**Ministry of Education and Science of Ukraine**

**Ukrainian-American Concordia University**

***Department of International Economic Relations, Business & Management***

Bachelor's Qualification Work

# “Influence of modern innovative technologies on the global economy” (on the basis of LLC «OVZ «VAGAR»)

Bachelor’s degree student of

Field of Study 29 – International Relations

Specialty 292 – International Economic Relations

Educational program – International Business

**Daryna Naumenko**

(*First Name, Last Name)*

_____

*(signature)*

Research supervisor

**Natalia Chaplynska**

Doctor of Philosophy

_____

*(signature)*

Kyiv – 2022

Abstract:
In the current conditions of international business, only the active use of the results of innovation can become a significant catalyst for economic growth and significantly increase the level of the country's competitiveness. Scientific and technological progress, as the most important factor in economic development, is associated with the concept of the innovation process. It is a kind of one-of-a-kind process that integrates science, technology, economics, entrepreneurship and management. It consists in obtaining an innovation and lasts from the conception of an idea to its commercial implementation. In modern conditions, innovations are the most important element in improving the efficiency of organizations and the country's transition to a post-industrial development path. In this work, we will study the theoretical aspects and problems of introducing innovative processes. On a specific example, we will see how the introduction of innovations helps to make the organization's activities more efficient. We will also consider how innovative processes help the economy recover in post-pandemic times.
Keywords: innovations, innovative systems, digital technologies, efficiency, innovation policy.

У сучасних умовах ведення міжнародного бізнесу лише активне використання результатів інноваційної діяльності може стати значним каталізатором економічного зростання та значно підвищити рівень конкурентоспроможності країни. Науково-технічний прогрес, як найважливішого чинника економічного розвитку, пов'язують із поняттям інноваційного процесу. Це свого роду єдиний у своєму роді процес, що поєднує науку, техніку, економіку, підприємництво та управління. Він полягає у отриманні інновації та триває від зародження ідеї до її комерційної реалізації. У сучасних умовах інновації є найважливішим елементом підвищення ефективності діяльності організацій та переходу країни на постіндустріальний шлях розвитку. У цій роботі вивчимо теоретичні аспекти та проблеми впровадження інноваційних процесів. На конкретному прикладі подивимося як використання інновацій допомагає зробити діяльність організації більш ефективною. А також розглянемо як інноваційні процеси допомагають відновитися економіці в пост-пандемічний час.
Ключові слова: інновації, інноваційні системи, цифрові технології, ефективність, інноваційна політика

**PHEE-institute «Ukrainian-American Concordia University»**

**Faculty of management and business**
**Department of international economic relations, business and management**

Educational level: **bachelor degree**
Specialty: 292 "International Economic Relations"
Educational Program "International Business"

**APPROVED**
**Head of Department _____**

_____
"____" _____202___

# TASK
## FOR BACHELOR'S QUALIFICATION WORK

_____ **Daryna Naumenko**_____
(Name, Surname )

Topic of the work **"Influence of modern innovative technologies on the global economy" (on the basis of LLC «OVZ «VAGAR»)**

Supervisor of the work *N. Chaplynska, Ph.D. in Economics, Associate Professor*,
Which approved by Order of University from *"22" December 2022 №22-12/2022- 1c*
2. Deadline for bachelor's qualification work submission "*19" May 2022*
3. Data-out to the bachelor's qualification work *materials received during the internship and consultations with the representatives of LLC «OVZ «VAGAR».*

4. Contents of the explanatory note (list of issues to be developed) *There are 7 main tasks which are covered at the work. They include describing concept and types of innovation, provide analysing of effectiveness of the innovations, and also ke forces of innovative modern technologies, to characterize an economic activity of "VAGAR" company, analysi its foreign economic activity, and to propose progressive directions for innovations.*

5. List of graphic material (with exact indication of any mandatory drawings)
*Figures: "* The 6 stages of innovation process*"; "*Kondratieff Waves of Innovation",
*Tables:* Profitability indicators of LLC OVZ «VAGAR» for 2018–2020, Share (%) by the statute of limitations of receivables for 5 years

6. Consultants for parts of the work

| Part of the project | Surname, name, position | Signature, date | |
|---|---|---|---|
| | | Given | Accepted |
| **1** | Chaplynska N.M. | + | + |
| **2** | Chaplynska N.M. | + | + |
| **3** | Chaplynska N.M. | + | + |

7. Date of issue of the assignment

Time Schedule

| № | The title of the parts of the bachelor's qualification work | Deadlines | Notes |
|---|---|---|---|
| 1. | I chapter | *14.02-13.03.2022* | In time |
| 2. | II chapter | *14.03-10.04.2022* | In time |
| 3. | III chapter | *11.04-24.04.2022* | In time |
| 4. | Introduction, conclusions, summary | *25.04 – 01.05.2022* | In time |
| 5. | Pre-defense | *08.06.2022* | In time |

Student _____
(signature)

Supervisor 

Conclusions: *The bachelor's qualification work was designed according to the requirement of guidelines, commission, and high school for such type of scientific papers. It contains all necessary chapters and subchapters, describes information in details on the theoretical and practical side, and gives concrete recommendations for the development of innovation networks. The theoretical part includes a deep analysis of scientific research and has a lot of figures and tables with explanations. Conclusion and proposals formulated correctly; all tasks were described. In total, the work can be recommended to the viva with the good grade.*

**Supervisor**  NATALIA Chaplynska

# CONTENT

# INTRODUCTION

In the 20th century, the acceleration of scientific and technological progress has changed human life. Each new invention or discovery brings serious changes not only to the life of people, but also to their consciousness. One of the most important factors in the development of the modern world is innovation, and a sign of society is the willingness to accept new experience, openness to social change. Any organization, no matter how successfully it functions, should be aimed at the development of new technologies that allow the production of new types of products of higher quality and at the lowest cost, otherwise it will find itself in a crisis situation. In other words, it needs a competent innovation policy.

The importance of the innovation process in modern conditions cannot be overstated. Without innovations in various sectors of the economy, it is difficult to talk about the country's economic security. All countries should pursue policies that encourage innovation, access and the development of skills. Innovations act as a means of solving the production and economic problems of the organization. They cause significant processes of transition of the economic system from one state to another, during which the changes initiated by the organization and controlled by it are carried out. The interaction of economic interests is manifested in the technical, economic and social results of innovations.

First, innovations in the period of their mass development serve as fulcrum in increasing the efficiency of production, the economy, resources, reducing the cost of products, and increasing their profitability.

Secondly, the assortment of manufactured products is significantly updated and expanded its technical level and quality. Innovations are the starting point for the creation of new use values that satisfy previously unknown production and personal needs. For

example, the cycle of innovations associated with space exploration has led to the creation of new devices, materials, communication technology, and so on.

Thirdly, innovations are characterized by significant social consequences. In principle, the introduction of the achievements of science and technology into production, contributing to an increase in labor productivity, expanding and improving the range of products, is aimed at meeting the growing needs of a person, facilitating work, reducing working time and increasing effectiveness.

Today, it is possible to solve the problem of industrial growth and increase the output of competitive products, through the use of advanced scientific technologies, the introduction of new equipment and technologies. The decisive role of innovation in the economy entails the need to evaluate the effectiveness and profitability of research and development, research for various parameters that determine this efficiency. Based on the foregoing, we can conclude that the issue of researching innovations and the effectiveness of their use today is quite relevant.

Innovative enterprise management in its content represents a unique field of activity: knowledge from the fields of technology, economics and ecology, social psychology and sociology, fundamental and applied sciences, theory and practice, production and management, strategy and tactics are used and interacted with. Development itself becomes possible thanks to the genius of human thought, the accumulation of capital and high-quality productive labor. But this development, being aimed at the benefit of man, enriches labor and human thought, expands the possibilities of capital accumulation due to the increase in labor productivity and quality, and thus creates conditions for a new stage of development, ensuring its continuity.

The innovation process is presented, as the content of the socio-economic development of society, determined by objective laws.

From a microeconomic point of view, new technologies are a tool by which firms maintain their competitive position in the market by saving on costs and differentiating

their products. The development and implementation of innovative technologies and techniques is, in fact, the only effective way to retain or capture market positions.

Identification of the patterns of scientific and technological improvement of production in the conditions of the formation of a market economy and the development of new principles that ensure the purposefulness of development is the relevance of this course work. Schumpeter and Kondratiev were the first to work on this topic. Schumpeter was the first to define the concept of innovation in his work. Further, Kondratiev studied and explained the waves of innovation and how exactly they influenced the development of the economy and the everyday life of ordinary people.

Identification of the patterns of scientific and technological improvement of production in the conditions of the formation of a market economy and the development of new principles that ensure the purposefulness of development is the relevance of this course work.

The **aim** of this paper is to analyze the influence of modern innovative technologies on the global economy development, to show structural changes in the economy caused by its digitalization, associated with the development of service integration.

The **tasks** of this course work are:

- to study of the concept and types of innovation;
- to study of the effectiveness of the application of innovations;
- to analyze key forces of innovative modern technologies
- to characterize an economic activity of “VAGAR” company
- to analyze foreign economic activity and competitiveness of “VAGAR” company
- to match relations between development of innovative technologies and post-COVID economic recovery
- to propose progressive directions for innovation policy development

The **object** of research is “VAGAR” company and innovation technologies there.

While the **subject** of research is the process of introducing innovative activities and analyzing the role of new technologies in the current company, modern economy and their impact on it. In my paper, I would like to consider new technologies, identify their significance in the economy, and consider the main problems. Consider in detail the goals of the study on the example of different countries with their problems and prospects. The methodological basis for this work is comprised of journal and book articles, internet publications, and personal data analysis and calculations.

Bachelor thesis consists of an introduction, 3 chapters, conclusion, list of references and two annexs. Work is carried out on 9 sheets, containing 4 tables, 3 formulas and 3 figures. References include 78 literature sources.

# CHAPTER I. THE FUNDAMENTAL PRINCIPLES AND ESSENCE OF INNOVATIVE TECHNOLOGIES IN THE WORLD ECONOMY

## 1.1. Basic concepts and essence of innovative technologies

The term and concept of «innovation» as a new economic category was introduced into scientific circulation by the Austrian scientist Joseph Alois Schumpeter in the first decade of the twentieth century. He put forward the theory of effective competition, which depicts the market mechanism in the era of "big business" as a fruitful interaction of the forces of monopoly and competition, based on innovation [70]. Every organization must develop and improve its products or services. Otherwise, it will not have a competitive advantage, which will lead to the loss of sales markets. For this reason, the organization is constantly on the lookout for new ideas that can be commercialized. The innovation process is the preparation and implementation of innovative changes and consists of interrelated phases that form a single whole. As a result of this process, an implemented, used change appears - an innovation.

In accordance with international standards, innovation is defined as the end result of innovative activity, embodied in the form of a new or improved product introduced to the market, a new or improved technological process used in practice, or in a new approach to social services. The terms «innovation» and «innovation process» are close, but not unequivocal. The innovation process is associated with the creation, development and dissemination of innovations. The innovators are guided by criteria such as product life cycle and economic efficiency. Their strategy is to outperform the competition by creating an innovation that will be recognized as unique in a particular field. From what has been said, it follows that innovation - the result - must be considered inseparably from the innovation process. Innovations are equally inherent in all three properties: scientific and technical novelty, industrial applicability, commercial feasibility.

Innovation processes cover, as a rule, all aspects of the organization's activities, covering both core and investment and financial activities. For example, innovations in the production of products according to a special plan can be changed by production technologies, the need for targeted investments and funding is required. Analysis and control of the party should cover all aspects of the introduction and function of innovations.

The economic development of a country depends on many factors, but ultimately it is determined by the increase in the level of intelligence of the nation. In most countries, there is a high level of national income and human well-being by accounting for consumption in manufacturing, trade, banking and in any other activity of the greatest consumption. The UK, which is almost completely devoid of natural resources, earns more than 12,000 tons of gold through the exploitation of intelligence.

To describe innovation processes at different levels of government (enterprises, countries), terms are used that are similar in meaning, but differ in scope. In particular, it is necessary to distinguish between the concepts of «innovation». Innovation - is defined as a product of intellectual labor, which in the presented form in this capacity has not yet been met. Also, innovation is a kind of carrier, a means of its dissemination, reporting to practice. In the world economic literature, innovation is also interpreted as an improvement in the activities of a business entity that brings a positive economic, social or environmental result. Innovation is the use of scientific achievements for commercial purposes.

One of the basic concepts of innovation analysis is the innovation life cycle. There are various classifications of the stages of the innovation life cycle. In particular, the life cycle stages can include the stages of creating an innovation (from the appearance of an idea to the first industrial sample of a product or technology), the stages of using an innovation (from the stage of growth to the stage of decommissioning). The stages of implementing innovation following:

1) Strategy: In this phase, the product's strategy is defined to achieve a unique selling proposition.

2) Product definition: With this next step, the product itself is defined and the market requirements are identified to meet customer expectations. Ideas for innovative products are generated and evaluated.

3) Product concept: The product concept is created on the basis of the product definition to coordinate and start the validation and production phases. The potential costs and required resources are considered according to the business case calculations of the innovation idea. The development of the product begins.

4) Validation phase: Prototypes are developed and tested to validate and ulfill the diverse requirements.

5) Production phase: When the innovation is produced on a small scale and the processes are approved, the production of a (pre-) series starts, and new products are subsequently produced in high volumes.

6) Market launch and commercialization: The innovations are ready to be produced in series. The final products are introduced into the market with a communication and marketing strategy to achieve the highest sales figures. For the market launch, different indicators (the number of products launched) can be found in the selected literature to measure the innovations. (see Fig. 1.1).


**Fig. 1.1. «The 6 stages of innovation process»**

Source: [24]

From the point of view of the analysis of innovations at the level of an individual enterprise, those stages that take place within the framework of the innovation process of a given organization are primarily important. Innovations can be carried out regardless of whether the innovation was created by the organization itself or acquired as a finished product of the activity of another developer. Nevertheless, attributing the research and development stage to innovation activity is a significant problem. From the analysis of the definitions of innovation and the term «innovation» it can be concluded that the process of introducing innovation is an integral part of the innovation process. At the same time, research and development is not such an integral element, without which the innovation process loses its defining characteristics. In addition, research and development can be considered as an independent activity of the organization, because:

- Not all research and development yields positive results.
- Not all positive results are put into practice.
- Often there is no direct link between development and the decision to introduce an innovation, development and implementation are separated.

The characteristic features of innovation are: there is a qualitative leap in the level of technology as a result of the implementation of inventions (novelty criterion); there is a plurality of achieved effects (scientific and technical, economic, social and environmental). The economic effect achieves significant results (efficiency criteria).

The novelty of innovations is evaluated by technological parameters, as well as from market positions. With this in mind, a classification of innovations is built:

- according to the type of objects of innovative activity, innovations-products and innovations-processes are distinguished. Product innovations include the use of new materials, new semi-finished products and components, obtaining fundamentally new products. In addition, marketing innovations can also be singled out separately, consisting in the development of new market segments;
- according to the role in the implementation of the strategic goals of the organization, improving and strategic innovations are distinguished. Strategic innovations create new areas of activity or ensure the successful functioning of existing areas in the long term, improving innovations are carried out as part of the development and improvement of these areas;
- in terms of importance for the development of the enterprise, leading and subsequent innovations are distinguished. Leading innovations may not be rare for this industry, but they should create the prerequisites for successful financial and economic activities, taking into account the expected future changes in external conditions. Subsequent innovations are carried out as a reaction to the actual change in the external environment;
- in terms of implementation of activities: short-term, medium-term, long-term and innovations with an unlimited time horizon;
- according to the degree of coverage of the organization's activities: local and complex innovations (affect several areas of activity at once, combine the introduction of new products and new processes);

- by role in the production process: basic and complementary innovations;
- by value for this area of activity: fundamental, modifying and pseudo-innovations.

Major innovations influence the main production, technological or supply chain processes; Complementary innovations, usually caused by secondary innovations, are carried out in support and service units and ensure the implementation of the main innovations. Basic innovations radically change an existing direction of activity or form a new direction. Modifying innovations are carried out as part of the improvement and development of the basic ones. The group of pseudo-innovations includes external insignificant changes in products or processes that do not have a fundamental novelty and do not create any additional benefits for consumers. Nevertheless, pseudo-innovations serve as an important tool in the marketing policy of constantly updating the assortment as a strong tool for competition in product markets.

Additionally, the innovation process needs to be managed, and its management mainly involves the planning, supervision, and controlling of the innovation process. The management of the innovation process is essential because it affects the success of the innovation process.

## 1.2. Efficiency of using and reasons for the spread of modern technologies

The effectiveness and influence of implementation of the innovation technologies have been proved by Kondratiev. The idea of the existence of large cycles of conjuncture Kondratiev put forward in 1922 in the work «World Economy» [77].

It should be said that at present there is no generally accepted definition of the concept of innovation. As in the concept of Kondratiev, the category of innovation is considered in the literature in two ways: as a single action and as a process. In the prevailing case, the category of innovation, considered as a process, covers the implementation-production

cycle. In the classification of innovations, a special role, as in the concept of Kondratiev, belongs to the allocation of the most significant, basic innovations. In addition, the allocation of improving innovations has become widespread. In the theories of long waves, such concepts as political, institutional, social innovations are often used. Innovation is also divided into labor, saving capital and materials, innovation-products and innovation-processes, innovation in old and new industries.

Of particular importance were the ideas of Kondratiev for the development of one of the most important areas of the theory of long waves - the theory of long waves of innovation, the founder of which is traditionally considered J. Schumpeter. J. Schumpeter understands innovations as changes with the aim of introducing and using new types of production goods, new production and transport means, markets and forms of organization in industry, focusing on the economic impact of these changes. According to him, the production function describes a quantitative change in the product, taking into account changes in the entire set of factors affecting it. If the form of the function is changed in the sum of the factors, then an innovation will be obtained. Many of the questions he raised remain open and widely discussed. They have not lost their relevance.

N.D. Kondratiev, the author of the theory of long waves, established the relationship of large cycles with the technical development of production, involving data on scientific and technical discoveries in the analysis, showing the undulating nature of their dynamics. Studying the dynamics of discoveries and inventions, he distinguished it from the dynamics of innovations, studied the latter in the context of the phases of a large cycle and showed that innovations are distributed unevenly over time, appearing in groups and initiating an upward phase. Innovations were not the direct subject of research by N.D. Kondratiev, but his ideas had a serious impact on both the development of the classical theory of innovation and later research. Kondratiev considered scientific and technical changes in the mechanism of long waves in unity with the socio-economic conditions of production. He stressed that the use of inventions and discoveries in practice is associated

with the reorganization of industrial relations. Changes in the field of technology, according to Kondratiev, imply two conditions: the presence of scientific and technical discoveries and inventions; availability of economic opportunities for the application of these discoveries and inventions in practice. Approximately two decades before the start of the upward wave of the big cycle, there is a resurgence in the field of technical inventions. Before and at the very beginning of the rising wave, these inventions are widely used in the field of industrial practice.

In my opinion, the following can be distinguished as the most significant provisions characteristic of the current stage of development of the concept of long waves of innovation:

- analysis of the causality of long waves;
- analysis of the mechanism of the innovation process in the long term;
- formulation and in-depth study of the issue of the nature of the dynamics and the role of science in the process of long-term development;
- study of the relationship between the innovation process and the socio-economic conditions of production.

Modern representatives of the theory of long-wave innovations pay great attention to the study of the causal relationship of long waves. The following approaches deserve special attention: firstly, the predominant consideration of scientific, technical and technological changes in production as the causes of the long-wave phenomenon, when innovations act as the main cause of long-wave fluctuations in the economy. Secondly, the search for the cause of long waves in the economic mechanism for the transformation of technical changes into long-term economic fluctuations. The question of the causality of long waves is the subject of independent research.

There is a connection between the Kondratiev’s waves and the change of eras in world politics. Now we are at the beginning of a new wave, and the information industries are becoming a leader in technological development. The role of Kondratiev’s theory of long

waves is great in terms of predicting the emergence of crisis situations. The development of the theory and methods for predicting cyclical development, its modeling and foreseeing the future based on the theory of large cycles is also highly developed.

It's been fairly widely suggested that the world is presently in the "Sixth Wave" of Kondratieff cycles (see Fig. 1.2). The technological drivers are likely to lie in carryovers from the previous wave, such as digitization and computing power, plus newer areas:

- Environmental technologies
- Biotechnology (including genetic engineering)
- Nanotechnology
- Robotics
- Health technologies

Some of the associated social changes may be the aging of the population, increases in the size of the global «middle class», and the numbers of workers displaced by automation. Some of the associated environmental changes may be climate change and diminishing availability of non-renewable natural resources.

## Kondratieff Waves of Innovation

| Waves: | 1st Wave: Industrial Revolution | 2nd Wave: Industrial Production | 3rd Wave: Scientific Revolution | 4th Wave: Scientific-Technical Revolution | 5th Wave: Information and Telecom Revolution | 6th Wave: … |
|---|---|---|---|---|---|---|
| Date range: | ~1780 – 1830 | ~1830 – 1880 | ~1880 - 1930 | ~1930 – 1970 | ~1970 - 2010 | ~2010 – 2050 |
| Economic trend (US S&P 500) |  | | | | | |
| Key developments | Steam engine, industrialization | Railways, steel, heavy engineering | Electricity, chemistry, chemical industry | Automobile, mass production, petrochemical industry | Microcomputers, information, telecom | |
| Events near the peaks | War of 1812 | US Civil War | World War I | Vietnam War, Six-Day War | | |
| Events near the troughs | | 1873/79 Depression | 1929 Depression | 1974/80 Oil crises | 2007/09 Financial crisis | |

**Fig. 1.2. Kondratieff Waves of Innovation**

Source: [75]

Summarizing the approaches and interpretations listed above, it should be concluded that, despite the variety of definitions, the main content of innovation is that innovation as an economic category reflects the most common properties and relationships in the production and implementation of innovations. The main functions of innovation are reproductive, investment and stimulating. are the main, reproductive function is manifested in the theory of large cycles, and later - in the «process» and «system» definitions of innovation. First of all, in the role of innovation as a source of development. The investment function is that innovations, on the one hand, involve the development and implementation of investment projects and programs, and on the other hand, profits from innovations serve as a source of new investments. The «utilitarian» varieties of the

definition of innovation point to another important function of this category. Entrepreneurial profits, strengthening competitive advantages, conquering new markets - everything that successful innovations bring makes it possible to realize the stimulating function of innovation. Together, the reproductive, investment and stimulating functions determine the growing role of innovation in the modern economy.

An organization's innovative activity is a set of measures for using the scientific, technical, and intellectual potential in order to develop a new or improved product or service, as well as a new approach of manufacturing it, in order to meet individual demand and society's overall need for innovation. The innovative activity of the organization for the development, implementation, development and commercialization of innovations includes: carrying out research and design work to develop the idea of innovation, conduct laboratory research, manufacture samples of new products, types of new equipment, designs and products; selection of raw materials and resources required for the production of new types of products; development of a technological process for the manufacture of new products; design, manufacture, testing and development of samples new equipment for the manufacture of products; research, creation, or acquisition of the essential information resources and information support for innovations; development and execution of new organizational and administrative decisions directed at the realization of innovations; special recruitment strategies, such as training, education, and retraining; completing work or obtaining the documents required for licensing and patenting; organizing and conducting marketing research on promoting innovation.

The main provisions of innovation processes: at the heart of the management and regulation of economic operations are a wide variety of innovative processes. In management, innovation is defined as the creation and provision of goods and services that offer consumers benefits that are perceived by buyers as new or more modern. Distinguish between inventions and innovations. An invention is a new product, and an innovation is a new benefit.

But there are always problems of implementing an innovation:

● Legal and institutional frameworks are not strong enough to provide effective support for innovation policy

● The lack of systematic support at various stages of company development, exacerbated by low access to innovation finance, limits efforts to promote innovation

● Coordination in policy areas related to innovation is lacking

● Funding for strategic innovation initiatives is low

● Relationships and interlinkages between actors in the innovation system, especially between science, academia and the private sector, are limited

● Involvement of a large number of stakeholders in the analysis of the work of authorities and their participation in the development of innovation policy is not ensured on a systematic basis

Innovative processes and their results determine the development of both countries and joint enterprises: an indicator of the quality of life of the population, the level of labor productivity, and the level of production costs. In many ways, the introduction of innovations into the economy and obtaining the appropriate results depends on the economic policy of the state.

Scientific, technical and innovation theories are based on the fact that new technology contributes to the emergence of inventions, and inventions adapted for business are innovations. Of course, many inventions do not become innovations. But those that become them, being dynamic components, upset the balance of the system, which was previously static, in other words, lead to a sharp development of individual high-tech industries.

The introduction of innovations is aimed at solving two main problems: the transformation and improvement of inventions into the main products of the company, increasing labor productivity.

The process of creating a new one at the input is characterized by purchased and owned assets, at the output it is divided into the company's products, intellectual property sold or leased, and accumulated assets for subsequent depreciation. All these processes are closely related to the external environment.

The ongoing research and development is aimed at increasing labor productivity, introducing new technological processes, and on the other hand, there are qualitative and quantitative changes in the balance sheet, which ultimately leads to an increase in net assets due to an increase in intellectual property and profit accumulation. As a result, all four areas of management: tactical, strategic, operational and administrative - will be subordinated to the solution of the main goal of the institutional unit - increasing labor productivity and business activity and increasing the welfare of owners.

The improvement of accounting and management accounting of innovations is carried out on the basis of the principle of autonomy, that is, on the scale of an institutional unit. Institutional unit- an economic unit that maintains a complete set of accounting accounts can independently make decisions and manage material and financial resources.

Financial and managerial accounting of the results of innovations within an institutional unit will make it possible to determine the contribution of innovation processes to ownership, that is, the net assets of the relevant market entities.

One of the most striking indicators of the degree of development of the innovation economy is the speed and reliability of the transfer of an arbitrarily large amount of information, as well as the speed and reliability of its processing in the most automated mode. In general, the level of information content of the economy today is determined by the development of information systems, devices for collecting, accumulating and editing materials, software for these devices and means of storing information, as well as means for transmitting this information. These systems make it possible to accumulate, store, process and transmit information on a huge scale, with high speed and a high level of accuracy and reliability. With their help, all the necessary information is quickly collected

and processed, including the state of the market for a wide variety of goods and services. Based on this operational information, it became possible to develop recommendations for production.

Information systems and forecasting make it possible to calculate and take into account the size and structure of the market and production, systematically regulate them on a national and even global scale. The transition to information systems meant a new stage - a new quality and efficiency in the development of the structure of the economy and its regulators.

The use of innovative technologies provides an employee with the opportunity to gain access to new resources in a timely manner and effectively use them to solve production and other problems. Creation of innovative technologies and the latest vehicles, and, as a result, an increase in the speed of information transfer. Information and telecommunication technologies designed for the collection, accumulation, transmission and processing of information have caused a qualitative leap in the speed, volume and processing of information. As a result, the field of available information expands indefinitely, and the range of possible solutions increases and represents a set of alternatives of choice.

The study of the establishment and execution of state innovation policies in post-industrial nations indicates that these countries' socio economic growth is linked to innovative development. The world experience of state stimulation of innovation activity includes direct and indirect methods.

Direct methods include: government orders and ensuring the initial demand for innovation; free transfer of state property and land plots for the organization of innovative enterprises; development of innovative infrastructure in the regions; various programs aimed at increasing the innovative activity of business; government orders and ensuring the initial demand for innovation; creation of scientific and technical zones with a special regime of innovation and investment activities with special taxation system. Indirect

methods include: tax incentives for investments made in the innovation sector; development of science and higher education systems; legislative norms that stimulate the development of research activities.

The US government back in the 40-50s. Technological pathways of innovative development were established, and technical policy was implemented in two ways: support for basic research and execution of applied scientific and technological initiatives within the scope of particular federal departments' operations.

In Japan, the state is pursuing a course of overcoming the technological gap through: importing foreign technologies, transforming the economy's structure over time, mixing innovative factors with the economic mechanism, and supporting the forecasting idea, which allows for the selection and stimulation of technologies that will be priority in 10-15 years.

## 1.3. The key driving forces of innovative modern technologies on the international economy

At present, innovative technologies are one of the strategic directions of the information technology revolution, which directly affect the nature of economic development.

An innovative economy, in contrast to a stationary one, is characterized by a qualitatively new production apparatus based on computerized labor tools, information and high technologies. In the development of an innovative economy, in addition to these technologies, complex combinations of flexible market forces, global information infrastructure and strategic management play a leading role. They have generated several different but interconnected innovation trends that are the driving force behind innovative economic development: innovative technologies and materials, the ability to interact

effectively and dynamically, the elimination of intermediate management links in the economy, globalization, digitalization, convergence.

Innovative technologies and materials. The strategic importance of these technologies and materials lies in the fact that with their help new opportunities are revealed hidden in the processes and phenomena of nature and society, as well as completely new goods and services are produced that create new demand.

Ability to communicate effectively and dynamically. The main technological problem for economic entities is the ability to interact - the possibility of free exchange of information. The problem is solved through full compliance and mutual conjugation of technology components, means of collecting, processing, transmitting and receiving, storing and converting information.

Elimination of intermediate management links. The introduction of information technology, the Internet and the development of new digital methods make it possible to transform information into forms that are optimal for dynamic use by the consumer. As a result, intermediate links within firms and between them are eliminated. This means that firms are getting rid of inefficient layers of management. Technology makes it possible: providing a personal computer for each workplace, their connection and a certain unnecessary number of managers is eliminated. It is not only innovative technology that is decisive, but also universal technical standards that allow universal communication at almost zero cost and that underlie all so-called network technologies: Internet, external networks that connect firms to each other, and internal networks that connect people. within firms. Old information technologies become unnecessary or uneconomical, new ones continue to improve rapidly. Network technologies make it easier and cheaper to search for counterparties and conclude contracts, form supplies, etc. Within corporations, they accelerate the creation of cross-functional teams and the elimination of hierarchical structures. The boundaries between the spheres of production and services are blurred, the economic structure is simplified, and transaction costs are reduced.

Globalization. Information and highly industrial technologies, the global information infrastructure have changed the fundamental course of spatial and temporal processes. Under their influence, a unified global economic system and a global market space are being formed. The globalization of business and the market, the democratization of their content, freer trade and widespread deregulation have become a characteristic feature of the modern economy. Digital technology has created new possibilities for translating texts and transmitting information, as well as free access to an infinite variety of information. The development of digital technology has reached the point where it can help economic entities and individuals operate in the fields of the global economy. With the growth of information connections and global connections, the basis of the globalization process is being laid. The national economy is integrated into the global one, and its information infrastructure becomes part of the global one. A new material flow management system appears, starting from the supply of raw materials and ending with the delivery of finished products to the end consumer, as well as an information flow that assists the movement of material flows. Therefore, its essence lies in the integration of production, logistics, transportation, computer science and communication. Conditions and potential are being created for national economies, economic entities to compete in the global economy. Therefore, it seems to us that innovative economic development is possible only in the context of globalization and worldwide competition.

Convergence. It is the result of the development of the innovation processes described above. Within the framework of the coordinates of the industrial economy, the sphere of production and the service sector were clearly defined and their boundaries were outlined. In modern conditions, existing innovation trends change the main parameters of the existing economy. The innovative economy has adequate, different from the industrial, parameters, coordinates and development guidelines. Increasingly, the very term «convergence» is becoming synonymous with major transformations in the economy. Convergence is a process that in the coming decades can completely change not only the

structure, but the entire economy. In an innovative economy, many types of products and services do not differ from each other; certain types of products and services, performing the same functions, become essentially interchangeable. The main difference between an innovative economy and a stationary one is that the former has a highly developed technological basis, a set of technologies for transmitting and analyzing information.

Corporations with state participation will be able to become decisive in the business community and the main actors in the implementation of the country's innovative development strategy only when they can ensure higher labor productivity compared to other economic and economic entities, have the most advanced management technologies, and increase their social capital, which meets the requirements of the knowledge economy.

Thus, in the context of the country's transition to the implementation of an innovative development strategy, increasing the role of corporate business focused on the sphere of high technologies, strengthening its position in the system of socio-economic and political relations is the way to strengthen the core foundation of the entire economy, successfully leading it out of the crisis.

The turn to the modernization strategy is very difficult, for its implementation a special role is played by the mobilization of social and political efforts of the leading subjects of the country's innovative development in the person of the state stratum of the country's administrative and political elite and the stratum of the business elite focused on national interests.

# CHAPTER II. ANALYSIS OF ACTIVITY OF THE OVZ «VAGAR»

## 2.1. General characteristics and analysis of economic activity of «VAGAR»

OVZ «VAGAR» is part of the group of companies «World of Scales». The company «World of Scales» was founded in 2000 by Peter Sinegub. At first it was a company with a small number of employees, but now it has become a group of companies that provide weighing products throughout Ukraine, Russia, as well as the CIS countries. But we do not stop our progress and plan to enter the world market. VAGAR carries out complex deliveries of weighing equipment necessary for equipping manufacturing, trade and industrial enterprises, as well as organizations involved in the production and installation of weighing metal structures. The company's strategy is efficiency, long-term cooperation and strict fulfillment of its obligations to the client. The company offers its customers only the highest quality high-tech and reliable equipment to satisfy the needs of any enterprise. A wide range and constant availability of products in the warehouse allows for prompt delivery of equipment and tools throughout Ukraine and the CIS countries. OVZ «VAGAR» has many years of experience in the production of scales and weighing systems. The constant availability of all types of goods in warehouses allows the company to provide customers with a full range and the required volume of goods without interruption.

The content and the main goal of financial analysis is to assess the financial condition and identify the possibility of increasing the efficiency of the functioning of an economic entity with the help of a rational financial policy. The financial condition of an economic entity is a characteristic of its financial competitiveness, the use of financial resources and capital, the fulfillment of obligations to the state and other business entities.

The results of the financial analysis of the company's activities are necessary for the following groups of consumers:

● Financial managers: it is impossible to manage an enterprise, make economic decisions without knowing its financial condition. It is important for managers to assess the effectiveness of their decisions, resources used in economic activities and the financial results obtained.

● Owners (including shareholders): it is important for them to know the return on investment in the enterprise, the profitability of the enterprise, as well as the level of economic risk and the likelihood of losing their capital.

● Lenders and investors: they are interested in assessing the possibility of repayment of issued loans and the ability of the enterprise to implement an investment program.

● Suppliers: for them, it is important to evaluate payment for the delivered products, services and works performed.

● Auditors who need to recognize the financial tricks of their clients.

No production can do without attracting resources from the external environment of the enterprise. The organization of such attraction of resources bears a general name - material and technical supply. It is the initial link in the production process. The organization of supply, the timeliness of supply of material resources for production in the required assortment, quantity and appropriate quality largely determines the uniform and rhythmic output of finished products, their quality and, as a result, the level of profit and profitability of the enterprise. The material and technical supply of the enterprise is the process of delivery to the warehouses of the enterprise or directly to the workplaces required in accordance with the plans for the production of material and technical resources. The composition of such resources includes raw materials, materials, components, purchased technological equipment and technological equipment.

Solvency and financial stability are the most important characteristics of the financial and economic activities of an enterprise in a market economy. The concept of «financial stability» of an organization is multifaceted, it is broader in contrast to the concepts of

«solvency» and «creditworthiness», since it includes an assessment of various aspects of the organization's activities.

The financial stability of an enterprise implies its ability to successfully improve under the influence of changes in the external and internal environment. Thus, the financial stability of an enterprise is predetermined by the influence of a combination of internal and external factors.

We will conduct an analysis of the stability of the financial condition for the period from 2019 to 2020, which will allow us to find out how correctly the enterprise in question managed resources during the period.

In 2018, the enterprise did not experience a deficit in the provision of reserves with sources of formation. Own working capital and long-term sources were enough. The total size of the sources was also positive.

In 2019, we are seeing an increase in our own working capital and an increase in the total amount of sources. Production increased, the income of the enterprise grew, the financial deficit was fully covered and a supply of sources appeared. In 2019, the financial condition of the enterprise is stable and stable.

In 2020, the indicators improved, the total amount of sources remained positive, that is, the financial position of the enterprise as a whole remained stable.

Financial stability indicators characterize the degree of protection of the interests of investors and creditors. Financial stability is the result of the presence of a certain margin of safety that protects the company from accidents and abrupt changes.

Profitability indicators allow you to assess the results of the enterprise as a whole. They also provide an opportunity to compare alternative options for the use of advanced resources and operating costs in terms of their effectiveness.

To determine the need to attract external sources of financing, let us compare the return on all assets and the return on equity ratio:

2018 year: 6.3% – 10.5% = -4.2%

2019 year: 6.5% – 13.8% = -7.3%

2020 year: 7.8% – 15.3% = -7.5 %

It follows from this that in 2018 and in 2019 and in 2020 the enterprise did not need to attract external sources.

All indicators increased between 2018 and 2020. For example, the profitability of fixed and circulating assets increased by 9.9% and 1.6%. We also saw an increase in the return on equity by 3.3%, and the return on sales increased by 2.02% (see Table 2.1).

**Table 2.1**

**Profitability indicators of LLC OVZ «VAGAR» for 2018–2020**

| **Indicators** | **2018** | **2019** | **2020** | Deviations (+; -) (2018-2020) | |
|---|---|---|---|---|---|
| Return on equity | 10.5 | 13.8 | 15.3 | 3.3 | 1.5 |
| Return on assets | 6.3 | 6.5 | 7.8 | 0.2 | 1.3 |
| Return on non-current assets | 20.4 | 30.3 | 32.6 | 9.9 | 2.3 |
| Profitability of current assets | 15.3 | 16.9 | 20.8 | 1.6 | 3.9 |
| Return on sales | 0.08 | 2.1 | 2.5 | 2.02 | 0.4 |
| Profitability of products sold | 7.3 | 7.5 | 10.7 | 0.2 | 3.2 |

Profitability ratios can be calculated not only for the entire volume of the enterprise's funds, but also for certain types of resources (in particular, fixed assets). The necessary information for assessing the economic efficiency of the use of fixed assets contains

financial statements. While profitability ratios are a great place to start when performing financial analysis, their main shortcoming is that none of them take the whole picture into account. A more comprehensive way to incorporate all the significant factors that impact a company's financial health and profitability is to build a DCF model that includes 1-3 years of historical results, a 3-year forecast, a terminal value, and that provides a Net Present Value of the business. Return on sales is an indicator of the financial performance of a business. It makes it possible to understand whether the company is developing, whether there are any errors in the work, and how to correct the current situation. Profitability of sales characterizes the share of profit in the composition of the proceeds from the sale of products. This indicator is also called the rate of return.

If the profitability of sales tends to decrease, then this indicates a decrease in the competitiveness of products in the market, as it indicates a reduction in demand for products.

Increasing the profitability of sales is achieved by increasing prices for products sold, as well as reducing the cost of products sold. If the share of more cost-effective types of products increases in the structure of products sold, this circumstance also increases the level of profitability of sales. But it is visible that all indicators are increased, showing a positive result for the company at all.

## 2.2. Analysis of foreign economic activity of LLC «VAGAR»

The intensive development of economic relations between economic entities in the context of increased competition and globalization of public life requires the use of new methods of managing enterprises and their associations while coordinating their activities on the part of state and municipal authorities. One of these methods is the logistic method of managing business entities, which is based on the end-to-end management of material, service and related information and financial flows. An objective prerequisite for the

implementation of this method is the implementation of management and marketing methods at enterprises or in their associations. At present, logistics as a scientific and practical area of economic science continues to develop intensively, although disputes about its role and place in the economic activity of economic entities still do not stop.

The effectiveness or inefficiency of logistics decisions related to the transformation of the material or information flow should be evaluated in terms of achieving the global goal of the functioning of the entire logistics system and the growth of foreign economic activity. The tasks of assessing economic efficiency are:

- formation of the concept of economic efficiency of logistics systems based on a systematic approach;
- identification of effect-forming factors;
- formation of a system of indicators of the economic efficiency of the logistics system;
- development of a methodology for quantitative assessment of indicators of the economic efficiency of the logistics system;
- development of a mechanism for distributing the economic effect between the participants in the logistics agreement;
- identification and mobilization of reserves to increase the economic effect of logistics.

The process of effect formation in the logistics system should be considered as a whole, which involves determining the overall economic effect, taking into account savings and costs in all logistics subsystems for three types of streaming processes: material, financial and informational. An analysis of effect-forming factors allows us to determine the main components of the economic efficiency of logistics systems.

For the production of weighing equipment, it is necessary to provide the enterprise with components. Procurement is handled by the purchasing department. Recently, the Ukrainian market has not been able to provide the enterprise with everything necessary,

therefore, it became necessary to create a cross-border department. The department of cross-border is a structural unit at the disposal of which also includes the transport and warehouse department. These two departments are interconnected.

Foreign trade manager is responsible for optimization of costs for providing the logistics component of the enterprise; organization and control of the continuity and productivity of daily work; assessment and analysis of costs associated with the execution of logistics operations, assessment and analysis of the performance of logistics operations; development of proposals for optimizing the cost of purchased raw materials, equipment and shipped goods; compliance with the approved cost estimate, budget items. Conducts regular analysis of statistics on commodity groups and separate commodity items, determines profitable, low-profit and unprofitable groups of goods, ensures the adjustment of the procurement policy based on the results of such an analysis. Optimizes the purchasing policy (frequency of orders, order size, time of order, minimum stock balance), taking into account changes in customer demand, seasonal fluctuations, deadlines for implementation, the situation in the production of specific goods, as well as other necessary factors.

The task of the department is to find the necessary product to create products at the lowest price. Therefore, the factor of distance between the manufacturer and the buyer should be taken into account.

When purchasing the necessary components, the department employees send an order for the purchase of goods to the manufacturer. After a positive response to the order, a contract is concluded. Contracts are most often concluded in English. The contract is indicated by international law. When concluding a deal, the company is forced to cooperate with banks that control the implementation of the contract.

Next comes the stage of shipment. Delivery of goods to the enterprise is specified in the contract. The supplier can be either the seller or the buyer and third parties. If the ordering company acts as a supplier, then employees of the external purchasing

department hire transport to deliver the product from the seller. All activities related to deliveries are based on the set of rules «Incoterms», which considers the terms of delivery and regulates the moment of transfer of risks from the buyer to the seller, that is, identifies the one who incurs losses in case of violation of the delivery rules. During the border crossing and along the entire route, strict customs control is established for the product. When crossing the border, cargo declarations are issued, which control the delivery time of the product to the buyer. Upon arrival at the enterprise, the products arrive at the warehouse, and from that time on, all responsibility from the external procurement department is transferred to the transport and warehouse department.

Recently, the company has been introducing new projects, which are currently developing rapidly. Stands with a demonstration of the company's new project are presented in Dubai at the exhibition. Another project is expanding in Ukraine, in a short period of time the new product brought a high level of profit. These projects became successful thanks to the actions of the company in making them a reality. In order for the process of developing an innovative strategy to be effective and bring its results, such work is entrusted only to experienced specialists working in one team. The development and implementation of an innovative strategy includes a number of activities:

- Setting goals and objectives.
- External analysis (identification of possible threats).
- Conducting internal analysis (highlighting the strengths and weaknesses of the company).
- Strategy formulation.
- Definition and selection of the type of strategy.
- Implementation of plans to implement the strategy.
- Monitoring and evaluating the implemented tasks.

As you can see, it is impossible to carry out such work on your own without experience.

To provide quality service and goods for customers in Ukraine and the CIS, the company cooperates with foreign suppliers. Foreign affairs managers communicate with suppliers from Turkey and China. In order for the process to be streamlined and as efficient as possible, each manager is responsible for ordering parts from a particular company. The company has suppliers of metal platforms in China, Turkey and Ukraine. Also in the purchase of load cells for weighing is made from the largest company «ZEMIK», which also has a branch and production in the USA. All repair details are also supplied from China, but before purchase they are tested in Ukraine and receive quality certificates.

## 2.3. Analysis of competitiveness of «VAGAR»

LLC «OVZ «VAGAR» uses 1C software. Order management in the 1C: Enterprise 8.0 software system. The OVZ «VAGAR» uses a journal-order accounting system using an automated accounting form. Accounting at the enterprise is carried out by the double entry method according to the automated accounting system (software product - 1C8), with the use of original programs in the accounting areas, in accordance with the Law of Ukraine «On accounting and financial reporting in Ukraine». Assets, capital, liabilities and business operations of enterprises and organizations and Instructions for its use.

The accounting department is headed by the chief accountant. He reports directly to the head of the enterprise, and in relation to issues of organization, procedure and methods of accounting, compilation is guided by the current legislation. The rights and obligations of VAGAR accounting employees are approved in the job descriptions. They are developed by the chief accountant for each position separately. When recruiting accountants, they study job descriptions in their specific area of accounting work. Each accountant within the assigned area of work is responsible for the correct execution of primary documentation, the provision of accounting entries for order journals, and the

correct conduct of calculations. According to the order «On the organization of accounting and the accounting policy of the enterprise» in the OVZ VAGAR, the chief accountant was instructed to develop a working chart of accounts and, if necessary, introduce new sub-accounts. When drawing up a working chart of accounts, the chief accountant was guided by the chart of accounts of accounting for assets, capital, liabilities and business operations of enterprises and organizations and instructions on its application. The working chart of accounts of the enterprise is sufficiently detailed by subaccounts to ensure the most complete and reliable accounting of the income and expenses of the enterprise, and the automation of accounting allows not to increase the labor costs of accountants when processing documents.

The main competitor in domestic market is a LLC «Technowagy». Research and Production Enterprise «Technowagy» is a developer and manufacturer of scales ranging from laboratory to wagon scales. The company was founded in 2002. It produces weighing, dosing, packaging and medical equipment, calibration weights, testing equipment, etc. They supply not only local weighing systems, but also combine technological modules into complexes and develop accounting systems for raw materials and finished products. LLC «Technowagy» is also a representative of the «Radwag» company (Polish manufacturer of weighing equipment) in Ukraine. They have several service centers all over Ukraine and provide warranty and current repairs, maintenance, installation of equipment, training of customer personnel in the use of equipment, organization of verification or calibration of measuring equipment.

One of the company's international competitors is a company called «CAS». CAS Corporation, an ISO 9001 company, is a leading global manufacturer of industrial and commercial scales distributed through a worldwide network of independent scale distributors in more than 120 countries.

Since its inception in 1983, CAS Corporation continues to provide reliable, affordable and superior delivery of high quality products that meet almost any weighing need.

The U.S. headquarters is located in East Rutherford, NJ along with a west coast office in La Mirada, CA. CAS company is a member of: International Society of Weighing and Measurement, National Conference of Weights and Measures, Retail Solutions Providers Association. The company has a wide range of weighing measurement systems as well as all the necessary parts for their configuration. There are also many dealerships around the world, which greatly speeds up the processing of requests and sending the right product. You can contact a customer service representative for lead time information. Also, on their site you can create an account to place an order by yourself and track it any time.

The company's workflow schedule has been developed with the aim of orderly movement and timely receipt of primary documents for accounting records. Management accounting is not mandatory for Ukrainian enterprises, is not regulated by legislation and is organized by decision of the heads of enterprises. In «VAGAR» the management considers it expedient to keep management accounting, however, all issues of its organization and maintenance are a trade secret of the enterprise and cannot be stated in this report.

The total liquidity ratio shows the company's ability to pay off short-term liabilities at the expense of only current assets. The higher the value of the coefficient, the better the solvency of the enterprise. This indicator takes into account that not all assets can be sold urgently. Liquidity ratios are of interest not only to the management of the enterprise, but also to external subjects of analysis:

- absolute liquidity ratio - for suppliers of raw materials and supplies
- total liquidity ratio - for investors
- quick ratio - for banks.

(see Annexes A)

At the end of the analyzed period, all liquidity ratios had an upward trend. The current liquidity ratio increased from 1.84 to 0.18 and amounted to 2.02. This value is slightly higher than the minimum of the standard value. This suggests that at the end of 2019 the

company will be able to pay off all its obligations at a time, having sold all its assets. The quick ratio for the analyzed period increased by 0.11 and amounted to 1.93. This value is almost twice the minimum standard value. But the value of this indicator is also close to the value of the current liquidity ratio. This correspondence can be explained by the specifics of the organization's activities. The advantage of stocks in the structure of an enterprise's assets is characteristic of trading activities. Therefore, both of these coefficients can be assessed positively, since inventory is a fast-moving asset. (see Annexes A)

According to the results of the analysis of the composition and prescription of the formation of accounts receivable, it is necessary to focus on the oldest debts and pay attention to large amounts of debt. Analyzing the data for 2022 and 2018, it should be noted that there is an overdue receivable (see Table 2.3). Unfortunately, since the company's activities depend on foreign supplies of equipment and parts, it has become impossible to provide quality service and goods. In 2022, the company suspended its activities due to the introduction of martial law in Ukraine. According to the terms of the agreement, the company's customers have a deferred payment for the shipped products. This deferral is individual for each client. Based on quarterly results, a reserve for doubtful debts is formed for the amounts of overdue debts. To characterize the quality of receivables, an indicator such as the share of the provision for doubtful debts in the total amount of receivables is also determined. An increase in the level of this ratio indicates a decrease in the quality of accounts receivable.

**Table 2.3**

**Share (%) by the statute of limitations of receivables for 5 years**

| Share (%) | Up to 1 month | 1 to 3 months | 3 to 6 months | 6 to 12 months | Over a year |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 2018 | 62.3 | 21.2 | 7.5 | 5.4 | 3.5 |
| 2019 | 49.7 | 14.1 | 6.9 | 1.3 | 2.4 |
| 2020 | 78.9 | 15.8 | 4.0 | 1.0 | 0.3 |
| 2021 | 83.4 | 17.3 | 3.4 | 0.8 | 1.7 |
| 2022 | The company currently stopped all transactions, because of martial law in Ukraine. | | | | |
| Difference 2021 to 2020 | 21.1 | -3.6 | -4.1 | -3.4 | 2.8 |
| Difference 2021 to 2019 | 12.6 | -6.8 | -3.5 | -1.5 | 2.2 |
| Difference 2021 to 2018 | -16.6 | 5.4 | 3.5 | 4.4 | 3.2 |

PEST analysis is a marketing tool designed to identify political, economic, social and technological aspects of the external environment that affect a company's business. PEST analysis is one of the basic methods for analyzing the external environment of an organization, often preceding a SWOT analysis. It is mainly used to determine market trends, the general dynamics of the industry. The results of the PEST analysis are important for assessing potential threats and opportunities in the environment in which the company operates. Of course, the PEST analysis does not give a complete comprehensive picture and is rather subjective. But still, its use can help to identify possible threats to the business in time. This means that management will have time to prepare for them, optimize the strategy and outperform competitors. According to the deep PEST analysis

the company has good and progressive political, economic, social and technological indicators. Thanks to the international interactions, the company could create and expand its customer base. To do it easily and more effectively companies are helped by all of the above mentioned factors. The economic factor is economic flexibility and depression in the market. Thanks to the felicitous technical factors, the company took the expansion of the Internet to its full advantage by providing electronic services to customers in different countries and also is able to communicate with the world through e-commerce, another innovation for business-to-business transaction (see Annexes B).

SWOT analysis allows you to identify and structure the strengths and weaknesses of the company, as well as potential opportunities and threats. This is achieved due to the fact that managers must compare the internal strengths and weaknesses of their company with the opportunities that the market gives them.

**SWOT analysis**

| **Strength** | **Opportunities** |
|---|---|
| Large mark-up on goods | Expansion of the range of weighing equipment |
| High level of counseling | Promotion in social networks and mass media |
| High level of customer loyalty | Increased sales through geographic expansion |
| Large assortment of goods | New modern product and social media design |
| Large network and dealer direction | Learn from competitors |
| Good marketing strategy | Access to worldwide opportunities |
| Globalization | Employee cooperation |
| Customer trust | |
| Range of products | |
| **Weaknesses** | **Threats** |
| No additional training for the sales department | Seasonal market demand |
| Constantly changing company strategy | A large number of competitors in the market |

| | |
|---|---|
| High costs for some items in the catalog<br>Price<br>Staff | Increased competition between companies at tender sites<br>Port congestion<br>Cargo theft<br>Small local courier companies<br>Supply chain cyber attacks |

Analyzing the company and its competitors in the domestic and international market, can conclude that there are a lot of prerequisites for the development of the company. The results showed that the company has enough factors to take first place in the Ukrainian market, and then enter the same arena with global companies and do business at the international level. Expanding the range, increasing the customer base and, over time, an additional English-speaking branch to handle inquiries can help with this. The services of logistics companies and supply managers will also be required, since communication with suppliers must be doubled and control over purchases, as well as their quality.

During the analyzing of the company for the SWOT analysis it can be identified such **strength** as:

1) Globalization - global trade gives people access to ideas, technology, and opportunities, by globalization VAGAR has to expand business worldwide;
2) Customer service - has customers all around the world. VAGAR always listens to its customers' voices.
3) Range of products - offers a large range of products to get more customers. Parcel and international express services, freight transport, supply chain management services, and e-commerce logistics solutions.

For the **opportunities**:

1) Learn from competitors - different companies have different exclusive strategies and there are still a lot of things company can learn from other companies.

2) Access to worldwide opportunities - one of the largest international weighing company which means the company has access to all the opportunities available in different nations.
3) Employee cooperation - regarding employee cooperation Key Performance Indicator states that the credit of cooperation in 2021 is 55%. It is not enough for such a company. In my opinion, VAGAR has way more ability to improve cooperation between employees. Moreover, VAGAR can innovate its services to surprise customers.

For **weaknesses**:

1) Price - the most serious problem is price. Indeed, VAGAR is more expensive than its competitors. And in some areas, quality of service is difficult to guarantee. VAGAR can make a discount for customers to inspire sustainable business.
2) Staff - bad attitude of staff might affect the image of the company, in today's world of online business, most peoples do their purchase after reading reviews so the company might lose some future customers.

For **threats**:

1) Port congestion - port congestion means when ships arrive at the port and cannot load or unload, as the port capacity is already full. The only option is to queue up and wait for their turn.
2) Cargo theft - cargo theft can cause huge losses. This is caused by instability and a new modus Operandi of truck theft. Cargo theft can range from stealing trailers, or vehicles. It could be preventing cargo theft by carefully selecting transportation partners.
3) Small local courier companies - a major threat to VAGAR is that the company suffers local courier players which might be operating at a lower price. These small local businesses are also able to give lower prices.

4) Supply chain cyber-attacks - supply chain cyber-attacks include cyber-terrorism, malware, data theft. Companies might lose the private information of customers of private company data which might lead to huge damage.

# CHAPTER III. PROSPECTS FOR THE DEVELOPMENT OF MODERN TECHNOLOGIES

## 3.1. Innovative technologies and post-Coronavirus economic recovery

As the Global Innovation Index 2021 shows, amid the enormous human and economic toll caused by the COVID-19 pandemic, governments and businesses in many parts of the world have stepped up investment in innovation, signaling a growing recognition that new ideas are critical to overcome pandemic and ensuring economic growth in the subsequent period. This year's Global Innovation Index shows that despite the enormous impact of the COVID-19 pandemic on lives and livelihoods, many industries have shown remarkable resilience, especially those that are actively digitizing, utilizing technology and innovation [18].

The COVID-19 pandemic has updated the discussion about the slowdown in global economic integration, international trade and, in part, such fundamentals of innovative development as technology transfer, the activities of high-tech transnational companies, and foreign direct investment in science and innovation. Even before the pandemic, innovative development was increasingly associated with the reindustrialization of developed countries, for example, due to the return of production from developing countries to developed ones. Accordingly, the main issue in global innovation development after the pandemic is the prospect of strengthening protectionism: in what directions, sectors and volumes it will occur and which groups of countries, companies, industries will be more and less affected by it. Researchers, considering trends, often do not take into account the specifics of modern technologies, primarily information and communication technologies. Estimates show that to overcome the consequences of the crisis, a significant increase in the pace of globalization will be required. DHL data show that over the past five years – and 2020 was no exception – the average length of supply chains has been slowly increasing, casting doubt on the end of globalization. Against the

backdrop of the pandemic, the healthcare sector has become an important issue of national security - in relation to the supply of medical equipment, food, where the need for self-sufficiency is ripe. The growth of digital companies and technologies, including in healthcare and pharmaceuticals, is so high that it is possible to talk about digitalization. The intensive development of information and communication technologies continued, accumulating the potential for a large-scale restructuring of the entire world economy with the involvement of low-tech industries in digitalization as well. New industries are also emerging, united under the general term «digital economy». If before the start of the pandemic there were signs of a slowdown in information flows, then in 2020 Internet traffic and telephony have rapidly increased. From mid-2019 to mid-2020, international Internet traffic increased by 48%. At the end of 2020, the volume of international Internet traffic increased by 35% [73]. During COVID-19 both the US and the UK have continued to use the concept of globalization to increase FDI in developing economies, which in turn has acted to stabilize the global economic order by boosting domestic production and innovation.

The pandemic has led to an accelerated involvement of government agencies in analytics, solving the problem of the lack of the necessary goal-setting for data analysis, as well as huge arrays of user data that were not previously collected systematically. At the new stage, we should expect an increase in the involvement of the public sector in the implementation of artificial intelligence. Since regulatory changes are necessary for the success of this process, in the long term, it is COVID-19 that will serve as the first impetus to accelerate digitalization on a global scale - at the state level. The pandemic has also spurred the creativity and innovation potential of businesses. At the height of the pandemic, companies around the world were developing innovative products designed, in part, to reduce the risk of the spread of the disease. Industries traditionally concentrated offline, such as traditional education, culture, and the arts, have also been creative and innovative using a variety of IT solutions.

The COVID-19 pandemic did not interrupt the main international flows - by the end of 2020, there was a rapid recovery in trade in both goods and services. International Internet traffic and telephony have grown rapidly, and there has been increased globalization in the field of information and communication technologies. The restructuring of supply chains and local reshoring takes place taking into account the minimization of operating costs of transnational companies. They are most acute only in the most strategically sensitive high-tech industries that depend on the regime for preserving intellectual property. In particular, some types of information and communication technologies, 5G communications.

Looking forward to the post-Coronavirus economic recovery, automation and digitization are likely to be the star features [24]. To begin with, digital technology and automation have played a significant part in the worldwide community's fight against COVID-19. E-business, online education, online entertainment, and online conference and office systems have all risen swiftly, contributing to COVID-19's worldwide reaction as well as society and economy. Second, because of increased demand, several industries, such as diverse internet services, have already risen fast during the epidemic. It will not be unexpected to see new star industries emerge as a result of the GVC reorganization and relocation. Some regions will replace the gap by actively investing in the digital economy's «future» sectors, digital application innovation in current industries, and digital infrastructure development. These industries will serve as new sources of economic growth. Finally, business will be pushed to construct more robust production systems and supply networks as a result of the pandemic and the trade war. For organizations in both the manufacturing and service industries, digital transformation of current industries and production systems will be a common choice. Digitization frequently entails a higher capital and technology intensity while reducing the utilization of labor. As a result, the manufacturing process becomes less contact-intensive, and hence less influenced by social distance and human mobility limits. As a result, digital transformation, which includes smart manufacturing, smart services, e-government, and digitized green transformation,

will alter or even revolutionize manufacturing and private and public service provision, thanks to 5G, big data, cloud, internet of things, and block chain [16].

The global innovation landscape is changing too slowly. The GII has been warning of this for several years now, as high-income economies, notably from Northern America and Europe, continue to lead the GII ranks and have the strongest and most balanced innovation systems. There is an urgent need for this to change, particularly in the context of the COVID-19 crisis. Confronted with an unprecedented crisis, it is important to fully leverage the power of innovation to collectively build a cohesive, dynamic and sustainable recovery. The short-term and longer term impacts of the pandemic on science and innovation systems have to be monitored and findings acted up on [18].

### 3.2. Indicators of the effectiveness of the development of the scientific and technical sphere on the example of different countries

It is challenging for emerging economies to consistently improve their innovation performance and systems to match high-income, more prosperous economies. Only a limited number of middle-income economies have managed to catch up in innovation, by complementing successful domestic innovation with international technology transfer [14].

While it is often difficult for developing economies to sustainably improve their innovation systems, several middle-income economies manage to catch up with more developed countries in terms of innovation. These emerging economies, among other things, successfully complement their domestic innovations with international technology transfer, develop technologically dynamic services that can be traded internationally, and ultimately form more balanced innovation systems.

It should be noted the changes taking place in the leading economies. In addition to the Republic of Korea's impressive jump (from 10th to 5th), France (11th) and China (12th) continued the upward movement that began last year, with both economies now close to the top 10. These three examples demonstrate the continued importance of public policy and incentives to encourage innovation. Overall, the COVID-19 pandemic has not interrupted the trends that were identified in 2019-2020, as innovative companies retained access to relatively large amounts of funding, even outside the health and biomedical sciences [18].

Western European countries use such tax incentives as extra-concessions (at their expense, firms can finance over 100% of their innovation spending from their tax base) and a tax credit, which allows financing only a certain percentage of innovations.

Financing of scientific and technical work by the state in Japan is: 0.58% of GDP, in the USA - 0.76%; Germany - 0.79%; France - 0.80%; Great Britain - 0.55%. In France, direct financing of innovation spending in leading firms is 50%, the same amount is free loans in Germany.

In the EU, such forms of incentives are also used, such as grants for the creation of funds for the introduction of innovations, taking into account the possible risk, and the reduction of the state fee for individual inventors in Germany and Austria. According to experts, in the late 90s. Germany, France and the UK combined spent as much on innovation as Japan.

The practice of issuing free licenses for the commercial use of inventions in the United States, the formation of a state innovation infrastructure, the implementation of monitoring, forecasting, and examination of innovative projects by state bodies, and support by presenting state awards to scientists and innovators, as well as conferring honorary titles, are all worth noting.

A systematic approach has become the key to the success of innovation policy in Finland: it is the stimulation of different collaborations between scientists, universities,

businesses, industry groups, and government agencies in order to develop cross-links between them and encourage the development of new ideas. Two poles may be identified when analyzing the state policy of industrialized countries in terms of innovation assistance in terms of the degree of state regulation. On one side are the United States and Great Britain, where the state interferes least of all in the economy, in particular in innovation, on the other - France and Japan, where the state most actively supports the innovation process by all possible methods. The first pole is characterized by the most complete autonomy of entrepreneurship in the innovation sphere. The second pole of innovation policy is characterized by a fairly significant influence of the state on innovation processes, in particular by non-market methods, through direct subsidies and subsidies to enterprises and organizations that carry out innovative activities. Under this model, governments determine priority areas for innovation and technological development.

A review of the world's leading countries' national innovation systems reveals active state support for innovation in developed countries, the orientation of the national economy toward scientific and innovative development, state financial support for innovation processes, stimulating innovation through preferential taxation, providing loans, developing research and innovation infrastructure, and creating a favorable investment environment. A number of emerging nations, such as China and India, have taken a similar strategy to innovation development. Promoting the construction and growth of a network of technology parks receives special focus.

The development of investment and innovation processes over the past decade is characterized by activation both in the developed countries of the world and those that are developing. Back in the 90s of the last century, new participants began to appear on the world horizon of innovative transformations - the countries of Asia. This was the result of the spread of scientific research, innovative technologies and patents in the world. (see Table 3.2).

**Table 3.2**

**Top three innovation economies by income group**

| High-income | Upper middle-income | Lower middle-income | Low-income |
|---|---|---|---|
| Switzerland | China | Vietnam | Rwanda |
| Sweden | Bulgaria | India | Tajikistan |
| United States of America | Malaysia | Ukraine | Malawi |

For the successful implementation of the regional innovation policy for the formation of an innovation economy, a set of scientific, organizational and technical measures should be carried out, the main of which are the following:

1) Development of a concept for the development of innovative activity and its infrastructure in the region with the definition of long-term strategic goals and means of achieving them in the framework of the formation of an innovative economy.

2) Development of an innovative development program region, which should be a document indicating the resources, executors and terms of the set of activities aimed at achieving the goals of innovative development of the region.

3) Inclusion of the main provisions of the program of innovative development of the region in the program of its socio-economic development.

4) Organization of practical activities of bodies local and regional governments for the implementation and adoption of relevant regulatory acts of regional significance, as well as for their implementation of the organizational and information support of this program.

One of the most important directions of the economic policy of the state is the desire to combine innovation and investment components. Such an association will increase the

interest of performers in the successful implementation of all stages of a single innovation and investment cycle, which can be achieved if all performers are oriented towards the final result.

In the context of the development of innovative activity the attitude towards the main productive force of society - man must change. The role of highly qualified specialists in the innovation economy is very important and will continue to grow. Therefore, the training of personnel capable of effectively managing innovation processes, developing and implementing projects is a priority regional and federal problem.

It should be based on the following principles: formation, development and self-realization of a creative personality; constant focus on generating promising scientific and technical innovations and finding ways and methods for their practical implementation in innovation; orientation towards the training of highly qualified and highly intelligent specialists, system managers of innovation activity; considering education and training as an integral part of the production process, as a long-term investment necessary for the prosperity of enterprises, industries and regions.

Digitalization is an important indicator for innovation. But Innovation Indicator also expands on individual areas relevant to the description of a country's innovative power. For example, the 'Digitalization Indicator' is described in detail, and is led by the following ten countries: the four Scandinavian countries of Finland, Sweden, Denmark and Norway, as well as the USA, the United Kingdom and Australia, the Netherlands, Switzerland and Israel. Specifically, Finland leads the digitalization area of Research/Technology, Norway leads the Society area, Israel is ahead in the Industry section, the USA is top in Infrastructure/State and the Netherlands stand out with innovative business models.

The infographic shows that the two leaders, Switzerland and Singapore, are followed by a larger group of 18 countries who all have a similar level of innovative power, with

little difference between them in terms of performance. This group is led by Belgium and Germany (see Fig. 3.2).

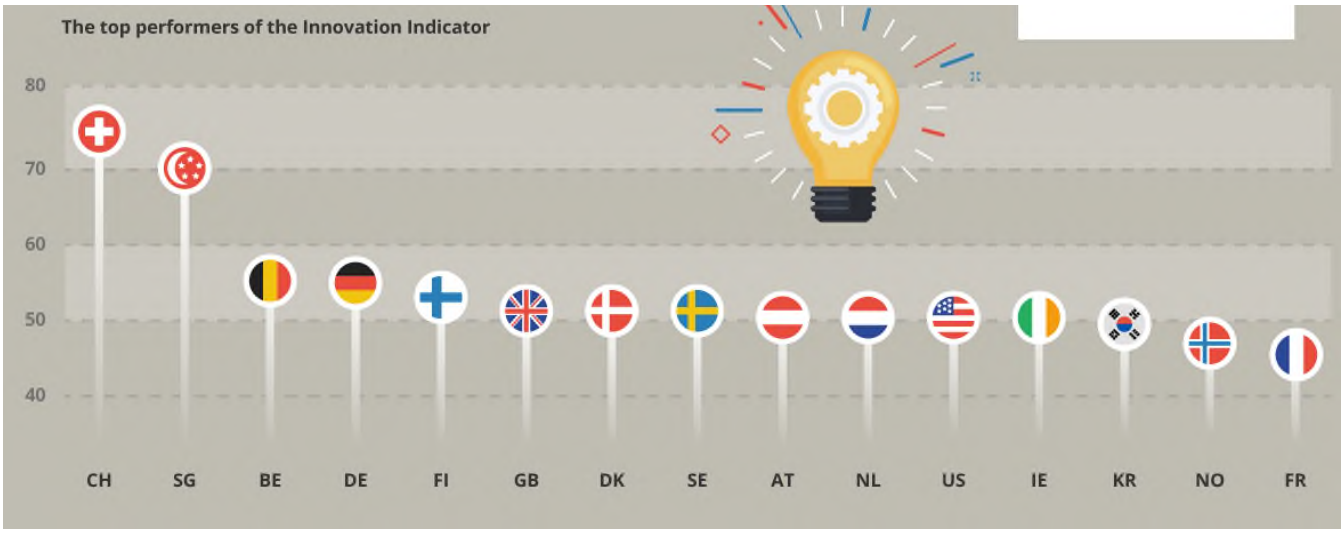


**Fig. 3.2. « The most innovative countries in the world»**

Source: [32]

In times of rapid change, the economy and society cannot function according to the old model. The whole world is beginning to understand what digitalization is and is accepting new rules of the game [6]. Innovations and digital technologies will provide more comfortable and faster interaction of the client with any company. Such a transformation will improve the quality of products and services, automate production and simplify internal and external communications. In order for the country to keep pace with the times, states need to support and create conditions for the development of innovations. After all, it is innovations that can bring the country's economy to a new and higher level, which will improve the standard of living in the country and become competitive on the world stage.

## 3.3. Directions of implementation of innovation policy

In modern conditions, the level of innovative activity on its territory, the possession of competitive advantages in the field of technology, is increasingly allocated as a factor that determines the economic power of the state. Issues of scientific, technological and innovative development are key in economically developed countries. Therefore, many countries of the world are developing an innovation policy, the main goal of which is to create favorable conditions for the implementation of innovation activities. The national strategy for sustainable socio-economic development should outline the main task of the economy - the transition to an innovative development path. The implementation problem includes a large number of regulatory levers and tools to influence the innovation environment, however, its impact on the development of scientific, technical and innovative potential, as well as on reducing material consumption and increasing the competitiveness of products, may not be sufficiently noticeable. This largely applies to the industry of the country. Important in the implementation of innovation policy is the formation and implementation of state scientific, technical, sectoral and regional programs and programs for the innovative development of enterprises. The methodology and practice of their development are constantly being improved. However, many questions remain unresolved. This concerns the problem of forecasting indicators, determining the effectiveness of programs and projects, and financial support for their implementation.

In the initial sections of the work the problems of implementing and improving the innovations. So below are listed directions how to improve the level of innovations:

1) Legal and institutional frameworks are not strong enough to provide effective support for innovation policy - improving enforcement of laws and regulations; simplify and adapt rules wherever possible to create an enabling environment for innovation rather than deter it; addressing regulatory gaps and barriers to risk capital investment, bankruptcy

proceedings, start-ups and spin-offs; alignment of national legal frameworks with international standards and best practices.

2) The lack of systematic support at various stages of company development, exacerbated by low access to innovation finance, limits efforts to promote innovation - conducting regular consultations to explore needs and opportunities in order to obtain information for policy development; development of a system for regular monitoring and evaluation of support programs at various stages of the company's life cycle, as well as the final evaluation of beneficiary projects; creating an enabling environment and stimulating risk financing, to close the gap between seed funding for innovative start-ups and funding for their development at an early stage, as well as for systematic financing of innovation activities throughout the economy.

3) Coordination in policy areas related to innovation is lacking - integrate the various elements of innovation policy into a coherent policy document covering, inter alia, research, technology and private sector development; carefully linking such a strategy with key socio-economic and sustainable development strategies; establish and empower oversight and coordination mechanisms at both the ministerial and working levels.

4) Funding for strategic innovation initiatives is low - transition from suboptimal financing mechanisms to new mechanisms for the distribution of financial resources, improving the quality of governance, as well as the accountability and transparency of public institutions; exploring alternative financing options, taking advantage of private and international sources.

5) Relationships and interlinkages between actors in the innovation system, especially between science, academia and the private sector, are limited - expanding the policy mix of innovation grants programs for collaborative research and development to better target initiatives to explore the commercial potential of scientific results research; development of a system for monitoring and evaluating the innovation support infrastructure, assessing

market needs and integrating business and technical services into relevant structures; expanding incentives for mobility between science and business.

6) Involvement of a large number of stakeholders in the analysis of the work of authorities and their participation in the development of innovation policy is not ensured on a systematic basis - development or improvement of approaches to consultations between the public and private sectors organized by the relevant line ministries on the development and implementation of policies in the framework of the formation, implementation, monitoring and evaluation of policy measures and decision-making processes; strengthening inter-ministerial consultation processes so that all relevant government bodies are involved in the policy development process and have sufficient time to provide their comments.

Some enterprises and ministries that order innovations being mastered renounce their obligations to finance developments at the final stage or delay their development. Another equally important problem is the lack of orders for the purchase of developed new equipment. Among the reasons for this phenomenon, one should also highlight the imperfection of the methodology for calculating the effectiveness of programs. The source data for determining costs and efficiency ratios remain in the shadows. As a rule, the calculations are based on the data of the previous period. Therefore, scientific and technical programs and projects, evaluated in the process of justification as highly effective, do not give the calculated effect in their practical implementation. New products become uncompetitive by the time they are released.

Predictive competitiveness is the basis for creating new products. In the process of forecasting, attention should be paid to both improving the technical parameters of the product and reducing the price of its consumption. Based on the results of predictive calculations of production costs, cost reduction planning should be carried out. Also, one of the most important areas for improving the mechanism for implementing innovation policy is to solve the problem of information support. The problem of improving the

accuracy of calculating economic efficiency indicators for making informed decisions on innovative development remains unresolved. The main components for calculating economic efficiency are sales of new and innovative products, prices, costs. The degree of accuracy in assessing the possible volume of sales largely depends on the depth of marketing research on the domestic and foreign markets.

The main motive for the introduction of innovative processes in the enterprise is to obtain competitive advantages:

1) Strategic in nature: creating a favorable business reputation in the eyes of consumers, potential partners, investors, increasing production efficiency through the modernization and renewal of production facilities, ensuring the development of the enterprise by expanding sales markets and diversifying activities.

2) Increasing the profitability of the enterprise due to the temporary monopolization of the market and the possibility of obtaining excess profits from the sale of radical new products, improving the quality and competitiveness of products, increasing the share of the product in the market.

3) Reducing the costs of economic activities due to saving energy and raw materials through the introduction of saving technologies, reducing the number of defects, restructuring activities.

4) Special benefits and benefits: informational and legal support from the state and private structures, preferential taxation, preferential lending.

The development of the organization is carried out in all areas of its activities. Recommended the following main blocks of innovation planning:

- research and development work to create new products
- capital construction of new industrial and administrative buildings
- reconstruction, modernization and renewal of fixed assets
- technical and organizational improvement of production, labor and management
- rationalization and invention

Improvement of these exact blocks will be the most profitable and efficient for businesses.

In order for a company to switch to an advanced innovative development path, the state needs to create conditions under which:

- an enterprise that create new technologies in the direction of economic growth could take a cheap long-term loan
- a research team that creates new technologies could receive financial support for the implementation of their projects and the implementation of the results obtained in production
- scientists working in the main directions of the formation of a new technological order, and universities that train specialists of the relevant profile, would receive the necessary funding to realize their creative and educational potential
- each firm that develops new technologies can access loans to carry out the necessary research and development work and government-regulated markets for its products
- the interest of consumers in the acquisition of high-tech products is necessary.

Sources of financing innovations are: profit, depreciation, capital of owners or contribution, borrowed funds. The innovation activity plan includes an enlarged work structure or a detailed list of all innovation projects that need funding. In addition, it is necessary to plan minor organizational and technical measures, the implementation of which provides for current costs related to the cost of production. To finance current costs, appropriate cost estimates are prepared for complex costing items.

It is important that the organization remains dynamic and flexible. It must be able to adapt to work with different forms of innovation. The profile activity of the company is well suited for the step-by-step implementation of not too radical innovations that ensure stable business development. More drastic changes require special support. The further an innovative development deviates from the main business model, the more dedicated resources are required to support it. In addition to the structure, it is necessary to adapt the

appropriate processes and tools to perceive different types of innovations. A standard approach based on an existing business model will not work if the innovation deviates significantly from the core business model.

Thus, systemic public policy measures are needed that can influence the remaining scientific and technical potential, carry out structural restructuring of the economy on an advanced technological basis in time, fully increase its competitiveness and radically change society's attitude to innovation. Also, an important problem is the low demand for innovations in the economy and its ineffective structure: it is more profitable for enterprises to purchase finished equipment abroad than to engage in their own innovative activities. Neither the private nor the public sector shows the necessary interest in introducing innovations, so production is falling due to obsolescence of technologies and processes, equipment. Thus, we get a stagnation of the economy due to the unpreparedness of managers for innovative activities.

The procedure for planning the economic efficiency of innovations can be divided into three parts. One group of innovations has clearly defined capital and operating costs, which are reflected in the calculation of the need for financing, but the result is not amenable to direct calculation. The second part of innovations is large investment projects that require a special feasibility study. The third group of innovations, which are small organizational and technical measures to reduce the cost of production, has the initial data for calculating the indicators of the economic efficiency of innovations.

The pace of innovation is extremely rapid. No individual firm or country can hope to gain or retain technological and market superiority in any given area for long. The pressure of competition and the rapid spread of production capabilities, innovative ideas, and new patterns of demand compel companies to measure themselves against rival firms at home and abroad early in the production cycle, and then rapidly exploit, in the widest possible market, any competitive advantages that arise from a lead in innovation [3].

Based on the foregoing, it can be argued that innovations in the life of society have a significant impact on the economy. The role of innovations in modern society cannot be overestimated. Innovations perform economic and social functions, cover all aspects of society, affect personal issues, have positive effects and force society to change its way of life.

# CONCLUSION

The emergence of innovations is based on scientific and technological progress, which leads to quantitative changes in the basis of production. Innovation is an improvement in the activities of a business entity that brings a positive economic, social or environmental result. Innovation is the use of scientific achievements for commercial purposes. The characteristic features of innovations that distinguish them from non-essential quantitative transformations are:

- there is a qualitative leap in the level of technology as a result of the implementation of inventions (novelty criterion)
- there is a plurality of achieved effects (scientific and technical, economic, social and environmental)
- the economic effect achieves significant results (efficiency criterion)

Another feature of innovations is their cyclical and spasmodic distribution. The sequence of development of the innovation process includes the following steps:

- birth of innovation
- spasmodic growth
- reaching the limit in achieving the result
- rising costs and falling results

Innovations act as a means of solving the production and economic problems of the organization. They cause significant processes of transition of the economic system from one state to another, during which the changes initiated by the organization and controlled by it are carried out.

When studying the materials that were used in this work, it became clear the concept of innovation, where and when it first appeared, which of the authors first mentioned and began to introduce them into everyday life, as well as how everyday life has changed with the advent of new technologies.

The states of the world strive to obtain progressive technologies, advantages over other countries; want to stand out. To evaluate the result obtained after the introduction of ideas, it is necessary to consider the benefits received not only by the subject of innovative activity, but also by the final recipient of the product - the buyer, and also to conduct a critical analysis of innovative activity. An innovation is considered successfully introduced if four conditions are met: significance (the result obtained must be considered by the buyer as a valuable acquisition), exclusivity (the result must have properties that are different from the properties of competitive products existing on the market), endurance (the product must be resistant to competitive opportunities, perspective preservation of uniqueness in the market should be long-term), liquidity (the product should be a profitable purchase for the buyer in terms of quality and price).

Innovation metrics help analyze an organization's ability to come up with new, out-of-the-box solutions and serve as a measure of a company's success in a competitive marketplace. The system of innovation indicators creates a formalized basis for making managerial decisions, expressing the strategic interests of the company and motivating staff to take initiative. The development of technologies improves the quality of goods, services, and technologies. New ideas make people's lives comfortable and safe. Due to the development of technologies, the qualifications of employees are increasing, the level of intellectual property is growing, and equipment is being updated. Every idea - to a greater or lesser extent - affects the quality of people's lives.

The number of new products on the world market is growing every year. For the development of this sphere within the state, it is important to create a loyal legislative base. The foundations of innovation must be properly regulated by developed regulations and stimulated by funding programs. The organization of innovations at various levels of social life and in all areas should be a priority policy of the state. For encouragement and control, the signs of innovation should be considered for successful entry into the market

and subsequent application. The combination of all these measures can reduce the risks in innovation.

Analyzing the company's performance, it is visible that «VAGAR» the company keeps pace with the times and develops, using innovations in everyday processes. Innovative technologies are used from the purchase to the moment the customer receives the goods. Thanks to modern opportunities, communication with foreign suppliers has become easier and quickly, which reduces the time for communication and resolving issues from the company, as well as customers. Modern financial transactions allow faster payments, and this contributes to timely production and increased sales. At the same time, weighing devices are becoming more modern and easier to use for the client, this is also facilitated by the innovations that the company is constantly introducing.

The decisive role of innovation in the economy entails the need to assess the profitability of research and development, to search for various parameters that determine this efficiency. Innovative activity of the organization is inseparable from economic activity and is its competitive advantage. For this reason, the economic efficiency of innovations in an organization over a certain period can be identified with the economic efficiency of the organization. As a result of innovation, new ideas, new and improved products, new or improved technological processes are born, new forms of organization and management of various sectors of the economy and its structures appear. Innovative activity is a powerful lever that helps to overcome the recession, provide structural adjustment and saturate the market with a variety of competitive products. A firm may find itself in a crisis if it fails to anticipate changing circumstances and respond to them in time. In a market economy, it is not enough for a manager to have a good product; he must closely monitor the emergence of new technologies and plan their implementation in his company in order to keep up with competitors.

In a number of cases, the coronavirus has had a curious effect on the business processes of many companies, temporarily bringing together areas that used to exist just

fine on their own. Public catering suddenly began to actively interact with retail. The new economic realities have had an impact not only on business, but also on government structures. COVID-19 has made significant adjustments to the behavioral and daily habits of the average person. The need for social distancing, the cost of protective equipment for staff, reduced traffic and the reorientation of customers to online shopping - all this together stimulates and pushes many companies to introduce new innovative technologies. Due to the technical capabilities and the latest achievements in engineering, retail chains can get significant traffic savings, because. shifting the calculations to video cameras, now there is no need to transfer huge amounts of data back and forth. In addition, due to data processing on end devices, the time lag and delays in the reaction of an event are minimized. Decisions can now be made almost instantly, literally in microseconds. Also, during the pandemic, the growth in the number of online purchases and the shift in emphasis to online commerce has stimulated many retailers to develop their mobile applications.

A progressive national innovation policy would be concerned with pushing technology down the supply chain, not simply transferring innovations to high-tech start-ups. This means modifying existing R&D institutions to provide technical assistance on innovative production processes as well as designing and prototyping innovative products. These innovative processes include energy efficiency, life-cycle product design, and adoption of better, greener, safer materials. Research and development facilities should focus on international standards and certifications-environmental, labor, corporate codes of conduct, systems and logistics, that provide suppliers with increased credibility with end producers in a global supply chain. In addition, access to shared facilities and the technical assistance they provide should be free to SMEs, particularly small firms co-located with the R&D institution.

# ANNEXES

## Annex A

| Liquidity indicator | Indicator value | | | | Change in indicator | | | Calculation, recommended value |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2018-2019 | 2018-2020 | 2018-2021 | |
| Current (total) liquidity ratio | 1.84 | 2.02 | 1.91 | 1.95 | 0.18 | -0.11 | 0.4 | The ratio of current assets to short-term liabilities. Normal value is 2 or more. |
| Quick liquidity ratio | 1.82 | 1.93 | 1.85 | 1.92 | 0.11 | -0.08 | 0.07 | The ratio of current assets to short-term liabilities. Normal value is 1 or more. |
| Absolute liquidity ratio | 0.02 | 0.04 | 0.03 | 0.04 | 0.02 | -0.01 | 0.01 | The ratio of current assets to short-term liabilities. Normal value is 0.2 or more. |

**Annexes B**

## PEST analysis

| Political | Economical |
|---|---|
| ● VAGAR interacts with various nations around the world that don't enforce tough trade regulations, granting them the privilege of getting better international services.<br>● Some other political factors of concern are political stability, industrial limitations and business standards.<br>● VAGAR is successful in serving in different countries because it strictly abides by all relevant laws. | ● Inflation, exchange rates and interest rates are economic factors taken into consideration, for they have the potential to distress consumers.<br>● Depression in the market affects the financial assets of the company.<br>● It's both a positive and a negative for VAGAR that it provides services in different countries, since it must respond to varying economic factors as a result.<br>● VAGAR must be flexible with its charges, basing them on the economic status of the country it serves. |
| **Social** | **Technological** |
| ● Social factors that affect an organization are population and educational perspective of the international and macro-economic society. These pertain to decisions organizations make to meet the needs and demands of a specified number of consumers in certain countries.<br>● Populated countries are favorable to VAGAR because they have more | ● VAGAR, like other organizations, is successful primarily due to the advancement in technology.<br>● The company took the expansion of the Internet to its full advantage by providing electronic services to customers in different countries.<br>● Within this technology, consumers can check the availability with just a few clicks. |

| | |
|---|---|
| consumers who require their services.<br>● Global organization expansion is influenced by countries with high literacy rates, something that's certainly a driver for the company. | ● Company is able to communicate with the world through e-commerce, another innovation for business-to-business transactions. |

# LIST OF REFERENCES

1. “A global value chains perspective”, Xiaolan Fu, 2020

2. “A theoretical extension of the technology acceptance model: four longitudinal field studies”, Venkatesh, V., Davis, F.D., 2000

3. “An integrated model of information systems adoption in small business”, Thong J.Y., 2000

4. “As time Goes by: From the Industrial Revolutions to the Information Revolution”, Freeman C. and Louçã F., 2002

5. “Assessment of innovative potential of an industrial enterprise”, Shlyakhto I.V., 2009

6. “Commercialization of university research and innovations: Obstacles and solutions”, Tanha D., Salamzadeh A., Allahian Z. & Salamzadeh Y., “Journal of Knowledge Management, Economics and Information Technology”, 2011

7. “Core issues of innovative development”, Kosenkova, T.V., 2010

8. “Dead or alive? The development, trajectory and future of technology adoption research, Venkatesh V., Davis F.D., 2007

9. “Determinants of the future level of use of electronic marketplaces: the case of firms”, Hadaya P., 2006

10. “Diffusion of Innovations”, Rogers E.M., 2003

11. “Do global value chains offer developing countries learning and innovation opportunities?”, De Marchi V., Giuliani E. and Rabellotti R., 2018

12. “Economic and social analysis of the adoption of B2B electronic marketplaces”, Driedonks C., Gregor, S., Wassenaar A., Heck E., 2005

13. “Economics and management at industrial enterprises”, Burlankov S.P., Dolgov D.I., 2010

14. “Electronic data interchange and small organizations: adoption and impact of technology”, Iacovou C.L., Benbasat I., Dexter A.S., 1999

15. “Entrepreneurship and innovation: Current aspects”, Karagianni V., Papagrigoriou A., Kalantonis P., Chalikias M. & Drosos D., 2017

16. “Entrepreneurship and market orientation as determinants of innovation: the role of business size”, Gonzalez-Benito O., Munoz-Gallego P., Garcia-Zamora E., 2015

17. “From globalization to regionalization: The United States, China, and the post-Covid-19 world economic order // Journal of Chinese Political Science”, Wang Z., Sun Z., 2020

18. “Global Innovation Index 2021”, WIPO, 2021

19. “Global value chains: Investment and Trade for Development”, United Nations Conference on Trade and Development, 2013

20. “Globalization and economic growth in highly developed countries // SHS Web of Conferences. EDP Sciences”, Swadźba S., 2020

21. “Globalization will look very different after the coronavirus pandemic”, Fontaine R., 2020

22. “Google eats the world”, Solnit R., 2015

23. “Honing Your Knowledge Skills”, Mariana Funes, Nancy Johnson, 1998

24. “How to drive innovation in times of change”, Nomme Bastien, 2020

25. “Industrial companies' evaluation criteria in new product development gates”, Hart S., Hultink E., Tzokas N., Commandeur H.R., 2003

26. “Information technology adoption across time: a cross-sectional comparison of preadoption and post-adoption beliefs”, Karahanna E., Straub D.W., Chervany N.L., 1999

27. “Inhibitors to Electronic Data Interchange adoption in small businesses: an investigation”, Chau P.Y., 2001

28. “Innovation and economic growth”, Nathan Rosenberg, 2004

29. “Innovation and technology transfer through global value chains”, Zhang F. and Gallagher K.S., 2016

30. “Innovation as a means of economic development”, Santo B., 2006

31. “Innovation Development // Creative economy”, Eremin A.V., 2012

32. “Innovation in an international comparison: which countries are successful?”, Konica Minolta, 2018

33. “Innovation in the Global Economy”, Roberto Álvarez, José Miguel, Benavente Gustavo Crespi, 2019

34. “Innovations at enterprises and their implementation”, Huchek M., 2004

35. “Innovative activity in industry”, Grachev M.V., 2002

36. “Innovative management”, Fatkhutdinov R.A., 2010

37. “Integration of market pull and technology push in the corporate front end and innovation management”, Brem A., Voigt K., 2009

38. “Investigating search costs and coordination costs in electronic markets: a transaction costs economics perspective”, Benslimane Y., Plaisent M., Bernard P., 2005

39. “Key dimensions of inhibitors for the deployment of web-based business-to-business electronic commerce”, Teo T.S.H., Ranganathan C., Dhaliwal J., 2006

40. “Kondratiev waves, development of the world economy and international politics”, Modelski G., Thompson W., 1996

41. “Large conjuncture cycles and the theory of foresight”, Kondratiev N.D., 2002

42. “Management of scientific and technological innovations”, Twiss B., 1999

43. “Measuring Innovation Efficiency”, Hollanders H., Celikel-Esser F., 2007

44. “Methodology for the analysis and evaluation of innovations in an industrial enterprise”, Vinogorov G.G., 2006

45. “Methodology of Assessment of Innovative Activity Efficiency”, Tumina T.A., 2009

46. “New Technology and Organizational Structures”, Ed. Pinnings, A. Butandyam. "Economics", 2003

47. “Organizational adoption of open systems: a technology-push, technology-pull perspective”, Chau P.Y., Tam K.Y., 2000

48. “Organizational innovation adoption: a multi-level framework of determinants and opportunities for future research”, Frambach R.T., Schillewaert N., 2002

49. “Organizational innovation adoption: a multi-level framework of determinants and opportunities for future research”, Frambach R.T., Schillewaert N., 2002

50. “Personnel policy as a factor of modernization // Innovations”, Lisin B.K., 2013

51. “Product innovation input and outcome: moderating effects of the innovation process”, Parthasarthy R., Hammond J., 2002

52. “Public sector innovation – from theory to measurement”, Bloch C., Bugge M., 2013

53. “Seen the Invisible: New Perception in the History of Technology”, Carroll Pursell, 2000

54. “Systematic organization of innovative activity”, Pervushin, V.A., 2003

55. “Technological innovation as an evolutionary process”, Stankiewicz R., 2000

56. “Technology and the future of growth: Challenges of change”, Zia Qureshi, 2020

57. “The associational economy: Firms, regions, and innovation. Oxford”, Cooke P., Morgan K., 1998

58. “The complementarily of information technology infrastructure and e-commerce capability: a resource-based assessment of their business value”, Zhu K., 2004

59. “The Digital Economy: Rethinking Promise and Peril in the Age of Networked Intelligence”, Tapscott D., 2014

60. “The double role of innovation”, Laricheva E.A., 2003

61. “The innovation paradox: Developing-country capabilities and the unrealized promise of technological catch-up”, Cirera X. and Maloney W. F., 2017

62. “The main ways of formation of innovation systems in countries with developed market economies.", Yurin S.V., "Creative economy”, 2010

63. “The Measurement of Scientific and Technological Activities”, Frascati M., 2002

64. “The nature of entrepreneurship: Entrepreneurs and entrepreneurial activities”, Radovic-Markovic M. & Salamzadeh A., 2012

65. “The New Economy in Transatlantic Perspective: Space of Innovation”, Hübner K., 2006

66. “The Power of Creative Destruction: Economic Upheaval and the Wealth of Nations”, Aghion P., Antonin C. and Bunel S., 2021

67. “The relationship between buyer and a B2B e-marketplace: cooperation determinants in an electronic market context”, Lancastre A., Lages L.F., 2006

68. “The rise of innovation surveys: measuring a fuzzy concept”, Godin B., 2002

69. “The Technology Revolution and the Restructuring of the Global Economy”, Umberto Colombo, 1988

70. “The theory of economic development”, Schumpeter J. A., 1911

71. “The world economy will need even more globalization in the post-pandemic 2021 decade”, Contractor F.J., 2021

72. “Theory of long waves: historical context and methodological problems”, Avramov R., 2011

73. “Towards digital globalization and the Covid-19 challenge // International Journal of Business Management and Economic Research”, Schilirò D., 2020

74. “User acceptance of information technology: toward a unified view”, Venkatesh V., Morris M.G., Davis G.B., Davis F.D., 2003

75. “What are waves of innovation?”, Schramm L., 2014

76. “Will the COVID-19 pandemic really change the governance of global value chains?”, Verbeke A., 2020

77. “World Economy”, Kondratiev N., 1992

78. “World experience in stimulating the innovative activity of industrial enterprises”, Cherednichenko L.G., 2012