerial complex (accounting, personnel accounting systems, etc.). The second is the creation of a new enterprise, where production transaction costs are minimized due to its small size.

V. Personnel training unit, including innovation managers (universities, as well as institutions focused on the formation of scientific personnel, national engineering schools).

**Models of innovative development.** Among the world's existing national innovation systems there are four types of NIS (Fig. 3.6).

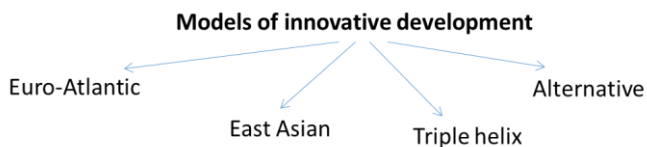


Figure 3.6 – Four types of NIS

The Euro-Atlantic model is a model of a complete innovation cycle – from the emergence of an innovative idea to the mass production of a finished product. In the countries using this model all components of the structure of the innovation system are represented: fundamental and applied science, research and development, creation of prototypes and launching them into mass production. This type of NIS is widely used in Western Europe (Sweden, Germany, Finland, France, Great Britain, etc.) and is based on a combination of the following principles:

- priority is given to the development of fundamental and applied research activities;
- financing of scientific activities is carried out mainly by the state (in the form of targeted programs, subsidies, grants, etc.), and the demand for the results of applied research is provided by the business community;
- the largest universities are the core of concentration of national innovation systems;
- innovative processes in countries are implemented using specially developed mechanisms and methods;
- due to integration into the European space, there is a blurring of the boundaries of the national innovation system of countries.

The East Asian model is a model of innovative development, in the innovation cycle of which there is no stage of formation of funda-

mental ideas. Innovation systems based on this model are almost completely devoid of a component of fundamental science (and partly of applied science). This model is used by the countries of the East Asian region (Japan, South Korea, Hong Kong, Taiwan). Oriented towards the export of high-tech products, East Asian states, as a rule, borrow technology from countries following the "traditional" model. The Japanese innovation system is considered a classic example of this model of innovative development. In most Asian countries: Japan, South Korea, Hong Kong, the East Asian model of the national innovation system is used, which assumes the absence of a university-based fundamental research stage in innovation processes and is characterized by the following features:

- the core of the national innovation system is research laboratories at corporations (and not universities as centers of fundamental research);

- financing of innovative activities is carried out mainly by the private sector - for example, in Japan, China, business invests the share of 60-70%, and the state provides only 30-40% of investments in R&D (such an investment structure can be considered effective, since investing money in the development of science by the enterprises themselves provides greater motivation to achieve a result - the introduction of an improved production technology or a new product);

- an important factor in the course of innovation processes is the consideration of national factors: the mentality of workers, linguistic and national homogeneity of the population, the geographical location of countries - commitment to natural disasters, resource base, etc .;

- general orientation of the national innovation system towards technical innovations and the latest technologies.

An alternative model of innovative development is used in predominantly agricultural countries that do not have significant potential

in the field of fundamental and applied science and do not have rich reserves of raw materials, processing technology, the sale of which could become the basis of national competitiveness. These countries in their innovation policy focus on training personnel in the spheres of economics, finance, management, sociology and labor psychology, as well as on the development of certain branches of light industry, creative industry and recreation. Much attention is paid to the preparation of management for local representative offices of transnational corporations, international banks, international political structures. This model includes the national innovation systems of Thailand, Chile, Turkey, Portugal, etc.

The most progressive type of national innovation system at the present stage of development of the world economy is the “triple helix” model, created and evolving on the basis of the Euro-Atlantic and East Asian models. The concept of the Triple Helix model is based on the following principles:

- Interaction of 3 main institutions of innovation activity: the state, science, business – at each stage of the innovation process (from the creation of an idea to the diffusion of innovative products), as well as joint financing of innovation activities by these institutions;
- Strengthening the role of universities as centers of fundamental research and development of business incubators at the largest universities in the country;
- State stimulation of innovative activities, commercialization of innovative products in the form of support for start-ups, provision of tax and customs benefits, provision of conditions favorable for the activation of innovative processes, etc.

### **3.3 Global Innovation Index**

According to the 2020 Global Innovation Index (GII) report published by Cornell University, the INSEAD School of Business and the



World Intellectual Property Organization (WIPO), China is ranked among the top 25 innovator countries in the world, and topped by Switzerland, Sweden, United Kingdom, United States of America, Netherlands [10].

The list of countries with the highest ranking according to the global innovation index is provided in figure 3.7.

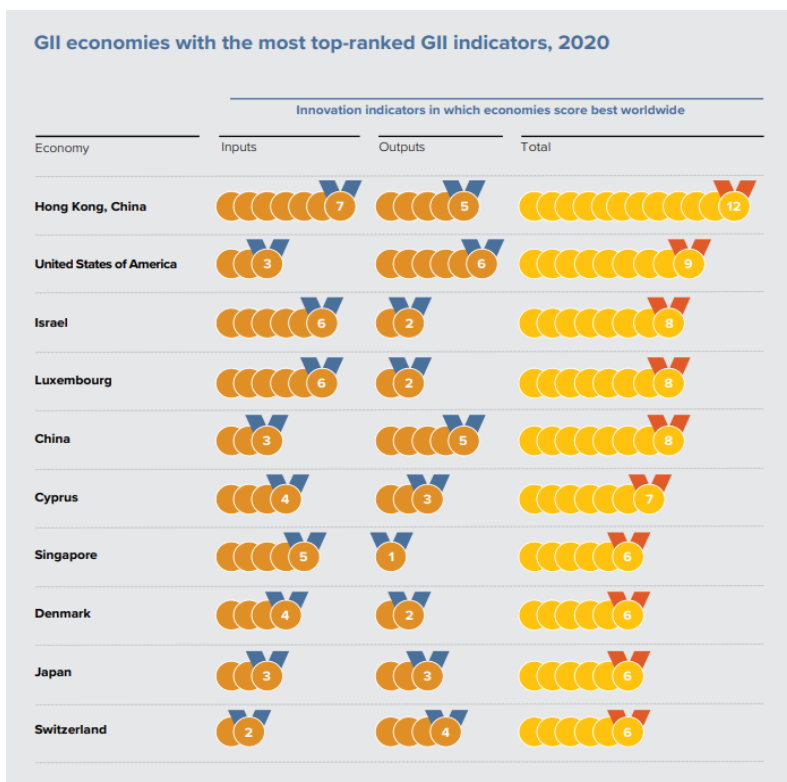


Figure 3.7 – List of top-ranked countries according to Global Innovation Index [10]

Among the leaders of the GII 2020, countries stand out in terms of "quality of innovation" – an important indicator reflecting the level of development of higher education, the number of scientific publications

and the number of international patent applications filed. China has moved up in the quality of innovation, becoming the leader among middle-income countries in this indicator; followed by India, ahead of Brazil.

Latin America is a region with significant untapped innovation potential. The GII rankings of the countries in the region have not significantly improved in recent years compared to the rankings of other regions, and currently no country in the region has indicators that would exceed the level for their GDP.

Countries in the North Africa and West Asia region have the highest averages in the areas of access to information and communication technologies (ICT) and the creation of ICT-based business models, as well as e-government and productivity growth.

Countries in the Southeast Asia, East Asia and Oceania region have the highest average teachers per student and productivity growth, and slightly lower rates in foreign-funded R&D, and intellectual property revenues.

The countries of Europe have relatively strong institutions and highly developed infrastructures, although there is room for further progress in terms of business development and knowledge and technology outcomes. Europe scores particularly well in the areas of environment, ICT access and learning expectancy. At the same time, there is room for further progress in terms of enterprise-funded R&D, foreign-funded R&D, high-tech exports and international patent filing.

### **3.4 Assessment of the investment climate in the country**

The investment climate is a combination of socio-economic, political and financial factors that determine the degree of attractiveness of the investment market and the amount of investment risk [11]. Most

often, the concept of the investment climate is used when considering foreign investment.

Specialists can assess the investment climate with 3 different approaches.

The first approach is based on an assessment of the dynamics of the country's GDP and related macroeconomic indicators: production volumes in industry, national income and its distribution, the development of stock markets, and others. According to this approach, stable and successful development of the economy is possible only with a sufficient level of accumulation rate.

The second approach in assessing the investment attractiveness of a country is based on 2 factors: investment potential and investment risk. The risk of investment for example in Russia is [12]:

- a) the unreliability of the Russian banking system;
- b) questionable ways of acquiring and using Russian capital;
- c) the lack of a trade balance between the export of raw materials and imports of finished products.

The third approach is that the investment climate of various countries is assessed by independent rating agencies. A rating agency is a commercial organization that assesses the solvency of firms, government entities and states.

There are more than 100 rating agencies in the world. The most famous international rating agencies include Standard & Poor's (created in 1860), Moody's (in 1909), Fitch (in 1913). Their main task is to analyze the current situation in various countries in terms of their creditworthiness and investment attractiveness, as well as to assign them a certain sovereign rating. The rating assigned by them serves as a general indicator of the country's investment attractiveness for investors.

Let's look at the rating scale using the example of the leading rating agency Standard & Poor's [13] (Table 3.1).

Table 3.1 – **Rating scale of Standart&Poors**

Investment Grade	AAA	Exceptionally high ability to meet financial obligations
	AA	Very high ability to meet financial obligations
	A	High ability to fulfill financial obligations, but the issuer is, to a certain extent, subject to the influence of economic conditions and unfavorable factors
	BBB	Adequate ability to fulfill financial obligations, but the issuer is more exposed to the influence of unfavorable economic conditions
Speculative Grade	BB	Less vulnerable in the near-term but faces major ongoing uncertainties to adverse business, financial and economic conditions
	B	More vulnerable to adverse business, financial and economic conditions but currently has the capacity to meet financial commitments
	CCC	Currently vulnerable and dependent on favorable business, financial and economic conditions to meet financial commitments
	CC	Highly vulnerable; default has not yet occurred, but is expected to be a virtual certainty
	C	Currently highly vulnerable to non-payment, and ultimate recovery is expected to be lower than that of higher rated obligations
	D	Payment default on a financial commitment or breach of an imputed promise; also used when a bankruptcy petition has been filed

To determine the sovereign rating, Standard & Poor's analyzes the factors affecting the creditworthiness of the national government in nine main areas. Each government is rated on a scale of one (highest) to six (lowest) points for each category of analysis, compared to all other governments in the world (whether they are rated or not). The results are then aggregated into a single rating.

Standard & Poor's experts consider the following factors [13]:

1. *Political risks*: the form of government organization, the presence of political institutions, the degree of participation of the general public in governing the country, the orderliness of the procedure for the transfer of power, the degree of integration into the global trade and financial system, internal and external threats to national security.

2. *The structure of income of the population and the structural organization of the economy*: living conditions and income level of the population, distribution of social wealth, degree of market economy, availability of resources and degree of their diversification.

3. *Prospects for economic growth*: the volume and structure of savings and investment, the rate and nature of economic growth.

4. *Degree of Fiscal Policy Flexibility*: the results of the fiscal activities of the national government and the balance of the budget, the competitiveness of the tax system, the degree of flexibility in the field of increasing tax rates.

5. *The burden of public debt*: financial assets of the national government, public debt and interest payments on public debt, currency structure of public debt, government pension obligations, contingent liabilities of the banking system, corporations and other legal entities.

6. *Price stability*: trends in the development of price inflation, the growth rate of the money supply and the volume of emission financing of the state budget, exchange rate policy, the degree of independence of the central bank.

7. *Flexibility of the balance of payments*: the impact of fiscal and monetary policies on the state of external accounts, the structure of the current account, the structure of capital flows.

8. *External debt and liquidity*: the volume and currency structure of the external public debt, the volume of contingent liabilities assumed

by banks and other public and private entities under the state guarantee, the timing of payments to repay the public debt.

9. *Inflation rate*: the ratings correspond to the following inflation scale:

Rating	Percentage per annum
AAA	0-10%
AA	4-15%
A	7-25%
BBB	10-50%
BB	25-100%
B	50-200%

On the basis of quantitative and qualitative assessments of these factors, countries are assigned sovereign ratings. The highest rating "AAA" in national currency in 2022 is possessed by such countries as Australia, Canada, Denmark, Germany, Liechtenstein, Luxembourg, Netherlands, Norway, Singapore, Sweden, Switzerland. This means that these countries are characterized by long-term political stability, balanced monetary and fiscal policies and, therefore, relatively low inflation and a high degree of international economic integration.

### **Questions to unit 3**

1. Find the ranking for Russia and your home country.
2. Find out the level of inflation in Russia and in your home country.
3. What is the last innovation ranking level for Russia and your home country?
4. Main features of innovation process in different time periods?
5. What are the characteristics of different national models of innovative development?

## **Unit 4 AN INNOVATIVE COMPANY AS A SUBJECT OF A MARKET ECONOMY**

### **4.1 Innovative company: concept and essence**

**An innovative company** is a company that invests resources in research and development, which provides a qualitative increase in the efficiency of the production system or product quality, i.e. seriously increases the efficiency of the current system.

American magazine Forbes has published a rating of the 100 most innovative companies in the world [14]. In 2021 among the rating leaders there is one Russian company - Norilsk Nickel in the 100th place. The first three places are for companies engaged in the provision of enterprise cloud computing solutions.

But not all the top-100 innovative companies are hi-tech or online-trading companies. You can produce snack food and beverage products (#62 - Mondelez International), toothpaste, soups, automatic doors (#59 - Kone) or alcohol - and be a successful innovative company. Such innovative companies create new distribution channels, establish open communications between the company and consumers, leading to closer contacts and the emergence of emotional connections, create the most modern product that can surprise a consumer, use the most advanced technology to manufacture products, etc.

### **4.2 Organizational forms of innovation**

The innovation infrastructure includes such components as venture capital firms, business incubators, engineering centers (science and technology parks).

*Venture Firms* are risky small or medium-sized investment firms engaged in research, engineering development at the intersection of

research, development, innovation and production. By catching new ideas, a venture capital firm helps large companies to develop the newest directions of scientific and technological progress, often being subsidiaries of larger firms.

*Technopark (Science Park)* – it is a complex of organizations united by the goals of commercializing scientific and technical activities and accelerating and promoting innovations in the sphere of material production. The structural units of the technopark are research, innovation, marketing centers and an industrial zone. Distinctive features of the technopark are the complexity of independent institutions (scientific institutions, universities, intermediate enterprises, services), compact location and developed infrastructure.

The first technopark appeared in the early 50s at Stanford University (California, USA). Such well-known companies as Hewlett-Packard and Polaroid were established in the technopark. The results of the development of small enterprises of the technopark laid the foundation for the rapid development of the electronic industry in the region.

*Technopolis* is a district (city, part of a city, region), in which, on the basis of the combination of scientific, industrial and financial capital, firms are created that generate advanced production technologies, implement social and economic programs aimed at accelerated and harmonious socio-economic development of the region. In Russia, there are 13 technopolisies (Obninsk, Skolkovo, Innopolis, Dubna, etc.) The world-known technopolisies are Silicon Valley in California, USA, Shenzhen in China, Hamamatsu in Japan and others.

*Innovation and Technology Centers (ITC)* – is a support structure for established small innovative enterprises that have already passed the most difficult stage of creation. In terms of tasks to be solved, they largely overlap with technoparks. Unlike the latter, ITCs are designed to provide more stable ties between small business and industry, and



therefore should be created at enterprises or research and production complexes.

*Business incubator* – it is a structure that specializes in creating an enabling environment for the innovation of small innovative firms in order to grow new firms. Incubator firms are created to lease office space to newly organized companies for a low fee and provide them with a number of services on preferential terms, including the opportunity to consult with experts on management, technical, economic, commercial and legal issues.

*Technology transfer centers (TTC)* – the main task is to accelerate the commercialization of scientific and technical results, to ensure the creation of small innovative enterprises, including as part of technology parks and innovation and technology centers.

### **4.3 Innovative company development stages**

Innovation from the birth of an innovative idea to the entry into the market of an innovative product and its obsolescence goes through several stages. The risks of developing an innovation at different stages are different. This leads to the fact that the work is financed at each of the different stages by different investors. Therefore, sometimes the stages of development of an innovation are called stages of its financing (Table. 4.1).

Table 4.1 – **Company development stages**

Name	Description
Pre-seed	There is a business idea that the market and consumers need, but there is no clear idea of how it should be implemented technically, and how it should be developed to make it profitable, there is no business plan either.

*Продолжение табл. 4.1*

Seed	Company formation, you have a business idea, you start creating a management team, conduct R&D and begin the marketing research. The main purpose of the work is to substantiate the practical and commercial significance of an innovative idea, to create a laboratory sample of a product, technology or service. <b>Prototype</b> (creation of technical specifications and functional design) - <b>Working prototype</b> ( creation of a project or product with the most common functionality) - <b>Alpha version</b> (project or product has been created, but not yet tested) - <b>Private beta</b> ( project or product is already in a form close to what the founders of the startup see it, the project has the first few users) - <b>Public beta</b> (attracting new users begins, full-fledged contracts are signed with the first clients).
Start-up	The company is formed. It has a business plan, prototypes; serial production is being organized, and work is underway to bring products to the market.
Early stage, early growth	The production and commercial sale of finished products is underway. The company still lacks sustainable profits. At this stage, company comes to the "break-even point".
Expansion	The company's occupation of a certain position in the market, access to sustainable profitability, expansion of production and sales, additional marketing research, an increase in fixed assets and capital.
Intermediate stage (mezzanine)	Additional investments are attracted to improve the company's short-term performance, which entails a general increase in its capitalization. Company is invested by investors who expect a quick return on investment.

Exit stage	the stage of development of an innovative company, at which a public company is created, an investor's share is sold to another strategic investor, an initial public offering or a management buyout (an investor's share is acquired by the managers of the invested company at a price that suits the investor). Typically, the "exit" stage is the exit point for venture capitalists. Selling at the exit stage occurs at prices that are much higher than the initial investment, which allows investors to fix significant amounts of profits.
Pre-IPO stage	The stage of equity investment before the initial public offering of shares.
IPO (IPO - Initial Public Offering)	There is a high probability of a merger, acquisition or buy-out of a venture company by one of the strategic investors. But even if this does not happen, the venture company still ceases to be such, it is reorganized into an open joint-stock company, the status of the enterprise changes from high-risk to stable and growing.

The total duration of the cycle of an innovative company from "seed" to "exit" takes 5-10 years. According to statistics, in 91% of cases venture projects die in the "valley of death" (Fig. 4.1) due to the low level of business training of the team and weak management, and only in 9% of cases - due to errors in research and development. A venture capital company is created for a specific task, and after the completion of this work, it either disbands and ceases its activities, or is absorbed by a large company (often one of the founders), or independently, with a favorable commercial environment and the obvious competitiveness of the created product, enters the market and through the sale of a commercial development strengthens its financial position, creates its own production and organizes commercial operations based on refined

innovations. In this case, the former venture enterprise organizes the production of small batches of products, sells them profitably, fulfills its obligations to investors and, by selling licenses, helps out the necessary funds to expand its own production

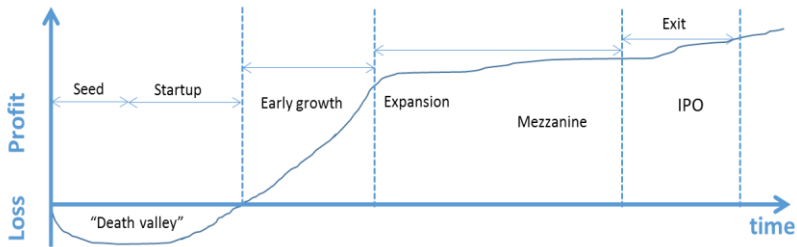


Figure 4.1 – Stages of innovation company development

#### 4.4 Social responsibility of innovative entrepreneurship

There are various definitions of social responsibility of business:

- ✓ an approach in which the company takes into account the interests of society, taking responsibility for the impact of its activities on customers, suppliers, employees, shareholders, local communities and other stakeholders, as well as on the environment. This obligation goes beyond the statutory obligation to comply with the law and implies that organizations voluntarily take additional measures to improve the quality of life of workers and their families, as well as the local community and society as a whole (for example, H&M, one of the leaders in retail, has been criticized many times for the pollution of the environment by the garment factories operating in Asia. For several years now, the company has been implementing a program for the recycling of unnecessary clothing and is trying to produce collections made in environmentally friendly ways.);
- ✓ responsible attitude of any company to its product or service, to consumers, employees, partners; active social position of the company,

which consists in harmonious coexistence, interaction and in constant dialogue with society, participation in solving the most pressing social problems (example - LEGO uses a lot of small plastic and is aware of the damage, so plans to invest \$ 150 million to develop eco-friendly plastic.);

✓ in a broad sense, it is the activity of corporations to minimize negative impacts on society; narrowly - it is the optimization of the relationship of the corporation with the employees working for it [15].

What these definitions have in common is that social responsibility refers to the company's willingness to build relationships and take into account the interests of stakeholders.

**Stakeholders** are groups of influence that exist inside or outside the company, which cannot be ignored when carrying out activities.

There are various classifications of stakeholders, among which the following can be distinguished. D. Newbould and D. Luffman classify stakeholders into four main categories:

- influence groups financing the enterprise (for example, shareholders);
- managers managing the enterprise;
- employees working at the enterprise;
- economic partners (buyers, suppliers, other economic entities interacting with the enterprise).

Although social responsibility does not bring direct material benefits, it can be considered an image project, a way to build reliable relationships with customers.

One of the examples is a Russian company that is a store of stones, gems, minerals, meteorites and fossils (Fig. 4.2). It implements several projects.

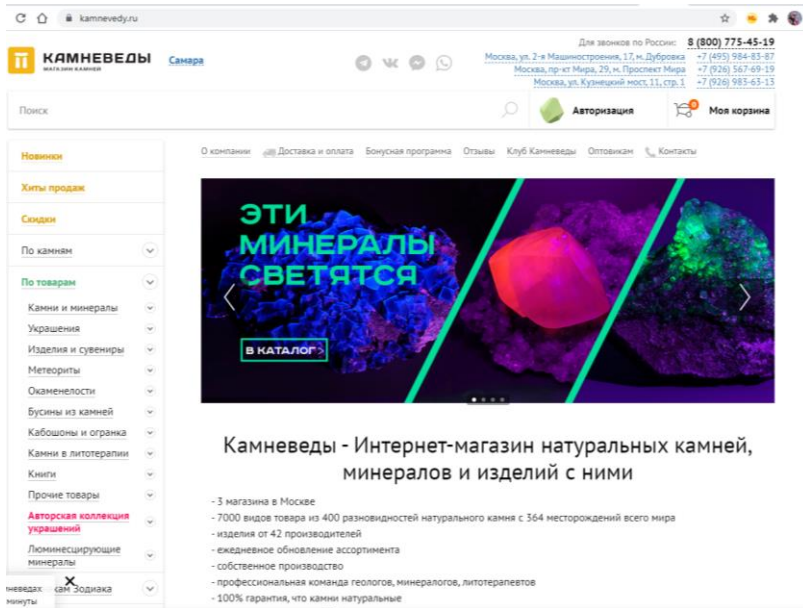


Figure 4.2 – Web-page of an innovative Russian company [16]

- Donate rare samples to museums

To sell them would be profitable. But since the business grew out of a hobby, one of goals of the company is to instill a love of geology. Thanks to the help of museums, they receive publications in the media, plaques indicating the donor directly in museums - and this is part of the PR program.

- Shot a short film "Stone Cutters of the Urals"

The company pursued an educational goal, but it turned out that the documentary increases audience loyalty: by it buyers judge them as a reliable and professional company.

- Sponsor school Olympiads in natural science

The company gives gifts to students who took from first to tenth place. They are cheaper than advertising, but they demonstrate much better the interest in studying nature, help to establish relationships with

the direct customers (thanks to certificates, students and their parents come to the store and get acquainted with the assortment).

#### **Questions to unit 4**

1. What innovative companies are there in your country?
2. What organizational forms can be for innovative companies?
3. What is a “valley of death” stage of a company development?
4. At what stage of development a company starts to receive profit?
5. Who are stakeholders of an innovative company?

# Chapter 2 Management of innovative entrepreneurship and its resources

## Unit 5 MARKETING OF INNOVATIVE ENTREPRENEURSHIP

### 5.1 Marketing Strategies

*The innovative goal of the organization* is the desired result of the activity based on the implemented innovation in a limited time and with limited resources. The basis of the organization of innovation is the structuring of the innovation goal in the form of a "tree of goals".

*Organizational innovation strategy* – it is a quantitative and qualitative determination of the results of development in the form of acquiring new qualities of activity, products of labor and the state of the organization.

In terms of the combination of "markets-goods" the following types of strategies (Table 5.1) are characteristic of innovative activity: leading; offensive; defensive; imitation.

Table 5.1 – Types of strategies

	New goods	Traditional goods
New market	Diversification strategy	Integration development strategy
Traditional market	Innovative strategy	Intensive development strategy

1. *Product development strategy or innovative strategy* is to increase the competitiveness of the organization by improving the product or creating a new product for existing consumers. Provides bridging



of the organization's accumulating technology gap. For example, the software corporation "Infor Global Solutions", as a result of the integration of the best functions of financial blocks of different systems, has created a new universal system - International Financial Management System. The corporation's turnover today is more than \$ 600 million. Currently, the corporation has about 19 thousand clients in 70 countries.

2. *Diversification strategy (portfolio strategy)* consists in the formation of economic zones as interactions of a number of competitive strategies by creating new products for new consumers. Provides a new quality of the innovative potential of the organization. This type of strategy is typical for the BMW corporation, which is expanding its model range, as a result of which in 2022 sales growth for the period January-February amounted to 7% compared to the previous year.

3. *Integration development strategy* (strategy of penetration into new markets) - combining the potentials of competitors in order to increase the competitiveness of each of them. At the same time, existing products are being promoted to new markets. Provides a dramatic increase in the innovative potential of the organization. For example, the total headcount of an integrated Texas Instruments company is several thousand people in India, France, Germany and the USA in 100 IT firms.

4. *Intensive development strategy* (market improvement strategy) - increasing competitiveness based on optimizing the internal structure and saving costs when selling existing goods to existing consumers. Provides a gradual build-up or stabilization of the innovative potential of the organization.

There can be also the following types of firms' strategies:

✓ Venture capital firms operate at the stages of growth and saturation of inventive activity and the still continuing, but already declin-

ing activity of scientific research. Venture capital firms, as a rule, are unprofitable, since they do not organize the production of products.

The specificity of risky entrepreneurship lies primarily in the fact that funds are provided on a non-repayable, interest-free basis. The resources transferred to the disposal of the venture capital firm are not subject to withdrawal during the entire term of the contract. The return on invested funds occurs at the time of the release of the company's securities on the open market.

✓ Exploring firms - specializing in creating new or transformation of old market segments. Their business is to promote innovations to the market. Exploring firms are called "pioneer". They operate in the maximum cycle of inventive activity and from the very beginning of production. Exploring firms, like venture capital firms, are small in size.

Exploring firms are ahead in introducing fundamental innovations. Examples of firms adhering to this strategy can be found among the pioneers in the production of personal computers (Apple, Zenith, Osborne), biotechnology (Gientech), and others.

✓ Patient firms. Patient firms target a narrow segment of the market and meet needs shaped by fashion, advertising and other media.

They address their expensive and high-quality goods to those who are not satisfied with ordinary products.

These firms are profitable. At the same time, there is a possibility of making the wrong decision, leading to a crisis. In such firms, it is advisable to have a permanent innovation manager to secure their activities. His main goal is to reduce the risk in the life of the company and create a comfortable working environment for employees.

✓ Violent firms operate in the area of large standard business. Violent firms are firms with a "power" strategy. They have a large capital, a high level of technology development. Violents are engaged in large-scale and mass production of products for a wide range of consumers

with "average demands" for quality and are satisfied with an average price level. Like patent firms, violets are profitable.

Violents include such giants as General Motors, Ford, AvtoVAZ - in the automotive industry, Siemens, Philips - in electrical engineering, Microsoft Corporation - in software development.

✓ Firms-commutators act at the stage of the fall of the production cycle. Their scientific and technical policy requires making decisions on the timely launch of products for production. They are medium and small businesses, focused on meeting local and national needs.

## 5.2 Business Models

A business model is a set of assumptions or hypotheses how to sell your product. According to management guru Peter Drucker, a business model is supposed to answer who your customer is, what value you can create or add for the customer and how you can do that at reasonable costs.

Business modeling often stands along with business planning, though these processes have huge differences (Table 5.2).

**Table 5.2 – Differences of Business modeling and business planning**

	<b>Business Model</b>	<b>Business Plan</b>
Initial deep knowledge	No need	Special knowledge is required
Focus	on insights of the business	on steps of strategic plan
Purpose	To show the source of profit	To form a plan how to achieve the strategic goals
Advantages	Easy and descriptive, shows the essence of the business	Reduces risks, used to attracts investors
Disadvantages	Just a draft with no steps of a plan	Complicated and large document

If there is an existing business on the market and a competitor wants to hold a share of that market with his own product or service, than he can find some info for approximate costs and revenues. That will let the company make a business plan. But if the company's product is brand new with no analogs, business plan is impossible in the launch period. Accuracy of planning will be low. In this case the company is in the start of its business way and can lack much info. That is the time for business model only.

A. Osterwailder's business model canvas is a nine building blocks table of a business on one page (Table 5.3).

Each of these nine components contain a series of hypotheses about a business model that a company needs to test.

It is an organized way to lay out assumptions about not only the key resources and key activities of a value chain, but also value proposition of the company, customer relationships, channels, customer segments, cost structures, and revenue streams — to see if nothing important is missing and to compare this model to others.

To choose the right business model, the first and the foremost element to be kept in mind is the customer. At a first glance the business model should be not profitable but adding value to the customer by keeping in mind their needs and understanding how they buy.

A value proposition is the promise of tangible benefits which a customer will receive from consuming or experiencing the offering.

The value proposition has basic idea of 'how are you solving the problem of the customers?' For example, Airbnb lets people share their unused property; Google makes the internet seem simple by using its algorithm to help people search what they want. Along with that, the business model should say how the customer will benefit from the offer while benefitting the company in terms of the profits. For example, Uber charges commission from the drivers for every customer that comes from its application. Airbnb too runs on a similar commission-based

model while Google uses the advertisement-based business model to make the web simpler.

Table 5.3 – Business model canvas

<u>KEY PART- NERS</u>	<u>KEY ACTIVI- TIES</u>	<u>VALUE PROPO- SITIONS</u>	<u>CUSTOMER RE- LATIONSHIPS</u>	<u>CUSTOM- ER SEG- MENTS</u>
Who are our key partners? Who are our key suppliers? Which key resources are acquiring from our partners? Which key activities do partners perform?	What key activities do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?  <u>KEY RE- SOURCES</u> What key resources do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?	What value do we deliver to the customer? Which one of our customers' problems are we helping to solve? What bundles of products and services are we offering to each segment? Which customer needs are we satisfying? What is the minimum viable product?	How do we get, keep, and grow customers? Which customer relationships have we established? How are they integrated with the rest of our business model? How costly are they?  <u>CHANNELS</u> Through which channels do our customer segments want to be reached? How do other companies reach them now? Which ones work best? Which ones are most cost-efficient?	For whom are we creating value? Who are our most important customers? What are the customer archetypes?
<u>COST STRUCTURE</u> What are the most important costs inherent to our business model? Which key resources are most expensive? Which key activities are most expensive?		<u>REVENUE STREAMS</u> For what value are our customers really willing to pay? For what do they currently pay? What is the revenue model? What are the pricing tactics?		

### 5.2.1. Examples of Business Models

#### **Manufacturer**

A manufacturer makes finished products from raw materials. It may sell directly to the customers or sell it to another business that sells it finally to the customer. Examples – Ford, General Electric.

#### **Distributor**

A distributor buys products from manufacturers and resells them to the retailers or the public. Examples – auto dealerships.

#### **Franchise**

A franchise can be a manufacturer, distributor or retailer. Instead of creating a new product, the franchisee uses the parent business's model and brand while paying royalties to it. Examples – McDonald's, Pizza Hut.

#### **High Touch**

The High Touch is the model which requires lots of human interaction. The relationship between the salesperson and the customer has a huge impact on the overall revenues of the company. The companies operate on trust and credibility. Examples – hair salons, consulting firms.

#### **Low Touch**

The opposite of the High Touch model, the low touch model requires minimal human assistance or intervention in selling a product or service. Such companies focus on improving technology to further reduce human intervention while making the customer experience better at the same time. Examples – Ikea, SurveyMonkey.

#### **Retailer**

A retailer sells directly to the public after purchasing the products from a distributor or wholesaler. Examples – Amazon, Tesco.

#### **Crowdsourcing**

Crowdsourcing business model involves the users to contribute to the value provided. This business model is often combined with other

business and revenue models to create an ultimate solution for the user and to earn money. Examples of businesses using the crowdsourcing business model are Wikipedia, reCAPTCHA, Duolingo, YouTube.

### **Brick-And-Mortar**

Brick-and-mortar is a business model where the retailers, wholesalers, and manufacturers deal with the customers face-to-face in an office, or a store that the business owns or rents.

### **E-commerce**

E-Commerce business model is an upgradation of the traditional brick-and-mortar business model. It focuses on selling products by creating a web-store on the internet. This model gives flexibility to the business since it is present online for customers who live in areas where they do not have brick-and-mortar stores.

### **Bricks-And-Clicks**

A company that has both an online and offline presence allows customers to pick up products from the physical stores while they can place the order online.

### **Freemium**

This is one of the most common business models on the Internet. Companies offer basic services to the customers for free while charging premium account. Generally, the basic service comes with certain restrictions or limitations, such as in-app advertisements or storage restrictions, which the premium plans shall not have. Youtube's free plan comes with ads while the premium plan has no ad interruption plus it has other benefits too. This model is one of the most adopted models for online companies because it is not only a great marketing tool but also a cost-effective way to scale up and attract new users.

### **Subscription**

If customer acquisition costs are high, this business model might be the most suitable option. The subscription business model keeps customers over a long-term contract and the company gets recurring reve-

nues from them through repeat purchases. Examples – Netflix, Dollar Shave Club.

### **Advertisement**

Advertisement business models are evolving even more with the rise of the demand for free products and services on the internet. These business models are popular with media publishers like Youtube, Forbes and social networks where the information is provided for free but is accompanied with advertisements which are paid for by identified sponsors.

### **Razor And Blades**

Razor and blade model is used by companies which deal in complementary or companion products (like razors and blades). It involves selling the high-margin root product at a low price to increase the volume sales of the complementary or related low-margin product.

By using this model, businesses create a stream of recurring income over the life of the root product. Examples are Nespresso, Printers and ink, Gillette

Of course, most companies do not operate on just one of these business models but rather on a combination of two or more models. What business model you choose depends on your business needs and what value you want to create for your stakeholders.

#### 5.2.2 Transformation of business models in 2020-21

Any business sector can be regarded vulnerable to crisis. In 2020-2021 the list of such sectors that were forced to re-build their business models contained education, fitness (equipment for rent, spa cosmetics for sale), music and other events (appeared personal musical congratulations by professional musicians), air companies (selling sky food for those who stopped flying).



Due to pandemic clients disappeared from taxis in 2020. At the same time the need to pass something to friends/relatives/colleagues appeared because people were staying at home due to prohibition in some regions or a fear to go outside. Alongside, e-commerce became popular and e-shops encountered the need of couriers.

Taxi companies shifted their businesses into courier and delivery business along with taxi. Also, they got into partnerships with aggregators. As a result, number of clients was recovered. By the time when the life started to get back, these companies had a widened business sphere and higher revenue.

What happened to their business models? First of all, customer segments were widened from single clients to e-shops. Channels remained the same. Value propositions changed: now the new products appear to address other needs.

Crisis appears each several years, it is normal because the economy is cyclical. Each crisis gives a great start to some companies to become the world famous and profitable. Here are examples (Fig. 5.1).

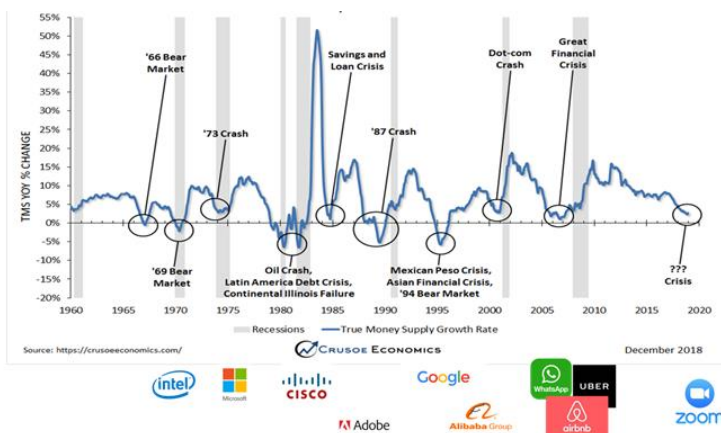


Figure 5.1 – Timeline of world’s crises [17]

Businessmen consider crisis as the opportunity for new business models, for new developments. Now there are new companies that are becoming very popular.

### **Questions to unit 5**

1. What are 4 basic types of companies' strategies?
2. What are patient and violent firms, what do they have in common?
3. What are the differences of business models and business plans?
4. How many blocks does business model canvas have?
5. What value propositions questions should an entrepreneur ask to build a successful business model?
6. Provide at least 5 examples of different business models.

# Unit 6 PRICING POLICY OF AN INNOVATIVE PRODUCT

## 6.1 Forecasting when developing innovative programs

The process of forecasting economic indicators based on statistical methods includes two stages:

1. Generalization of data for a period of time and presentation of statistical patterns in the form of a model.
2. Determination of the expected values of the predicted value.

### *Time series of economic indicators*

Time series are sequences of indicators taken at a sequence of equal time intervals.

Time series have four components:

1. Trend (T) – direction (tendency) of changes in indicators for a period, a deterministic component that depends only on time.
2. Seasonality (S) – a data model that repeats at regular intervals (weeks, months, quarters).
3. Cycle (C) – data model repeating after a certain number of years.
4. Random variations (R) – fluctuations that do not affect the model.

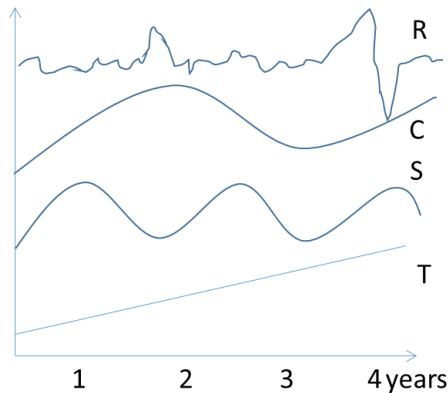


Figure 6.1 – Additive predictive model

The predicted value is considered either as the product of the components (multiplicative model):

$$P = T * S * C * R,$$

or as a sum of components - an additive model (Fig. 6.1):

$$P = T + S + C + R.$$

The additive model is used more often.

The forecasting procedure includes:

- 1) selection of forecasting objects,
- 2) determination of prediction time intervals,
- 3) selection and justification of the forecasting model,
- 4) collection of data necessary to form a forecast,
- 5) forecasting,
- 6) control of results.

To forecast, MS Excel suggests to use trend line which can be built as linear function, exponential function, logarithmic function or power function (Fig. 6.2).

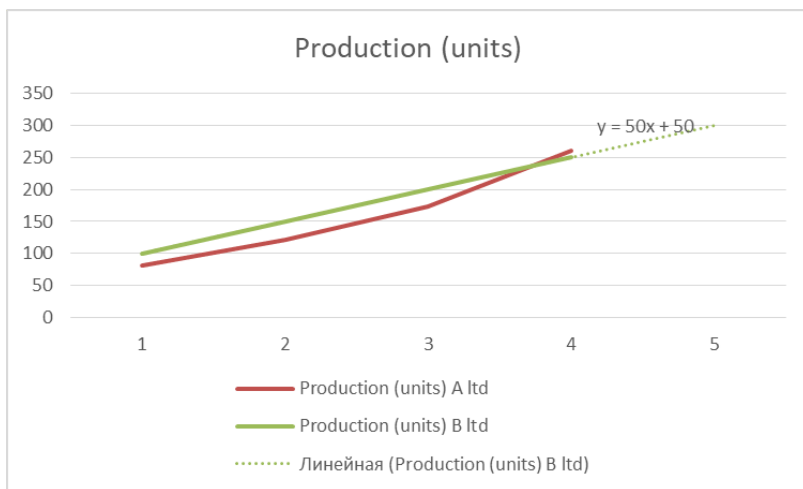


Figure 6.2 – Example of trend line with the formula in Excel

## 6.2 Statistical analysis of demand under uncertainty

Based on sales prospects, innovative products can be subdivided into two types: 1) consumer products; 2) items used in narrow fields of activity, mainly by specialists. Planning the volume of sales of products consumed in narrow areas of activity is carried out only on the basis of previously concluded contracts.

The demand for consumer products is a function of a large number of mutually independent factors: demographic environment (changes in the birth rate, population migration, etc.); social shifts (improvement of educational level, growth of employees, etc.); economic environment (inflation, unemployment, etc.); natural environment (shortage of raw materials, rise in energy prices); scientific and technological progress, etc. With the normal distribution of demand, which is the most common, the risk of planning errors for the assortment of a new type of product is much lower than with other known distribution laws, since the normal distribution corresponds to a slight scatter (variance) of demand values relative to the mean (mathematical expectation).

Statistical characteristics of demand are determined by a number of units  $Q_1, Q_2, \dots, Q_n$ ; where  $Q_i$  is the sales volume of  $n$  firms selling identical (homogeneous) products.

To estimate the distribution density function based on such sample and to build a histogram of frequencies the following steps are done:

- 1) the interval  $(Q_i^{min}, Q_i^{max})$  is divided into sections of length  $s$ ;
- 2) the number of firms  $v_i$  with sales volumes inside the section  $s_i$  is calculated;
- 3) the heights  $h$  of the rectangles of the histogram are calculated:

$$h_i = \frac{v_i}{s_i n}.$$

Based on the sample, the values of the mean (mathematical expectation) and standard deviation  $\sigma$  (square root of the variance) are calculated.

$$Q_{mean} = \frac{1}{n} \sum_{i=1}^n Q_i,$$

$$\sigma = \sqrt{\frac{1}{n} \sum_{i=1}^n (Q_i - Q_{mean})^2}.$$

Based on the results of statistical analysis, the following conclusions are drawn:

the average value shows the average demand for products similar to those planned for development;

standard deviation determines the average risk, that is, the probable deviation of demand.

The planned value of the sales volume, taking into account the risk, is equal to:  $Q = Q_{mean} - \sigma$ .

### **Questions to unit 6**

1. What is trend line and what kind of trend lines can be used for forecasting in Excel?
2. What values are used for statistical analysis and forecasting of product demand?

# Unit 7 SOURCES OF FINANCING FOR INNOVATIVE ACTIVITIES

## 7.1 Types of financial sources

Sources of financing for investment projects can be internal and external.

Internal financing (self-financing) is provided at the expense of the investor's own funds. Self-financing can only be used for small investment projects. Capital-intensive investment projects are usually financed from not only internal but also external sources.

External financing is the use of external sources. It is carried out by mobilizing attracted (equity financing) and borrowed (credit financing) funds.

In the practice of enterprises, the following sources of financing for investment projects are used [18]:

### *Internal sources*

**1. Self-financing**, i.e. investment only at the expense of own funds:

- profit,
- depreciation deductions,
- amounts paid by insurance organizations in the form of compensation for losses in insured events,
- other types of assets (fixed assets, land plots, etc.).

**2. Shareholding**, as well as other forms of equity financing (share and other contributions to the authorized capital) has the following forms:

- a) additional issue of shares of an operating company, which is a joint-stock company by its organizational and legal form;
- b) for companies of other organizational and legal forms - investment contributions, deposits, shares of founders or invited third-party co-founders in the authorized capital;

c) the creation of a new enterprise designed specifically for the implementation of an investment project.

### *External sources*

**3. Project financing** is a special method of ensuring the return on investments, which is based on the cash income generated by the investment project. A project company is created specifically for the project, which is responsible for its implementation. It is the use of a project company that is the main distinguishing feature of this type of financing. Responsibility and risks are distributed among the project participants and are regulated by a set of contracts and agreements.

**4. Leasing** is a complex of property relations arising from the transfer of a leased object (movable and immovable property) for temporary use on the basis of its acquisition and long-term lease. Leasing is a type of investment activity in which the lessor, under a financial lease agreement, undertakes to acquire property from a certain seller and provide it to the lessee for a fee for temporary use (Fig. 7.1).

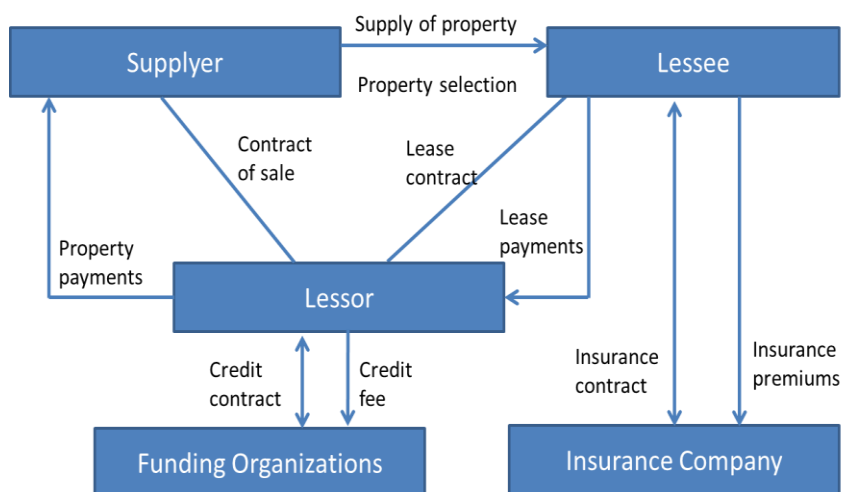


Figure 7.1 – Scheme of the leasing transaction



**5. Credit financing** (investment loans from banks, bond issue). Investment loans are usually medium and long term. The term for attracting an investment loan is comparable to the timing of the investment project. At the same time, an investment loan may provide for a grace period, i.e. period of deferral of principal repayment.

**6. Budget financing** is receiving funds free of charge or on preferential terms from special funds (entrepreneurship support fund, off-budget funds) or budgets of various levels (federal, local, etc.)

Budget funding is carried out on a competitive basis within the framework of targeted programs. The provision of state budgetary investments to legal entities that are not state unitary enterprises entails the emergence of state ownership of a share in the authorized capital of this legal entity.

**7. Forfaiting** is a commercial loan with bank guarantees. The buyer (investor) who, at the time of the conclusion of the contract, does not have the necessary amount of financial resources to pay for the acquired large object of the transaction, issues to the seller a set of bills, the total value of which is equal to the value of the object being sold, taking into account interest for deferred payment, i.e. for a commercial loan.

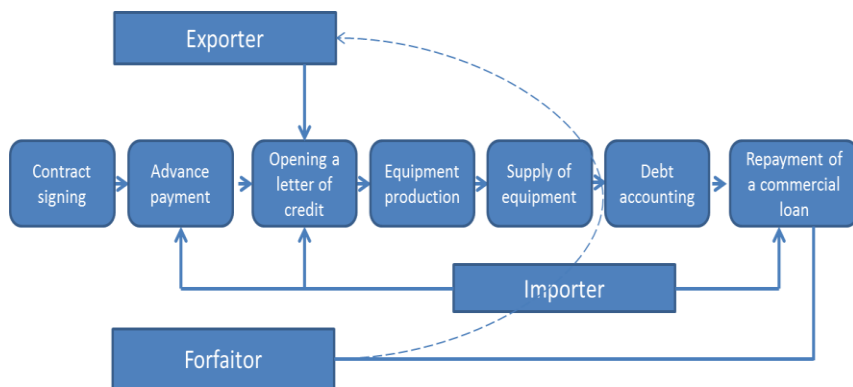


Figure 7.2 – Scheme of the forfaiting transaction

A transaction is a specific form of lending to trade transactions. The main condition for forfeiting is that all risks under the debt obligation are transferred to the forfactor without the right to turnover to the seller's obligations (Fig. 7.2).

**8. Mortgage** — type of pledge of real estate (land, enterprises, structures, buildings and other objects directly related to land) for the purpose of obtaining a cash loan. In this case, the owner of the property obtains a loan from the mortgagee. And the object of the pledge acts as a security for the repayment of the debt (Fig. 7.3).

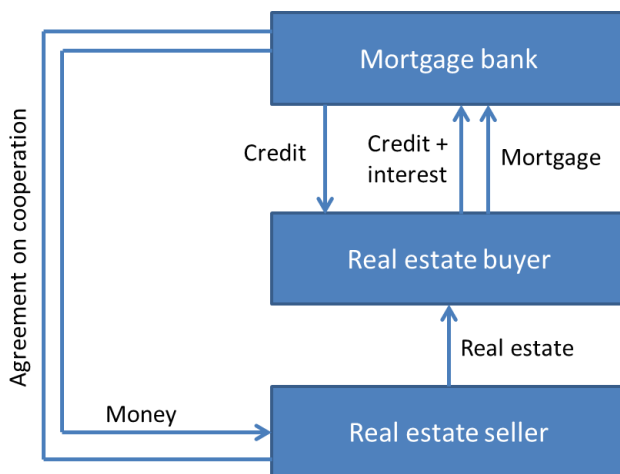


Figure 7.3 – Scheme of the mortgage transaction

**9. Factoring** is the purchase by a factoring company or a bank of the supplier's monetary claims against the buyer for a certain fee. In other words, factoring is a complex of intermediary services for advancing accounts receivable, credit risk insurance, legal, accounting and consulting support of a client on a contractual basis for a fixed fee. [19].

The company enters into an agreement for the provision of factoring services with a financial agent - factor (from the English factor - agent, intermediary). According to such an agreement, the supplier

(seller) sells the goods, but does not receive payment for it from the buyer, but cedes to the financial agent the right to demand it from the buyer. In this case, the supplier is not responsible for the agent's receipt of money from the buyer.

Typically, factoring operations are carried out according to the following scheme (Fig. 7.4).

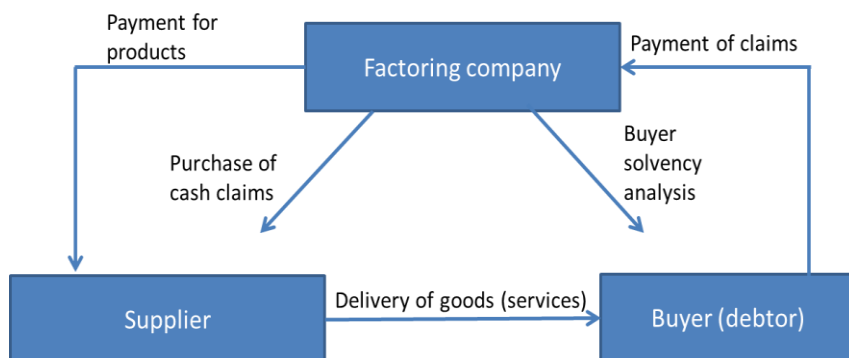


Figure 7.4 – Scheme of the factoring transaction

## 7.2 Types of investors

If we consider investing not from the side of the investment object, but from the side of the subject who is interested in investing his capital, the following types of investors can be distinguished [19]:

1. Serial entrepreneurs. Earn the capital needed for a new business on other projects. Most often they invest in "startups" (a completely new project, a new enterprise), neglecting the assessment of the economic efficiency of a new project.

2. Strategic investors. Invest their funds in projects at an early stage of their implementation, gaining control over the new venture.

3. Venture funds. Such investors analyze the risks and the expected profitability of the project, make small contributions to several different projects. Thus, venture capital funds expect to recoup all their

investments from at least one profitable project.

4. Business angels. These are private investors who invest their funds at the earliest stages of a new project in exchange for a return on investment and a share in the capital of the enterprise (10-20%).

From the point of view of collective investors, there are two groups in the investment process:

1. Sellers and buyers of investment goods;
2. Investment intermediaries (collective investors).

Collective investment is an investment in which individual small investors, in order to make a profit, transfer funds under professional management to an investment intermediary (collective investor).

The main types of investment and financial intermediaries are shown in the figure 7.5

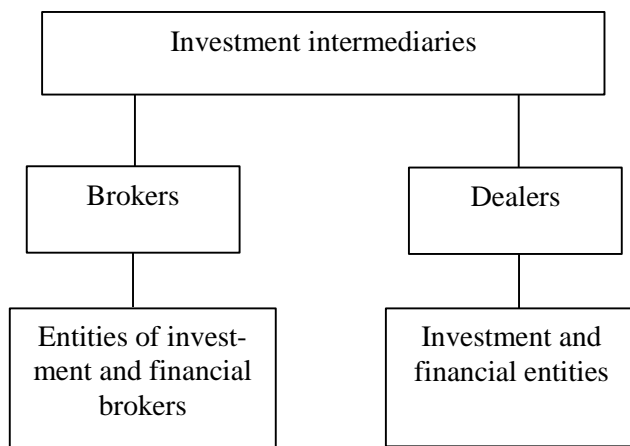


Figure 7.5 – Main types of investment intermediaries

Investment and financial intermediaries engaged exclusively in brokerage activities:

- commodity brokers;
- financial brokers;
- foreign exchange brokers.

Their main function is to assist sellers and buyers of investment goods and services in the investment market.

The main function of investment and financial intermediaries engaged in dealer activities is the purchase, sale of investment goods and instruments on their own behalf and at their own expense in order to profit from the difference in prices.

Factors of the attractiveness of collective investments over individual ones [20] are as follows:

1. Risk reduction. With collective investment, the funds of individual investors are invested in various assets - more profitable risky and less profitable and less risky. This diversification averages investment risks and increases profits.

2. Reducing costs. Making a deal for a small investor is, as a rule, more expensive than for a collective investor who sells or buys a large number of securities at once. This is due to savings on the investor's fixed costs, as well as the fact that the larger the package of securities, the more favorable the prices.

3. Professional management. When investing in an investment fund, an investor expects that his funds will be managed by experienced people who have the necessary knowledge, time and motivation to get the maximum return on investment.

4. Regulation. In world practice, it is believed that the contributions of collective investors mobilize the accumulations of the population, which contributes to a greater money turnover and, as a consequence, the strengthening of the country's economy. In this regard, in developed countries, there are tax incentives for collective investors: tax-free entry and tax-free exit when receiving their profits. Currently there are no such tax benefits in Russia.

All investors can be divided into types of risk attitude as shown in figure 7.6.

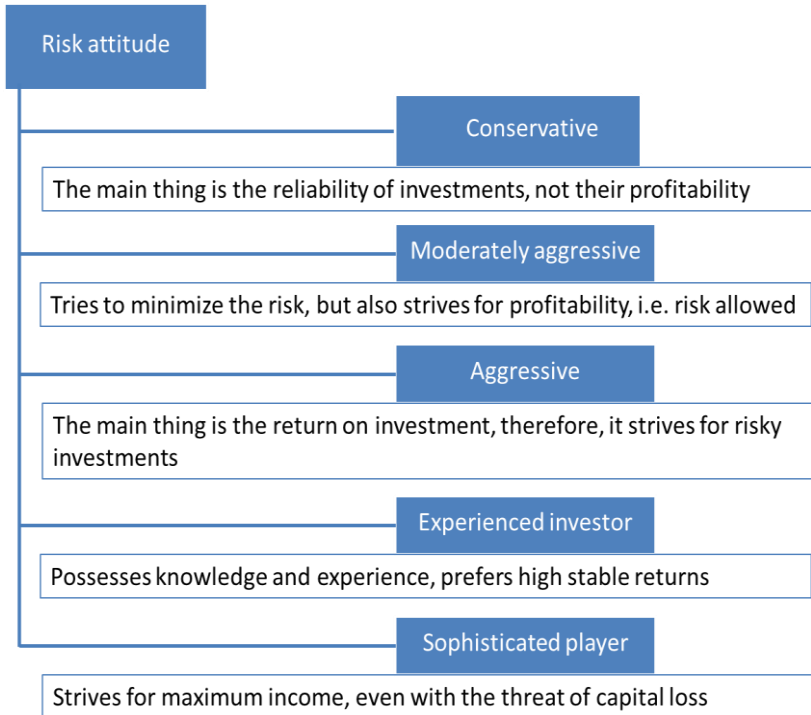


Figure 7.6 – Types of investors by risk attitude

### Questions to unit 7

1. What is internal financing of investments?
2. What are external sources of investments financing?
3. Who are the parties in a leasing contract?
4. Name 4 types of investors.
5. What are the kinds of investors according to their attitude to risk?

## Conclusion

From this tutorial you learned that the concept of entrepreneurship appeared in the 18th century, and became firmly established in the middle of the 20th century. An innovator is not always the one who creates and immediately applies novelty. There are 4 types of innovators: those who generate scientific and technical knowledge, the first to innovate in production, the first to master the innovation and those lagging behind with innovations and receive part of the profit from production. Modern practicing entrepreneurs like Steve Tobak confirm that innovation is often far more evolutionary than revolution, more practical and crafty than breakthrough invention.

According to a concept of Kondratieff Waves, a new wave of raise in innovation has begun in 2005 and can last till 2045-2065.

For a successful business there must exist the following conditions: legal, social, and economic. The entrepreneur creates a legal entity, with certain formal features.

In different countries and continents there are different approaches to national innovation system. Thus, conditions are different too. For example, in Euro-Atlantic model there is a complete innovation cycle - from the emergence of an innovative idea to the mass production of a finished product. In East Asian model there is no stage of formation of fundamental ideas. The most progressive type of national innovation system is considered to be the “triple helix” model which implies cooperation of state, science and business. There are also countries of “alternative model” that focus in their innovation policy on training personnel in the spheres of economics, finance, management, sociology and labor psychology, as well as on the development of certain branches of light industry, creative industry and recreation. There are innovator-countries’ rankings like Global Innovation Index that rank countries according to the level of creating and applying of innovations by their companies.

Along with innovator-countries' rankings, there are innovation attractiveness ranking by rating agencies like S&P, Mody's and Fitch. They give Investment or Speculative Grades to countries, cities and companies according to specific criteria like political risks, price stability, inflation rate and others.

An innovation company can be of the following organizational forms: venture company, technopark, technopolis, innovation and technology center, business incubator, technology transfer centers or others. Whatever the organizational form, an innovative company passes specific development stages from pre-seed to Initial Public Offering stage or closes in any stage in-between.

Success of a company and its life until the final stage are pre-determined by many factors like marketing, price policy strategies and choosing a right business model. Choosing a source of financing is also an important part of an entrepreneur's work.

Thus, innovative entrepreneurship is hard but as statistics and history show, success is achieved by many entrepreneurs who are passionate and use innovations in their entrepreneur activity.



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*Учебное издание*

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*Учебное пособие*

Редактор И. П. Ведмидская  
Компьютерная верстка И. П. Ведмидской

Подписано в печать 14.06.2022. Формат 60×84 1/16.  
Бумага офсетная. Печ. л. 4,25.  
Тираж 25 экз. Заказ . Арт. – 19(Р1У)/2022.

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ  
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ  
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УНИВЕРСИТЕТ ИМЕНИ АКАДЕМИКА С.П. КОРОЛЕВА»  
(САМАРСКИЙ УНИВЕРСИТЕТ)  
443086, САМАРА, МОСКОВСКОЕ ШОССЕ, 34.

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Издательство Самарского университета.  
443086, Самара, Московское шоссе, 34.