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Department of International Economic Relations, Business & Management

Bachelor's Qualification Work

Trends in the global market of high-tech products

–

(on the basis of Lukon)

Bachelor's student of

Field of Study 29 – International Relations

Specialty 292 – International Economic Relations

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Abstract

The modern world of business is multifaceted and constantly changing, bringing new economic benefits and opportunities but at the same time risks and challenges. We live in a highly volatile world that has turned the global business model into one extensive interdependent system that ensures close connectivity and international trade everywhere.

High technology has significantly impacted almost every area of our lives and, of course, has also changed the business industry. All accumulated and recent trends have created new ways of business development. This work profoundly analyzes technologies from a theoretical point of view, considers how they have economically affected business development, studies the competitiveness of companies, and suggests ways to improve business.

Keywords: high technologies, technologies, business development, business improvement

Современный мир бизнеса многогранен и постоянно меняется, принося новые экономические выгоды и возможности, но в то же время риски и вызовы. Мы живем в крайне нестабильном мире, который превратил глобальную бизнес-модель в одну обширную взаимозависимую систему, обеспечивающую тесную связь и международную торговлю повсюду.

Высокие технологии существенно повлияли практически на все сферы нашей жизни и, конечно же, изменили бизнес-индустрию. Все накопленные и последние тенденции создали новые пути развития бизнеса. В этой работе проводится глубокий анализ технологий с теоретической точки зрения, рассматривается их экономическое влияние на развитие бизнеса, изучается конкурентоспособность компаний и предлагаются пути улучшения бизнеса.

Ключевые слова: высокие технологии, технологии, развитие бизнеса, улучшение бизнеса.

Сучасний світ бізнесу багатогранний і постійно змінюється, приносячи нові економічні вигоди та можливості, але водночас ризики та виклики. Ми живемо у дуже нестабільному світі, який перетворив глобальну бізнес-модель на одну розгалужену взаємозалежну систему, яка забезпечує тісні зв'язки та міжнародну торгівлю всюди.

Високі технології суттєво вплинули майже на всі сфери нашого життя і, звісно, також змінили бізнес-індустрію. Усі накопичені та останні тенденції створили нові шляхи розвитку бізнесу. Ця робота глибоко аналізує технології з теоретичної точки зору, розглядає, як вони економічно вплинули на розвиток бізнесу, вивчає конкурентоспроможність компаній, пропонує шляхи покращення бізнесу.

Ключові слова: високі технології, технології, розвиток бізнесу, поліпшення бізнесу.

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TASK
FOR BACHELOR’S QUALIFICATION WORK
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1. Topic of the work

Trends in the global market of high-tech products

Supervisor of the work _____,

(surname, name, degree, academic rank)

Which approved by Order of University from “22” *December 2022 №22-12/2022- 1c*

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3. Data-out to the bachelor’s qualification work

to the bachelor thesis materials received during the consultation with the representatives of Lukon company

4. Contents of the explanatory note (list of issues to be developed)

There are three main topics/tasks for the thesis: theoretical and methodical bases of high-tech technologies; research of the organizational and economic mechanism of high-tech technologies implementation in the enterprise; development of measures to improve the high-tech technologies management of the enterprise.

5. List of graphic material (with exact indication of any mandatory drawings)

Graph for illustrating the dynamic of financial indicators of the company activity and schemes for visualization the international organization management system of the company.

6. Consultants for parts of the work

Part of the project	Surname, name, position	Signature, date	
		Given	Accepted
1	<i>Syerova</i>		
2	<i>Syerova</i>		
3	<i>Syerova</i>		

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	<i>14.02-13.03.2022</i>	<i>Done</i>
2.	II chapter	<i>14.03-10.04.2022</i>	<i>Done</i>
3.	III chapter	<i>11.04-24.04.2022</i>	<i>Done</i>
4.	Introduction, conclusions, summary	<i>25.04 – 01.05.2022</i>	<i>Done</i>
5.	Pre-defense	<i>08.06.2022</i>	<i>Done</i>

Student _____
(signature)

Supervisor _____
(signature)

Conclusions: _____

The bachelor thesis of V. Chepiha is relevant and devoted to high-tech technologies management. The reviewed bachelor thesis consists of content, introduction, 3 sections, conclusions, and recommendations. The content of the paragraphs is fully complied with the parts' titles and the topic of the bachelor thesis. The content and structure of the work meet the requirements and current standards for obtaining an educational bachelor's degree. Illustrative materials facilitate the perception of presented information and indicate persistence in the collection and processing (analyzing) of statistical data. The practical significance of this bachelor thesis is proved by the opportunity of using of a proposed improving set of measures on the Lukon company. Proposed recommendations will increase the efficiency of the management system of the company. The bachelor thesis is a completely independent study of current theoretical and practical aspects of management. The bachelor thesis of V. Chepiha is recommended for defense with the highest score.

Supervisor _____
(signature)

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INTRODUCTION

"High tech" is a term usually applied to the economic and industrial sectors where there is a strong focus on technological innovation. High-tech industries play an important role in today's economy and often earn significantly higher wages than other industries.

The emergence of high technology has had a significant impact on all spheres of society: material and production, social, spiritual and political. Both the professional environment and the daily life of a modern person in a developed society are subject to changes. All this, in turn, has a significant impact on the functioning of the modern labor market and forms new requirements for competitive specialists, especially for professionals who are associated with high-tech industries. In this case, we are talking not only about those specialists who work directly in high-tech sectors of the economy, but also those who are engaged in the development of high technologies, and those who train personnel for this production.

The relevance of research. The concept of "high technology" appeared and began to be used in the second half of the 20th century. The phenomenon described by this concept has not yet been subjected to adequate philosophical and methodological analysis, and among scientists there is no unanimity in its understanding. An indicator of the insufficient study of this phenomenon is at least the fact that in modern dictionaries, primarily philosophical ones, it is practically impossible to find a definition of the concept of high technologies. So far, only one thing is obvious - high technologies are both the technological basis of our society and the basis of innovations, and therefore, the topic of this test work "High technologies - as the basis of innovations" is the most relevant at the present stage.

Theoretical base of the research. Certain aspects of modern trends in the development of the international high-tech market are considered in the works of

D. Bell, N.I. Ivanova, G.B. Kleiner, Yu.N. Krasnorutskaya, D.S. Lvov, A.N. Metelitsa, G.O. Pavlovsky, S.A. Sitaryan, M.Yu. Sheresheva. At the same time, the features of the development of the international high-tech market in a crisis and in the post-crisis period are not fully disclosed, and the requirements for the innovation sector in a changing environment are not sufficiently defined. Pricing issues in high-tech markets are discussed in detail in the works of foreign authors - F. Bidolt and Boer F. Peter, as well as in the works of Russian scientists - V. G. Klinov, O. N. Antipina, B. Z. Milner. However, the issues of the evolution of the main pricing factors in the international high-tech market, as well as the prevailing pricing strategies in the context of globalization, have not been fully disclosed.

The study of personnel management systems (PMS) has its own specifics, which determine the management processes not only for the organization's personnel, but also for the external environment, which is the enterprise itself, as well as the state, state laws, and various global trends. The enterprise will be a microenvironment for the personnel management system, and the state will be a macro-environment. On the one hand, PMS is an activity aimed at studying the management system, and on the other hand, it is a discipline, the subject of study and research of which are management processes that have an organizational impact on a group of people, therefore, on the PMS as a whole. The ability to competently apply all the possibilities for the study of personnel management systems consists of theoretical knowledge and practical skills. Theoretical knowledge of PMS has been actively developed and is being developed by such theorists as A. Ya. Kibanov, A. P. Egorshin, T. Yu. Bazarov, V. R. Vesnin, O. S. Vikhansky, P. V. Zhuravlev, I. Bukhalkov, Yu. G. Odegov, E. B. Morgunov and others.

Purpose of the study: analyze of system products that are used in the personnel management.

The goal is achieved **by solving the following tasks:**

- 1) study the concept of high technology and study the main characteristics;
- 2) consider the classification;

- 3) analyze the high technology market;
- 4) analyze dynamics and structure of the international technology market;
- 5) find out prospects for the development of the international technology market;
- 6) study the activities of the company Lukon;
- 7) analyze the financial condition and organizational structure of the enterprise;
- 8) study the influence of external internal factors on the activities of the enterprise;
- 9) analyze of system products that are used in the personnel management.

Research novelty: we have studied the main theoretical aspects of the study of high-tech technologies and developed measures to improve the personnel management system.

Hypothesis: it is believed that if improved system products that are used in the personnel management the company's performance will improve and the company's profit will increase.

Object of research: analysis of high-tech technologies and analysis of the world market.

Subject of work: analysis of the activities of the company " Lukon ".

During the writing of the work, **the following methods were used:** search, analysis, synthesis, classification, comparison, comparison, generalization.

Work structure. The work consists of content, introduction, 3 chapters, which include 8 subsections, bibliography from 38 sources and 1 applications. The total amount of work is 68 pages.

CHAPTER 1.

THEORETICAL AND METHODOLOGICAL BASES OF HIGH-TECH TECHNOLOGIES

1.1 General characteristics of high-tech technologies

Technology is always innovation, which is new products, new technological processes, new types of services, except for the repair of manufactured products and customer service. The ultimate goals of innovation, that is, the result of the constructive interaction of marketing, technology and production, are to satisfy consumer demand and obtain specific profits.

High technology - (high technology) is a term that occurs not only in the technical literature, but also in the media. However, it is not always correctly interpreted. [1]

The following concepts are more often used in the literature: science-intensive technologies, advanced, progressive, critical, breakthrough technologies.

Here are some examples: [1]

- 1) high technology - a set of information, knowledge, experience, material resources in the development, creation and production of new products and processes in any sector of the economy that have the characteristics of the highest world level;
- 2) high technology is understood as any device that is complex in execution, but at the same time easy to use, the use of which allows you to achieve results that you could not even dream of before;
- 3) high technologies include technologies based on highly abstract scientific theories and using scientific knowledge about the deep properties of matter,

energy and information, and technology is called modern not by the date of release, but by the degree of its knowledge intensity and belonging to the world of high technologies;

- 4) high technologies - engineering activities to create new products and technologies, if it is based on strong know-how, on the rules of strong thinking;
- 5) the term "high technology" is extremely relative and is now often used for fundamentally new technologies, especially in the field of electronics, rocket and space research, nuclear industries, aircraft construction, etc.;
- 6) high technologies - a set of information, knowledge, experience, material means used in the development, creation and production of both new (previously unknown) products and processes, and to improve the quality and reduce the cost of production of known products;
- 7) high technologies - a term that refers to advanced technologies that have an innovative, revolutionary character.

Such definitions offer criteria by which it is impossible to clearly and unambiguously distinguish high technologies from other technologies, and it is even more unclear why these technologies required a special designation.

High-tech manufacturing is an extremely broad and poorly defined segment of the modern manufacturing industry. Whether products are considered high-tech is a vague concept left to the discretion of marketing departments. By its broadest definition, high-tech manufacturing includes printed circuit boards or chemical manufacturing. It makes everything from cancer medicine and laptops to coffee makers and high-tech aspirins. Some industries and economists have tried to narrow the classification, with little success.

The term "high technology" originated in the middle of the 20th century. [1] The term has been used to describe world-changing technologies such as nuclear power, mass-produced televisions, and integrated circuits that have become commonplace.

These technologies were so advanced that people viewed them as a whole new level of technology, superior to anything that had existed before.

As technology has come and gone, the term has continued to evolve around it. At one point, betamax players, laserdiscs, and 8-track systems were considered high tech, and the processes used to make them were high tech. As these technologies became obsolete, they ceased to be high tech, and new high tech was the next technology. These technologies have also been phased out, and eventually the high-tech systems that are in use today will fade into the background before even more advanced technologies emerge.

Since the term high-tech has such a variable meaning, high-tech manufacturing also has a meaning. In most cases, if a product uses printed circuit boards, microchips, or advanced pharmaceutical processes, it ends up in high-tech manufacturing. These definitions were created at a time when these technologies were less common than they are today. Now a huge part of the manufacturing world falls under these categories.

In an attempt to further classify the high-tech manufacturing industry, many groups have attempted to refine the current definition. While some of these definitions have seemed promising, such as using age or cost analysis, they all fall apart when applied to certain industries. For example, many of the technologies used in the creation and manufacture of the space shuttle have not changed in decades, but saying that the space shuttle is not high-tech is subject to opposition.

Deciding what is high-tech manufacturing is also made more difficult by the marketing used to sell new products. To make a product seem more advanced than its counterparts, marketers will use ambiguous words (high-tech) to describe it. Over time, these words lose their impact and are replaced, just like the goods they advertise.

High tech has experienced significant economic growth since the 1950s, although it has often been the subject of economic bubbles, especially since the advent of the World Wide Web. In recent years, there has been a shift in high technology from manufacturing to services.

High technology concept is more capacious. It contains ideological and technological components. [1]

In world practice, high technologies include those production technologies that directly use the latest achievements of fundamental and applied sciences, for example, physics, chemistry and computer science. These are such technologies as microelectronics, information and telecommunication technologies, biotechnologies, creation of new materials, etc.

One of the main characteristics of high technologies is high knowledge intensity, that is, a significant increase in the share of scientific knowledge in the entire body of knowledge used in technology. [1] High technologies are characterized by rapid obsolescence, which sometimes occurs already by the time they are introduced into production.

The next important aspect related to Hi-Tech is that they require complex, interdisciplinary and interdisciplinary knowledge for their creation. High technologies are interconnected and mutually condition each other. The emergence of Hi-Tech is associated with a revolution in computing, which led to the creation of a new generation of computers and high information technology. Without modern computers, the emergence of nano- and biotechnologies would be simply impossible, since their creation requires complex and numerous calculations and the creation of multifactorial models. Thanks to advances in nanotechnology and computer technology, genetic research has become a reality, leading to the decoding of the genome of living beings, and on their basis the creation of biotechnologies. And the new materials created on the basis of nanotechnology, in turn, have significantly increased the capabilities of computer technology. And these are just a few examples.

So, there are two approaches to the definition of high technologies. The first approach involves the use of the indicator of science intensity. High technology is equated with high technology and is considered high technology if the share of expenditure on research and development (R&D) is above a certain value. In this case, a comparison with the average level of knowledge intensity can be used,

which is determined using the ratio of R&D costs to the total level of production costs, or an established standard. [1]

The second approach involves determining the level of characteristics of the technology itself (the share of R&D costs is not taken into account). [1] For example, high technology is defined as a set of information, knowledge, experience, material resources in the development, creation and production of new products and processes in any sector of the economy that have the characteristics of the highest world level.

As a rule, high technologies are the property of military products, the priceless property of the state and the intellectual property of the military-industrial complex. This is the elitism of high technology. Personnel for the development of high technologies are trained by the best universities in the country. High technologies are created by the most gifted specialists.

Underestimation of the importance of high technologies for the development of the country, for the reform of its economy is a misunderstanding of the importance of national intellectual wealth as a reserve for any restructuring.

1.2 Classification of high-tech technologies

The need to turn to a serious study of high technologies is given by the socio-cultural context of a new cognitive situation caused by the formation and development of a post-industrial society against the backdrop of the information revolution. [8] The formation of this society is associated with the rapid spread of fundamentally new technologies, called "high technologies" - Hi-Tech (from the English high technology). Although these technologies appeared relatively recently (the second third of the 20th century), they have already become widespread. Hi-tech leads to a restructuring of the economy, leading to an increase in the role of the tertiary sector and the emergence of new sectors of the economy, primarily the "information sector" or "knowledge industries" (knowledge industries). [8]

Profound cultural and social transformations are taking place in all spheres of modern society.

With its appearance, high technologies have greatly influenced the spheres of society and its development as a whole. With the advent of computer technology, the industrial, social and even spiritual spheres have changed. The development of technology has led to changes in working conditions in almost every professional field, thereby creating new requirements for job seekers and increasing the level of competition.

The original innovative observation was made by N. D. Kondratiev in the 20s of the XX century, who discovered the existence of the so-called "big cycles" or "long waves", as they are called abroad. [8] N. D. Kondratiev pointed out the existence of a relationship between long waves and the technical development of production, involving data on scientific and technical discoveries in the analysis, showing the wave-like nature of their dynamics. He explored the dynamics of innovation, distinguishing it from discoveries and inventions. The dynamics of innovations is studied in the context of the phases of a large cycle. In the studies of N. D. Kondratiev, for the first time, the foundations of the so-called cluster approach are seen. N. D. Kondratiev showed that innovations are distributed unevenly over time, appearing in groups, that is, clusters.

The problem of classification of high technologies is quite complex and multifaceted. We note several aspects that are most important from our point of view. First of all, it is necessary to fix the terminological difficulties associated with the concept of "high technology". Despite the fact that the phrase "high technology" very quickly came into circulation and today it and a number of others (High-Tech, High Tech, Hi-Tech, high-tech, high-tech, etc.)¹ are already widely used not only in the scientific and professional environment, but also in the everyday life of a modern person, the generally accepted word usage has not yet developed. There is still no clear idea of what high technology is. At present, there is still a serious lack of generalizing and fundamental studies of Hi-Tech, which is reflected, as we believe, in the fact that it is almost impossible to find definitions of

the concept of "high technology" in modern philosophical and encyclopedic dictionaries.

At the same time, there is no clarity with the generic concept of "technology", which in itself is ambiguous. In the last decades of the XX century. the word "technology" and related cognate words "technological", "technological". [8]

However, it is customary to distinguish the following classification and types:[23]

Wireless. [23] This type of technology includes Wi-Fi and Bluetooth, mobile communications.

Nano. [23] This type of technology is associated with the development of new products at the molecular level: software. Software is an integral part of any computer, however, not all types of software can be considered "Hi-Tech", only advanced and progressive ones, for example, artificial intelligence and all the developments associated with it.

Navigation and technologies of the 2nd destination. [23] Technologies of this kind can be used both during war and for peaceful purposes. Here you can enter: navigation systems, tracking systems, homing missile warheads, etc.

Security. [23] Technologies aimed at ensuring security: tracking sensors, fingerprint scanners, retinas, sensors, etc.

Hi-Tech technologies are characterized by very rapid obsolescence, as a rule, it begins immediately after the project development stage or when the first competitors appear.

"Hi-Tech" developments are closely intertwined, thus requiring cross-industry knowledge and skills from developers. Thus, with the advent of a new generation of computers, the development of completely different industries in their specifics has become available to mankind: medicine, cooking, construction, space exploration and much more.

Today, it is obvious that high technologies drive progress in various professional sectors and are the technological basis for social development.

Considering the various classifications, we can also distinguish the following.

According to the type of novelty for the market, innovations are divided into: [23]

- new to the industry in the world;
- new to the industry in the country;
- new for this enterprise (group of enterprises).

If we consider an enterprise (firm) as a system, we can distinguish: [23]

1. Innovations at the entrance to the enterprise (changes in the choice and use of raw materials, materials, machinery and equipment, information, etc.).
2. Innovations at the exit from the enterprise (products, services, technologies, information, etc.).
3. Innovations of the system structure of the enterprise (management, production, technology).

Depending on the depth of the changes introduced, innovations are distinguished: [23]

- basic (radical);
- improving;
- private (modification).

Christensen's classification is "disruptive" and "supportive" technologies. Disruptive innovations are needed to replace established innovations. This is necessary to start a new cycle of innovative business development. "Disruptive innovation" is the source of development. "Sustaining" innovations reinforce already existing basic technologies that have already established themselves in industry markets.

D. Moore's classification. He distinguishes between innovative products "interrupting" and "non-interrupting" technologies. The basis of this classification is a change or not a change in the usual technology of the consumer's work when meeting with an innovative product. Those innovations that require changing conditions and behavior are called disruptive innovations. "Continuous"

innovations and technologies, for their part, simply improve existing products and do not entail changes in consumer behavior.

Chauffray and Doré's classification based on the depth of change in the physical characteristics of a product or the change in the perceived characteristics of a given product. This is how they stand out: [17]

- original goods (significant innovations, radical innovations);
- updated goods (basic characteristics do not change, only some physical parameters have been changed);
- goods with new positioning (only perceived characteristics have been changed).

The Arthur D. Little classification distinguishes: [17]

1. Key technologies. They are little known in wide circles and provide an advantage to the enterprise. These technologies provide leadership.
2. Basic technologies. They are widely known modern technologies. Give an acceptable level of quality.
3. Emerging technologies are at the experimental stage. Promising.
4. Closing technologies are technologies that are able to close entire industries.

The practical implementation of such innovations mainly depends on the level of product innovations (innovations) and the rate of their distribution.

In view of the foregoing, these classifications of innovations can be present in a single scheme (see app A)

Thus, a variety of specific conditions, including economic, organizational and others, in innovative activity leads to the fact that, despite the commonality of the subject of innovation, each of its implementation is unique. At the same time, there are many classifications of innovations and, accordingly, the subjects of innovation activity. A significant place in the theory of innovation management is occupied by concepts that study the formation of technological systems and ways of disseminating innovations.

1.3 Industry analysis

High technologies are the newest and most progressive technologies of our time, which are the most important link in the scientific and technological revolution (STR) at the present stage. [24] High technologies usually include the most knowledge-intensive industries: microelectronics, computer technology, robotics, nuclear power, aircraft manufacturing, space technology and the microbiological industry.

Accordingly, based on the concept of high technology, it is possible to determine what high-tech products are. High-tech products are products that are manufactured by an enterprise in science-intensive industries, are manufactured using the latest models of equipment and technologies, with the participation of highly qualified personnel, which embody modern scientific achievements, best practices and have high socio-economic efficiency.

Leading countries in the production of high-tech products. Silicon Valley is the most striking example of the development of the region due to the concentration of enterprises in high-tech and knowledge-intensive industries. By the 1970s, it had become a self-sustaining generator of new technologies in the United States and the world, which allowed it to become a center for the dissemination of technology around the globe. Unlike the United States, the development of high-tech industries in European countries began with a big delay. The level of development of high technologies in Europe does not yet allow success in such areas of US leadership as telecommunications and electronics, which have already become traditional. Only a few European countries have achieved success in the development of high-tech industries, focusing on the production of high-quality competitive products created on the basis of their own innovative developments and oriented primarily to the European market.

In Japan, the development of science-intensive and high-tech industries dates back to the 1960s and 1970s. [27] The main driving forces of the "Japanese miracle" were, first of all, political forces, external demand and external financial resources, and above all, this is the result of Japan's active interaction with the

United States during the Cold War. Unlike Japan, outside funding for high-tech development in Asian countries (South Korea, Taiwan, Singapore, and Hong Kong) had economic rather than political prerequisites. However, just as in the situation with Japan, the main source of investment for the development of high-tech industries is the investment of American and European TNCs. Next, we will consider the foreign economic indicators of the leading countries in the export of high-tech products around the world.

Table 1.1

Leading exporters of high-tech products in 2019 (billion US dollars) [27]

№	Countries	Export of goods	Export of high-tech goods
1	China	2142,8	554,28
2	Germany	1308,8	185,56
3	USA	1510,3	154,36
4	Singapore	377,05	130,99
5	South Korea	548,84	126,55
6	France	510,81	104,34
7	Japan	621,97	91,51
8	United Kingdom	432,8	69,42
9	Netherland	474,1	59,13
10	Malaysia	175,74	57,26

Source: Developed by Federica Laricchia

But the indicator of the development of innovative industries and the formation of an innovative economy in the country is characterized not only by the volume of exports and the share of exports of high-tech products. Attention should be paid to how developed the largest innovative companies of a particular country are and how society itself pays attention to these companies and to the high-tech industry as a whole. In search of innovative companies that would combine the development and production of high-tech products, we turned to the rating compiled by the MIT Technology Review (a magazine published by the Massachusetts Institute of Technology). Each year, the MIT Technology Review identifies 50 companies that, by combining high technology and business acumen, are changing the world.

Table 1.2

MIT Technology Review Top 15 Innovative Companies 2019 [27]

№	Name	Country	Market capitalization in 2019 (billion dollars)
1	Nvidia	USA	90,9
2	SpaceX	USA	12
3	Amazon	USA	479,3
4	23andMe	USA	1,1
5	Alphabet	USA	673,9
6	iFlytek	China	6,8
7	Kite Pharma	USA	5,7
8	Tencent	China	350
9	Regeneron	USA	55,5
10	Spark Therapeutics	USA	1,9
11	Face++	China	1
12	First Solar	USA	4,3
13	Intel	USA	160
14	Quanergy Systems	USA	1,6
15	Vestas Wind Systems	Denmark	19,1

Source: Developed by Federica Laricchia

The top 50 "smartest" companies, in addition to such giants as Amazon, Apple, IBM or General Electric, also include ambitious young companies such as SpaceX, which is changing the economy of space travel, Face++, a pioneer in facial recognition technology, and Carbon and Desktop Metal, technology companies operating in the 3D printing market.

However, the "giant companies" are clearly inferior to the "newcomers": 9 of the top 15 companies in the ranking have a market capitalization below \$20 billion. Nvidia topped the list of the most innovative companies of 2019, thanks to work on AI technologies for self-driving cars. [27] In second place is SpaceX, for a breakthrough in rocket science associated with successful relaunches of a reusable first stage of a rocket. [27] Third place was taken by Amazon, showing a worse result than in 2018 (in 2018, Amazon was the absolute leader in the innovation industry). [27] The top ten is firmly occupied by American companies, but China

is beginning to displace them from the "pedestal": 6th and 8th place belongs to the Chinese companies iFlytek (engaged in voice recognition technology, manufactures products controlled by voice commands) and Tencent (owner of the largest Chinese social network WeChat).

By the number of companies in the full rating, the United States leads (31 companies). China is in second place (7 companies), but the gap is too big. Looking at the ranking of companies by revenue in 2019 on the portal fortune.com, in the field of "technology", we can observe that, mainly, companies belong to the United States and Asia-Pacific countries (Table 2 shows the top 15 leading companies in terms of revenue in 2019).

In Ukraine, according to the International Education Policy Research Foundation and the State Statistics Service, the average monthly salary of teachers and scientists ranges from \$100 to \$300. [26] This has already led to a disappointing trend: according to various estimates, from 6,000 to 9,000 representatives of intellectual professions leave Ukraine every year. According to Anatoly Shirokov, head of the trade union of workers of the National Academy of Sciences, last year alone 2,600 people left NASU, including 80 professors and 511 candidates of science. At the same time, the age of 80-85% of the scientific staff who work in Ukrainian universities is approaching retirement age. [26]

Despite the current situation with the emigration of promising personnel to economically more attractive countries, a number of companies have overcome this problem and have become at the helm of a new sector of the economy.

"All our high-tech companies are registered abroad, although they operate in Ukraine," - futurist Alexei Tolkachev. [26]

"The possibility of the revival of Ukrainian high-tech companies not only exists, it is already being realized. There are many such companies in Ukraine that produce fantastically cool products, including those that are exported. The problem is that all our high-tech companies are registered abroad, although they operate in Ukraine. They can be registered in the US, offshore, anywhere," says the futurist.

So, in 2016, Forbes presents the first rating of Ukrainian innovative companies, compiled on the basis of a survey of an expert pool, which was attended by the Kyiv-Mohyla Business School, SP Advisors investment company, IBI-Rating rating agency, Integrites law firm, as well as a representative of a large audit firm - KPMG. [26] Experts in relevant sectors of the economy assessed the level of uniqueness of products and business processes of enterprises, each of which is an innovator in its field.

PrivatBank, Yuzhmash and Nova Poshta received the highest comprehensive assessment of the scale of product, marketing and management innovations, taking into account the level of competitive advantage. Although the top three, like the entire ranking list, consist of companies that are not similar to each other, according to Forbes experts, they are united by the desire for innovation in the broadest sense of the word: the ability to create new value at the intersection of technology and business. After all, innovation can exist not only in the sector of advanced technologies, but also in more traditional industries, provided that the original way of selling products, effective management or creating new value for customers after a unique recombination of long-known components of the production cycle.

To assess the level of innovativeness of Ukrainian companies, Forbes used an expert method of analysis. The rating of innovative companies was formed on the basis of taking into account the opinions of companies and scientific and educational organizations with wide expertise in the field of innovation and market analysis. First, among the proposed list of companies, those were selected that, according to experts, can be considered innovative. Secondly, the experts had the opportunity to supplement the list with their own options for Ukrainian innovative firms that are not subsidiaries of foreign holdings. Thirdly, experts on a five-point scale assessed the level of innovation of each of the selected companies in terms of the following aspects: [26]

- 1) the uniqueness of the company's products, the innovativeness of its production technology;

- 2) the uniqueness of the company's business processes that contribute to the sale of products, including a combination of marketing and managerial innovations;
- 3) the local or global scale of the company's innovations;
- 4) whether innovation creates a competitive advantage for the company and how innovation helps the company to take a leading position in its market;
- 5) whether the innovation is able to cause demand from competitors and the desire to copy in one form or another;
- 6) how big the company's direct contribution to the development of its flagship innovations.

Based on the obtained expert assessments, Forbes derived the average score of innovativeness of each company and recorded the number of cases of its recognition as innovative. The results of the consensus formed the basis for calculating the innovation index.

Rating: [26]

1. PrivatBank
2. Yuzhmash
3. "Nova Poshta"
4. Farmak
5. "Turboatom"
6. Grammarly
7. Neftegazdobycha
8. MHP ("Mironivsky Hliboproduct")
9. "Ukroboronprom"
10. "Socket"
11. Silpo
12. "Wind Power"
13. "Darnitsa"
14. Petcube

15. "Nibulon"
16. Drone.ua
17. "Eco-Optima"
18. "Svarog West Group"
19. AgriLab

It is important to note that high technologies accelerate post-industrial development, the level of which can be determined by the results of the impact:

[26]

1. The vast majority of GDP produced in the service sector (over 70%).
2. In agriculture, employment is from 2 to 4% (3-4% of GDP) of all employment; in industry, transport, energy, communications - up to 16% (GDP within 20%), in the service sector, including trade, finance - 80% of employment and above (with 75-80% of GDP).
3. High overall income per capita, most of the population has a high standard of living.
4. Large stock of accumulated capital.
5. Development of venture financing.
6. No more than 10-15% of the population are poor; at the same time, self-accepted "poverty" is very different from that adopted in other groups of countries. The most important criteria for classifying those line and highly specialized as knowledge-intensive is the fact that at least 3% of the industry's personnel are engaged in R&D, and the share of R&D expenditures is more than 4%.

The participation of the country in the global exchange of high technologies predetermines its success on the world stage, as well as the success of national companies. For the state as a whole, such participation plays a huge role in replenishing the budget and in ensuring national security. Undoubtedly, the international trade in high technologies is a particularly important task in the integration processes. At present, innovative structures play an important role: various technology parks, innovation clusters, activities are aimed at developing

and striving for new technologies. The development of the high-tech sector in countries can be determined by the volume of exports of such products.

The fact that innovativeness directly affects GDP is also proved by the Innovation Index rating from Bloomberg.

The top ten Innovation Index, as of the beginning of 2018, includes South Korea, Germany, Sweden, Japan, Switzerland, Singapore, Finland, USA, Denmark and France. At the same time, the GDP of South Korea over the past year grew by 2.3%, Germany - by 1.7%, Sweden - by 4.1%, Singapore - by 2.1%.

Ukraine, by the way, is in 41st place, between Latvia and Bulgaria. Although, according to the data of another annual study - the Global Innovation Index, the position of our country is even worse: 64th place, between Serbia and the Seychelles.

An important indicator of a country's innovativeness is investments. The influx of capital not only serves as a monetary fuel for the development of knowledge-intensive industries, but also reflects the state of the business environment in the state, the availability of human resources and skilled labor, and the state of the domestic market.

According to the UN, in 2018 the volume of foreign direct investment worldwide increased by 36% compared to 2017, to \$1.7 trillion. At the same time, developing countries received \$741 billion, which is 5% more than in 2017. For example, Hong Kong in 2018 ranked second after the United States in terms of FDI and received \$163 billion, mainland China (third place) - \$136 billion, Singapore (sixth place) - \$65 billion, India (seventh place) - \$59 billion FDI. This list is a kind of confirmation that investors are ready to master new promising economies in terms of technology and innovations. [26]

However, not everything is lost for Ukraine. "Traditionally, we are among the leaders in terms of educational criterion, namely the percentage of graduates in the total volume of the population working in the state (fifth place in the world). Patent activity in Ukraine is also at a fairly high level," says Yakov Sidlyarenko,

CEO of Corum Group. In addition, annually up to 20,000 specialists with technical education graduate from domestic universities.

Ukraine needs to restart its research base today. Yes, in the coming years we will not be able to close the gap with developed countries in terms of innovation. But this will at least make up for lost time, launch the “flywheel” of investments and move the domestic economy off the ground.

CHAPTER 2.

STUDY OF HIGH-TECH TECHNOLOGIES IMPLEMENTATION IN LUKON, LTD

2.1 Organization structure and characteristics of financial and economic activity of the enterprise

The history of the holding Lukon began in 2007, at that time, the future CEO of the holding, headed a small meat-processing company, its workshop of about 200 m² was located in the premises.

Increased demand for the company's products led to the need to modernize production and increase capacity. In 2009-2010, the company purchased stocking facilities in the central part of Ukraine.

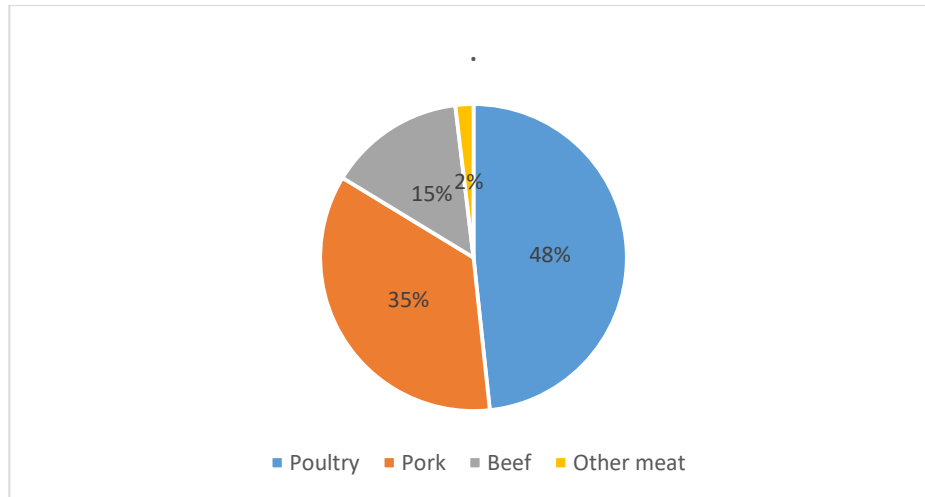
In 2011 the company launches a plant in Kiev, producing 30 tons of products per day. [34]

The company carefully monitors each stage - from the slaughter of meat to the implementation of the finished product. Full production complex, in which all the shops and structural divisions are located on one territory. Constantly investing money in modern high-tech equipment for the European models. The use of natural raw materials - a guarantee of stable quality products. Lukon does not use domestics and piece flavor enhancers.

Employees every day are trying to ensure that due to the strong quality control at all stages of production and strict adherence to technology of production, you will get the best minced meat. The team of the company "Lukon" is united not only by professionalism and responsible attitude to business challenges, but also by love for their work and desire to change the culture of consumption in Ukraine for the better.

The meat market is one of the most important segments of the food market in Ukraine. The main components of the meat market are the pig market, the livestock market and the poultry market. During the period 2000-2018, the meat market underwent drastic changes. In Ukraine, from 2005 to 2018, meat production of all types increased by almost 50%. Beef and veal production fell to 15.2%, while poultry production rose to 53.5%. The total loss of cattle and pigs has led to a reduction in their numbers. At the same time, the short cycle of poultry farming and the rapid return on investment, together with the reduction in the supply of other types of meat - beef and pork, favorable price situation for poultry meat, with low purchasing power of consumers, contribute to the development of this market. [34]

The development of the meat market reflects the nature of the reproduction process in the agro-industrial complex, as the production of meat and meat products is provided by a number of branches of agriculture and industry of the country. All this requires a clear definition of meat market development priorities and mechanisms for state support of the livestock industry. The further development of the meat market in Ukraine will largely depend on the trends in the world meat market.



Picture-Fig. 1.1 The meat market of Ukraine, 2021

Source: Developed by Ukrainian food and beverages industry

From the above data, it can be seen that the chicken meat market in Ukraine is the most important industry that ensures the country's food security (see [Pie Fig. 1.1](#)).

Analysis of the chicken market in Ukraine allows us to assert its saturation with products, in which a further increase in production and imports is problematic. To maintain market positions and ensure competitiveness in the current environment, operators focused on the tasks of reducing production costs, which can be solved by modernizing equipment, introducing new technologies for growing poultry and preparing feed.

Monitoring of the chicken meat market in Ukraine shows that during 2020 690.5 million heads of poultry were slaughtered in the country, which is 5.7% more than the same indicator of 2019. The poultry population at the beginning of 2021 was 9% less than at the same time a year earlier, and amounted to 200.7 million heads.

Since chicken prevails in the Ukrainian meat menu, quarantine restrictions due to the coronavirus pandemic have had little effect on the level of consumption in the Ukrainian chicken market. When incomes decline, domestic consumers tend to abandon more expensive beef and pork, replacing them with chicken meat. A factor in the reduction of consumption in the chicken meat market in Ukraine was

the lockdown in the restaurant and hotel sector, through the channels of which about 15% of the products of the market in question are consumed. However, the decrease in purchases of chicken by HoReCa establishments was offset by an increase in sales in retail trade networks.

At the same time, expert surveys carried out in the course of analyzing the chicken meat market in Ukraine suggest that there is a persistent tendency towards an increase in prices for its products. The main price factors in the chicken market in Ukraine are: [34]

- an increase in the cost of feed due to the rise in the cost of raw materials for their manufacture;

In the structure of the cost of livestock products, feed accounts for up to 70%.

- the need to heat poultry houses at low ambient temperatures;

Heating is carried out using either electricity or gas, which has a sensitive effect on the cost of meat in the context of a permanent increase in energy prices.

- a one-time situation in the country, specifically the spread of bird flu. Outbreaks of the disease result in a decrease in the poultry population and losses for enterprises in Ukraine's chicken meat market.

Consumer analysis of the chicken meat market in Ukraine made it possible to determine that the bulk of the audience of buyers of its products are women 20-60 years old, as well as catering enterprises with a corresponding menu. Whole chicken carcasses are most popular with Ukrainian consumers, since several dishes can be prepared from them at once. Wings and thighs are the smallest purchases because they contain more bones and less meat. Most often, the products of the chicken market in Ukraine are purchased in supermarkets and convenience stores, which are the most visited outlets by the population.

Analysts conducted a study of the chicken meat market in Ukraine in 2018-2020. During the analysis, the main trends in the chicken meat market were characterized. Also, the production of meat of individual chicken parts, namely wings, drumsticks and fillets, was analyzed. The foreign economic activity in the

market is investigated, the consumption of chicken meat in Ukraine is characterized, the main market operators in the country are determined, the average import / export prices for meat of different parts of chicken and retail prices for fillets are presented.

On the Ukrainian meat market, the largest part belongs to poultry meat. Consumption, in particular, of chicken meat for our country is affordable and familiar. The relative cheapness of this product, together with its nutritional qualities, indicate that the demand for it will not decrease, despite the low purchasing power of the population.

Poultry production in 2019 exceeded production in 2018, but this trend did not continue in 2020 due to COVID-19. In connection with the economic crisis that has arisen, the cost of production, primarily the cost of feed and energy, tended to increase, which caused an increase in the final price of the product for the direct consumer.

Since August 2020, feed prices have increased. In particular, soybean meal by 26%, corn by 22%, wheat by 15%. [34]

Lukon company in details [34]

In this part I will describe what company is, what we do and describe our workshop. In addition, I will describe the entire area as a whole.

In almost any butcher shop, there are the following zones: storage of raw materials and finished products, washing and drying of incoming raw materials, deboning, coarse cutting and further finer processing.

Refrigerators / freezers or cabinets are used for storage. Their volume and quantity depend on the scale of production. For washing, the most traditional way is to use washing baths. They can be single-section or have several sections. Coarse cutting is carried out using a meat saw, a chopping block and an ax. More delicate work is done with a knife. In this case, do not cover without a cutting board, meat grinder and other devices. It is important to understand that depending on the volume of processed products, the production capacity of the equipment used is selected and space is allocated in the workshop for one or another zone.

The location of production zones should be optimal in accordance with the processing flow chart and existing norms and requirements.

All this is purchased by us or rented with the possibility of purchasing in the future.

The range of finished products includes various options for cutting meat and minced meat. This solution carries out storage of meat carcasses in a refrigerator, a cutting area, fine cutting, as well as deboning of meat and further processing into minced meat. There is also a small area for packing finished products and supplying them to the sales area.

Frozen raw materials are received and stored in the freezer. From the freezer chamber, frozen meat (quarters) on trolleys goes to the defroster (plus chamber), where at a temperature of 4-6 ° C, the process of slow thawing takes place for 2-3 days. Meat is considered defrosted if the temperature in the thickness of the muscles reaches 0-1 ° C.

Then the defrosted meat is transported to the workshop on trolleys and cleaned on work tables. The surface of the thawed meat is cleaned from dirt, the brands are cut off. Large pieces are cut into pieces on a deck or using a band saw.

The rest of the meat processing operations are carried out on production tables. A cutting board made of hard wood with MC marking is placed on the table, on the right - a tool for processing meat and a tray for semi-finished products of a higher degree of readiness, on the left - large-sized semi-finished products coming for processing, in front of the board - weighing equipment.

We do not have retail, only wholesales. This allows us to save on advertising, lease of retail space (since we sell directly from the factory), as well as on advertising - we do not have it, because all the clients are wholesalers and were found before my appointment as director.

To better understand the company's ability to meet timely obligations to suppliers and creditors, employees and other parties, it is important to study the liquidity ratios in more detail in the table 2.1.

Dynamics of liquidity indicators of Lukon company in 2016 – 2020, on 31/12

Indexes	Year					Absolute deviation, +, -	
	2016	2017	2018	2019	2020	2020 / 2016	2020 / 2019
Current ratio (coverage)	2,46	3,67	2,97	2,86	2,84	0,38	-0,02
Rapid liquidity ratio	0,62	1,26	0,97	1,11	1,11	0,49	0
Absolute liquidity ratio	0,04	0,3	0,03	0,06	0,07	0,03	0,01
The ratio of short-term receivables and payables	0,63	1,39	1,34	1,47	1,46	0,83	-0,01

Source: Information taken from the Lukon company's financial statements

Lukon company has been working to reduce short-term risks during 2016-2020, so managers are taking measures to ensure a balance of short-term funding sources and current assets. This is evidenced by the increase in the current liquidity indicator from 2,46 hryvnias to 2,84.

If we compare it with the normative (which is more than 2), we can conclude that the company will not have problems with repayment of obligations to suppliers of material resources, services, financial resources and so on.

Lukon company was able to repay 62% of its current liabilities within three to six months from the first reporting date (2016 year). As for the value of the indicator at the last reporting date (2020 year), it is within the regulatory limits, because for each unit of short-term liabilities the company had 1,11 hryvnias of current assets, which could be quickly sold on the market and converted in cash.

Comparing the value of current receivables and payables, it can be noted that Lukon company finances its debtors at the expense of suppliers in 2020, in addition, part of the working capital of the company is distracted. For each unit of accounts payable there are 1,46 hryvnias of receivables. However, this situation is not unequivocally bad, because if such a policy allows you to increase revenue, it is advisable to continue to use equity to provide the right to defer payment to customers, this is often more important than a discount on the product.

Table 2.2

Dynamics of indicators of financial stability of Lukon company in 2016 – 2020, on 31/12

Indexes	Year					Absolute deviation, +, -	
	2016	2017	2018	2019	2020	2020 / 2016	2020 / 2019
Own working capital, thousand UAH	77 120	150 563	233 200	321 210	353 216	276 096	32 006
Ratio of current assets with own funds	0,37	0,56	0,56	0,57	0,57	0,2	0
The ratio of own working capital stocks	0,5	0,85	0,83	0,93	0,94	0,44	0,01
Coefficient of financial autonomy	0,39	0,57	0,56	0,58	0,58	0,19	0
Coefficient of financial dependence	2,59	1,76	1,78	1,73	1,72	-0,87	-0,01
Financial leverage ratio	1,59	0,76	0,78	0,73	0,72	-0,87	-0,01
Equity maneuverability ratio	0,95	0,97	0,98	0,97	0,97	0,02	0
Short-term debt ratio	0,65	0,62	0,76	0,81	0,83	0,18	0,02
Financial stability ratio (investment coverage)	0,6	0,73	0,67	0,66	0,65	0,05	-0,01
Asset mobility ratio	53,56	61,41	80,76	48,79	48,02	-5,54	-0,77

Source: Information taken from the Lukon company's financial statements

Lukon company has formed its own working capital (353,216 thousand UAH), which can be used to finance part of the inventories required in the operating process and receivables arising in the process of production and sale of other current assets. The amount of these funds increased by 276,096 thousand UAH during 2016 – 2020.

The managers of Lukon company provided high financial flexibility of the enterprise, as a significant part of the working capital was created at the expense of

the owners. As a result, the company is less dependent on external suppliers of financial resources. 57% of current assets account for own working capital in 2020.

It is extremely important for the company to be able to form the necessary stocks of material resources, which are then used in the production process and the process of providing services. If there are supply disruptions, it threatens both the implementation of the production program and the image of Lukon company. The high value of the indicator of providing inventories with own working capital (94% in 2020) indicates that the risk of such disruptions is minimal. In addition, there is a reduction in the risk of insufficient supply of materials, raw materials and other resources during the period 2016 - 2020, which would lead to a temporary cessation of operations of Lukon company. This is evidenced by an increase in the share of working capital in inventories by 0,44 percentage points.

Lukon company is able to independently finance a significant share of the required assets, namely 58%. The fact that the corresponding figure increases by 0,19, indicates an increase in confidence in the company by financial market participants, suppliers of material resources and services. After all, even if the company loses its solvency and goes bankrupt, the high share of equity will repay most of the liabilities.

Now it is advisable to analyze the indicators of business activity, because they are of great importance for assessing the financial condition of the enterprise, as the intensity of turnover, ie the speed of their conversion into cash, directly affects the solvency of the enterprise (table 2.3).

Table 2.3

Indicators of business activity of Lukon company in 2016-2020

Indexes	Year					Absolute deviation, +, -	
	2016	2017	2018	2019	2020	2020 / 2017	2020 / 2019
Asset turnover, transformation ratio, turnover	-	5,33	5,27	5,23	5,78	0,45	0,55
Turnover ratio of current assets, turnover	-	5,42	5,34	5,32	5,9	0,48	0,58

Profitability (liabilities) of assets (net profit in the numerator),%	-	12,7	23,91	18,88	21,41	-	2,53
Return on equity,%	-	25,99	42,43	33,04	36,84	-	3,8
Return on current assets,%	-	12,92	24,24	19,20	21,85	-	2,65

Source: Information taken from the Lukon company's financial statements

The return on assets of Lukon company shows that for every hryvnia used to finance Lukon company's assets, a net profit of 21.41 kopecks was generated in 2020. An important indicator is the return on equity, which reflects the efficiency of the company in terms of owners or potential investors. Each hryvnia of owners' capital in 2020 provided them with 36,84 kopecks of net profit.

The company provided an increase in the welfare and improvement of the financial situation of the owners, as evidenced by the high value of the indicator of return on equity.

The identified increase indicates that the company is becoming an increasingly attractive object of investment in terms of income generation potential for owners of shares or other securities that reflect the ownership of the company's share.

Strategy development begins with an analysis of the external and internal environment. The starting point for such an analysis is SWOT analysis, one of the most common types of analysis in strategic management. SWOT analysis allows you to identify and structure the strengths and weaknesses of the firm, as well as potential opportunities and threats. This is achieved by comparing the internal strengths and weaknesses of your company with the opportunities provided by the market. Based on the quality of compliance, a conclusion is made about the direction in which the organization should develop its business, and ultimately determines the distribution of resources by segment.

The purpose of SWOT-analysis is to formulate the main directions of enterprise development through the systematization of available information about

the strengths and weaknesses of the company, as well as about potential opportunities and threats.

Table 2.5

SWOT - analysis of the enterprise [34]

<p style="text-align: center;">Strengths</p> <ol style="list-style-type: none"> 1. Strong position of the company on the dairy market. 2. The organization pursues a policy of reducing costs and increasing the share of profits in total sales, this leads to a significant increase in all indicators of profitability. 3. High quality products at low prices. 4. Good business relationships with consumers and suppliers. 5. New and modernized equipment that displaces areas with difficult working conditions. 6. Decent wages, social security of workers, great opportunities for professional growth. 1. 7. Strong portfolio of brands. 	<p style="text-align: center;">Weak sides</p> <ol style="list-style-type: none"> 1. Strong pressure from competitors. 2. Many subsidiaries make it difficult to run a company. 3. High dynamics of growth of operating costs of the enterprise in relation to revenue, caused by increasing costs for product promotion and marketing, justified by the need to maintain market position.
<p style="text-align: center;">Opportunities</p> <ol style="list-style-type: none"> 1. Regional expansion, increasing market share, increasing production. 2. The ability to create quality new products that combine with the concept of a healthy lifestyle developed by the company. 3. Good growth potential in the baby food and mineral water market. Participation in the public procurement program in the dairy market. 4. Export development. 	<p style="text-align: center;">Threats</p> <ol style="list-style-type: none"> 1. Possible decline in consumer demand. 2. High degree of wear of equipment, specialized equipment. 3. Increasing competition. 4. Rising raw material prices and, consequently, lower profitability. 5. Rising advertising costs.

Source: Information taken from the Lukon company's financial statements

Thus, we can say that the organization has internal weaknesses that need to be addressed for further successful development. Internal strengths, such as high quality and product range, should be emphasized in order to achieve the set goals.

2.2 Analysis of internal and external environment of the enterprise LUKON, LTD

In management, the business environment is understood as the presence of conditions and factors that affect the functioning of the firm and require management decisions aimed at their elimination, or adaptation to them. Environment of any organization is considered to consist of two spheres: internal and external. The external environment, in turn, is divided into micro environment

(or working, or direct environment, or environment of indirect influence) and macro environment (or general, or direct business environment, or environment of direct influence).

The internal environment refers to the economic organism of the firm, including the management mechanism aimed at optimizing the scientific and technical and production activities of the firm. When we talk about the internal environment of the firm, we mean the global structure of the firm, which includes all manufacturing enterprises, financial, insurance, transportation and other departments within the firm, regardless of their location and field of activity.

External environment refers to all conditions and factors arising in the environment, regardless of the activities of a particular firm, but having or may have an impact on its functioning and, therefore, requiring the adoption of management decisions. However, the set of these factors and assessment of their impact on business activities are different for each firm. Usually the enterprise in the process of management itself determines, which factors and to what extent can influence the results of its activity in the present period and in the future prospect. Conclusions of conducted researches or current events are accompanied by development of specific means and methods for making appropriate management decisions. And, first of all, factors of external environment, influencing a condition of internal environment of the firm are identified and taken into account. Macro environment creates the general conditions of existence of the organization in the external environment.

The external environment

The external environment is a set of active economic entities, economic, social and natural conditions, national and interstate institutional structures and other external conditions and factors operating in the environment of the enterprise and affecting various areas of its activities. The external environment depends on external and internal factors of influence.

The external environment can be subdivided into: - micro environment - the environment of direct influence on the enterprise, which is created by suppliers of

material and technical resources, consumers of products (services) of the enterprise, trade and marketing intermediaries, competitors, government agencies, financial and credit institutions, insurance companies; - macro environment, which affects the enterprise and its micro environment. It includes natural, demographic, scientific and technical, economic environmental, political and international environment.

The organization's direct-impact microenvironment includes suppliers, labor, laws and government regulatory agencies, customers, competitors, and other factors that directly affect the organization's operations and are directly affected by the organization's operations.

The direct influence environment is also called the direct business environment of the organization. This environment forms such entities of the environment that directly affect the operations of a particular organization: [34]

- suppliers (raw materials, materials, finance) of resources, equipment, energy, capital, and labor;
- state bodies (the organization is obliged to comply with the requirements of state regulatory bodies, i.e. to enforce laws in the spheres of competence of these bodies)
- consumers (according to Peter Drucker's point of view, the purpose of the organization is to create a consumer, as its existence and survival depends on its ability to find a consumer, the results of its activities and to meet his demands)
- competitors - individuals, groups of individuals, firms, enterprises competing to achieve identical goals, striving to possess the same resources, benefits, to occupy a position in the market;
- labor resources - part of the country's population that has a set of physical and spiritual abilities needed to participate in the labor process.

The main market for the products is the city of Kyiv, the city of Minsk and districts of Kharkiv and Odessa regions.

The main competitors are Tri Medvedya, Hercules meat processing plants.

Meat processing plant buys livestock from large farms and individuals (5% of the total amount).

The growth rate of meat production industry in Ukraine is slowing down - many specialized experts predict today. There are many reasons for this: the oversaturation of the poultry market, and the rapid spread of African swine fever. As a result, if previously the growth rate of the meat industry was 15-20%, now the Ministry of Economic Development predicts an average growth rate of 17% over the period from 2012-2021, with an annual average growth rate of 4.3%.

The external environment of the organization of indirect influence are political factors, factors of demographic, natural, scientific and technical nature, socio-cultural factors, economic conditions, international events and other factors that may not have a direct immediate impact on operations, but nevertheless affect them. Factors of indirect impact or the general external environment usually do not affect the organization as visibly as factors of direct impact. However, management needs to consider them. The indirect impact environment is usually more complex than the direct impact environment. Therefore, its study usually relies primarily on forecasts. Let us consider some of them.

The demographic environment is characterized by the aging of the nation, which leads to a demand for a young workforce; low living standards, high unemployment, which leads to migration to other areas where it is possible to find work, and this means an outflow of labor force from the region. All this leads to social instability and conflict situations in society.

Economic environment is characterized by instability and poor predictability of economic development of the country, low solvency of enterprises and citizens and imperfection of tax policy.

The natural environment is characterized by a shortage of raw materials, a rise in the cost of energy and other environmental aspects.

The political environment is characterized by political and legal instability in the state.

BCG analysis [34]

The emergence of the BCG model or matrix was the logical conclusion of a research effort, once conducted by the Boston Consulting Group in the field of strategic planning. The BCG matrix is based on a product life-cycle model, according to which a product goes through four stages in its development: market entry (wildcat), growth (star), maturity (cash cow) and decline (dog).

Having analyzed the position of the enterprise in the market, we can conclude that it belongs to the category of "Wildcats". "Wildcats" (fast growth/small share) are subject to special study to determine if they can turn into stars with known capital investment. Because of the high degree of risk and large capital investment, management has a need for analysis.

Marketing and Logistics [34]

Marketing department specialists constantly collect information on the availability of similar products in the market for further study of the assortment in order to identify the strengths and weaknesses of competitive analogues of the products. The collected information is carefully analyzed and considered at daily meetings with the chief specialists of the technology and sales departments. Planning of advertising activities is taken into account in the formation of a plan of marketing activities.

In forming the plan, applications, specialists of departments and subdivisions of the enterprise, information obtained by studying the demand for new types of food products, materials on marketing topics, data from seminars, observations of competitors, market conditions, statistical reporting data are used. Market research information is gathered by specialists of the marketing department.

The information is obtained by interviewing potential consumers, as well as trade workers at field tastings in trade enterprises.

When conducting field tastings, specialists of the enterprise conduct questionnaires, summarize and analyze the data obtained.

On the basis of collected questionnaires specialists of marketing department analyze customer satisfaction, where they cover all necessary indicators - it is ensuring the timeliness of product delivery, satisfaction with price indicators,

fulfillment of quality requirements of products supplied, availability of extended range, ensuring appearance, availability of necessary information on new types of products, advertising information, availability of products with extended shelf life.

Delivery of products to retailers, caterers, as well as other consumers is carried out on the basis of requests.

Recently Lukon has been intensively working on expansion of the branded trade network. Products are sold throughout Belarus. The combine has a network of branded stores in Slutsk, Zhitkovichi, Kletsk and Minsk, as well as trade pavilions in Soligorsk, Slutsk and in the capital markets (Komarovskiy and Zhdanovichi). There are 4 branded stores, 8 butcher shops, 4 butcher stalls, 3 autolabels in different cities of Minsk region. Monthly turnover in branded trade makes about 120 million rubles.

According to the results of 2020, the share of exports in the production volume of the plant was 25%. By the end of the current year it is planned to increase it to 40%.

The basis of exports is traditionally beef of the first category. Thus, in January-March this year export supplies amounted to 684 tons of beef and in April - about 900 tons.

The main markets are Ukraine and Belarus. Today 32% of the plant's total output is exported to Ukraine, which amounts to about \$12 mn a year.

In March-April 2012 the company for the first time shipped a shipment of sausages to Russia. The first shipments were 5 tons to Kazan and 2 tons to Murmansk. In the near future will also enter the markets of Smolensk and Bryansk regions.

JSC "Slutsk meat processing plant" regularly participates in international and national exhibitions and contests.

In June 2012, the meat-packing plant took part in the International Forum "Meat Industry" in Moscow; during the forum, five types of sausage products were awarded diplomas and received three gold and two silver medals by the Ministry of Agriculture of Russia according to the results of a closed tasting.

In July 2012 the company took part in the National exhibition of the Republic of Belarus in Tyumen, where it was awarded a diploma for participation.

In November 2012 we took part in the 11th International Food Exhibition "Peterfood" in Kiev. During the exhibition were awarded two gold medals at a closed competition "Our brand", as well as a diploma for active participation.

Also in November at the International specialized exhibition "Prodexpo-2012" Slutsk meat processing plant won the contest-tasting "Gust-2012". The meat-packing plant participated and became the winner of the contest "Best Goods of Ukraine-2012".

In December 2012 the enterprise was awarded a diploma of the second degree in the category "Meat Products" at the contest "Product of the Year 2012".

In April 2012, the meat-packing plant took part in the sixth multi-branch exhibition-fair "Brest. Commonwealth - 2012" in Brest, where it was awarded a diploma for the professional promotion of the regional market products of the enterprise. In September the company participated in the National exhibition of the Republic of Belarus in Kazan, where it was awarded a diploma for participation.

In November 2012 at the 10th anniversary International wholesale exhibition "Prodexpo-2004" the company won the contest-tasting "Gust-2004" in the category "Semi-finished products". Meat Processing Plant also took part and won the contest "Best Goods of Ukraine - 2013".

2.3 Analysis of system products that are used in the personnel management system of LUKON, LTD

At Lukon, we believe that the success of a project depends largely on its preparation and structure. Even before you start explaining HR processes, you should enlist the support of your management, prepare methodological materials, and arm yourself with patience. If possible, ask for help from colleagues who have previously performed similar work in their firms.

It is very important to:

- identify the right project manager;

- inspire the members of the project team;
- allocate resources for the project
- choose the best sponsor for the project.

When starting work, it is very important to have a proper schedule of work. As a result, all members of the project team will know exactly what needs to be done in the next phase and will be able to observe the results of their efforts.

Manager. The effectiveness of any group project primarily depends on the professionalism and personal qualities of the manager: the higher his professionalism and communication skills, the greater the probability of success.

Since HR-processes are a component of the overall management system, it is very important that the project manager has a general idea of what the management system as a whole should look like; he must be able to "see the forest for the trees.

The qualifications of such an expert are as follows:

- good analytical skills;
- an excellent understanding of the organizational structure of the company;
- an understanding of the company's job descriptions and operating procedures.

What is more preferable: to hire an external expert (e.g. an employee of a consulting firm) or to appoint an "in-house" project manager? You should understand that preparing and introducing a new employee to the firm will require the diversion of professionals (as mentors), as well as a significant amount of time for the newcomer to adapt and learn the specifics of the organization.

Motivation. As the description of the procedures implies additional work for the performers, special attention should be paid to the motivation of the participants (material and non-material). Here there are various stumbling blocks:

1. Small amounts of remuneration can insult performance
2. Excessive payments that exceed initial expectations are discouraging ("why do something when they're already paying great money")
3. Financial incentives require an additional budget.

Even if there is no funding for the project's "HR processes," you can always include intangible "levers" to create a team culture in which everyone on the project will "give it 100 percent"! Motivators could be, for example:

1. The desire to take on a challenge and overcome obstacles; the desire for new experiences and information;
2. The desire to reduce the workload by simplifying procedures (currently the main motivator for people).

It is very important to celebrate each milestone with at least a small celebration to boost morale. Rewards for overtime work can be a pleasant surprise for all HR staff.

In modern management, organizational culture is called a strong strategic tool that allows you to rally all departments and employees for common goals. For organizational (corporate) culture, several definitions can be given:

- the values and norms learned and applied by members of the organization that determine its behavior;
- atmosphere or social climate in the organization;
- the system of values and behaviors dominating in the organization.

Based on these definitions, organizational culture can be called mainly the values and norms that are shared by most of the employees of the organization, and their external manifestations (organizational behavior).

Quite often, organizational culture (or corporate culture, which is a narrower concept) is understood as a set of traditions, customs, values, norms and beliefs that manifest themselves in various areas of the organization. It is these factors that create the uniqueness of an enterprise.

The formation of organizational culture is an attempt to influence the behavior of employees and the socio-psychological atmosphere in general. By creating a system of values, certain attitudes or a "model of the world", the team within the organizational culture has the opportunity to predict, plan and stimulate the desired behavior.

Types of organizational culture:

- 1) explicit. It is documented in the form of rules, norms and instructions;
- 2) implicit. This type is reflected only in the minds of workers and is supported by faith and traditions.

In an enterprise Lukon organizational culture cannot be classified as explicit, because there are no specific documented instructions, it is developed, but not enough. Attributes of the organizational culture of the enterprise:

- traditions and customs - the level of cooperation of workers. So, for example, in this organization there is a tradition to celebrate the main holidays: New Year, March 8 and February 23. This also includes the system of motivation and rewards adopted in the organization and personnel policy;
- values are value orientations. Organizational culture determines what behavior of employees can be considered acceptable, how relationships are built between colleagues and with superiors. The quality of work with partners is influenced by the assertion that “the client is always right”;
- symbols - logo, trade mark, corporate style of clothing, slogan (slogan) and color scheme for advertising. Through symbolism, the values of the company are transmitted to a wide range of people; - Business Etiquette. This includes a certain style (color) in clothing, work schedule and its observance.

Analyzing the economic activity of Lukon, there is an increase in the volume of sales for 2018 - 2020, with the largest growth observed in 2019, and also at approximately the same level there is an increase in 2018, which shows a fairly successful and stable functioning of the enterprise.

It is also worth noting the trend of growth in the number of personnel, which amounted to 25.68%. The increase in the number of main workers amounted to 133.33%, i.e. there was an expansion of production. But the payroll in 2018 decreased by 0.61% compared to 2019. At the same time, there was a decrease in labor productivity, which amounted to 1.98% over three years.

Among the problems in personnel management in Lukon, it should be noted the lack of a structured database of candidates, an assessment system in the selection of personnel, but the most important problem is staff turnover.

Thus, it is advisable to propose measures to improve the efficiency of the training process and improve the system of training and retraining of personnel, work on the selection and formation of a personnel reserve, and analysis of the causes of staff turnover. It is necessary to introduce measures to improve the system of motivation and incentives for personnel, as well as to improve the organizational culture.

The staff of the enterprise is represented by 103 people, the main part of which are workers.

Consider the indicators characterizing the composition of personnel in Lukon (Tables 2.6, 2.6, 2.8).

Table 2.6

Composition of personnel by categories of employees [34]

Indicator	The value of the indicator, the number of people
Senior managers	3
Middle managers	5
Specialists	3
Employees	0
Workers	92
Total	103

Source: Information taken from the Lukon company's statements

Thus, we can conclude that the largest number of employees are: workers, that account for 89 percent of the total number of employees.

Table 2.7

Composition of personnel by education [34]

Education indicator	Indicator value, number of people
Postgraduate, two higher education	3
Higher education	46
Vocational education	38
Average with additional courses	16
General average	0

Source: Information taken from the Lukon company's statements

The data in Table 2.4 allow us to draw the following conclusions:

- the company prefers employees with higher education,
- the enterprise also accepts people who have completed regular training courses.

Table 2.8

Age indicator	Sexual	
	Women	Men
Up to 25 years old	0	6
25-35	1	47
35-45	2	30
From 45 to retirement age	5	11
Working pensioners	0	1

Source: Information taken from the Lukon company's statements

Lukon is a small enterprise, the personnel department of which is represented by only one employee, he is also the head of the personnel department.

Its competence includes:

- conducting personnel policy of the enterprise;
- personnel planning;
- improving the professional level of employees.

It turned out that at this enterprise there is no structured database of candidates, there is no evaluation system in the selection of personnel, the selection of personnel is carried out on the basis of a chaotic conversation in personal contact with the head of the personnel department, and then with the director of the organization. Recruitment of personnel is limited to filling out the necessary documentation and introducing a new employee to his immediate supervisor and team.

During the practice, an anonymous survey of workers was conducted, the results of which revealed that:

- release of personnel occurs due to low wages;
- despite the fact that the director is a respected person, he is quite loyal and lacks strictness towards employees;

- the head of the personnel department, on the contrary, is a rather tough person, so the hiring process for a future employee is unpleasant;
- the most important are the working conditions that most employees are satisfied with;
- relations in the team, though not close, but quite friendly.

Management is a centralized impact on a team of people with the aim of organizing and coordinating their activities in the production process. The need for management is associated with the processes of division of labor in the enterprise.

It should be noted that today more and more companies are fighting for their market share in a rapidly changing tastes and preferences of consumers, intensifying competition, the boom in information and communication technologies and more.

These new challenges are complicated by the demands of society on the need to increase the level of social and ethical responsibility of enterprises. At the same time, the development of the concept of marketing in Ukrainian enterprises can be described as the transition from sales orientation to consumer orientation. The management of domestic enterprises still considers sales promotion to be the most important aspect of marketing activities, while the study of consumer needs is not given enough attention. Most market research conducted by Ukrainian companies is a simple gathering of facts or, at best, functional monitoring. Only a few companies try to use marketing research as a basis for operational planning of their marketing activities.

Thus, based on the results of the analysis, we can draw the following conclusion: the employee turnover of the enterprise has increased, the number of sick leaves per year has increased, mainly attributable to adaptable workers. In general, the personnel accounting system is currently working effectively, however, in order to identify the main causes of the above problems, it is necessary to carry out a more detailed diagnosis of the adaptation subsystem of personnel management Lukon.

To do this, we define the problems:

- a large number of employees who work for a short time in the organization;

- the average level of staff turnover leads to relative instability of the team.

At the same time, staff turnover consists of the departure of employees who have worked for up to 3 years. At the same time, the organization incurs losses both due to the search and selection of new personnel, their training and payment for the work of mentors, and more global ones - in the form of a decrease in labor productivity, an increase in the number of defects.

The problem of staffing marketing activities is still relevant. Many companies have a tendency to "grow" staff. Many managers prefer employees with experience in a particular market, albeit without the appropriate education

According to forecasts, in the next 2 years (2022-2023) the meat trade market of Ukraine will grow to 10% per year:

- 1) about 4% - real income growth (GDP)
- 2) about 6% - the inflation rate in the country

An additional factor that will stimulate the growth of the grocery retail market is the increase in the level of penetration of modern trade, which is projected to increase from the current 64% to 73% by 2023.

The main factors in the growth of the company's revenue and market share are:

- growth due to increasing market size;
- growth due to the expansion of the penetration of modern trade;
- growth due to expansion in the regions.

The main risks

1. Economic: risks of deterioration of the economic situation in the country, which can be caused by both internal and external factors.
2. Financial: risks associated with the deterioration of the financial and banking sectors of Ukraine.
3. Risk of changes in the legal environment (including tax policy): risks caused by changes in the legislation of Ukraine.

4. Risk associated with changes in market conditions: those that may change the market position and affect the state of demand.

The main factors of risk minimization:

- 1) establishing a system of internal control over the activities carried out by the governing bodies;
- 2) testing of technology in trade and production;
- 3) introduction of the scheme of delimitation of powers and control.

In conclusion, I would like to note the effectiveness and efficiency of standardization of the personnel management system in the enterprise. The main components of this efficiency:

- the effect of organization - the orderliness of systems and processes, which makes it possible to improve their quality;
- the effect of manufacturability of management - the certainty of components, actions, procedures and decisions;
- the effect of timely changes is the possibility of raising the level of both the standard as a whole and its components.

Thus, the construction of personnel management systems and their standardization will give enterprises a real competitive advantage - competent, trained, properly motivated and stimulated personnel.

CHAPTER 3.

CHAPTER 3. OPPORTUNITIES FOR improvement of HIGH-TECH TECHNOLOGIES MANAGEMENT of LUKON, LTD

3.1 Prospects for the development of the international technology market

The gap in technologies between countries that are at different stages of economic development determines at least a two-level structure of the technology market: [39]

- high technologies that circulate primarily between industrialized countries;
- medium and low technologies can be new for the market of developing and transforming countries and the subject of technological exchange between them.

The global technology market is divided into 4 categories:

- market of patents and licenses;
- market of science and technology-intensive products;
- high-tech capital market;
- market of scientific and technical specialists.

STP not only made a complete revolution in the structure of the international division of labor, but also made a wider scope for its development, led to the emergence of a new form of economic relations - international scientific, technical and industrial cooperation.

Every 7 - 10 years there is a doubling of expenditures on research and development, but the most expensive are not so much the research itself as bringing it to direct application in industry. [39]

Spending on the technology market around the world is growing steadily, so according to experts in 2023, Spending should grow by 9%. In general, about \$9.1 trillion will be spent on new technologies. [40]

The cost of large databases will also increase - companies will be interested in high-quality equipment and software for storing information. This can lead to wealth for the developers of such systems.

Large companies will actively exploit crowdfunding - shifting part of their work to small startup teams. They will join the corporate network only for the duration of the creation of a particular product or service. Each IT industry should replenish its startup exchanges, which, of course, will work on cloud technologies. Profits, again, will go to big companies like Google, Amazon, etc.

In order for the global technology market to continuously develop, each country needs to pay special attention and stimulation to this type of production. Based on the experience of the countries of China, Malaysia, Ireland, India, it can be concluded that stimulating the development of the high-tech industry is a priority in the development of technologies that have a high export potential, as well as attracting the world's leading manufacturers in the field of high technologies to locate their research and production centers.

For the development of the global technology market, state support is needed for the development of the domestic high-tech market, which should be carried out by stimulating millet from the state, as well as enterprises from all sectors of the economy with the aim of large-scale implementation in the socio-economic sphere and in public administration.

It should be noted that states need to provide incentives for the development of export-oriented production in the field of high technologies and the domestic market. For the same purpose, it is necessary to improve the basic legislation in the field of technology and the formation of the institutional framework for the development of the industry.

The main tasks of state support in the field of ensuring qualified demand from state bodies and budgetary institutions include: [40]

- 1) reduction of useful life of computer equipment and software;
- 2) the transition of state institutions from maintaining IT systems on their own to servicing them by third-party specialized organizations with open tenders at their choice;
- 3) increasing the openness and efficiency of procurement for government needs in the field of IT;
- 4) increasing the general qualifications of employees of government bodies and budgetary institutions, civil servants in the field of IT use.

Reducing import duties is also a way to boost consumer and business demand for modern technology. These duties do not protect the domestic manufacturer and only increase the cost of the computer to the end consumer.

It should be noted the main trends in the global technology market for 2023.

In general, about \$2.1 trillion was spent on information technology in 2021. Technology spending worldwide rose by 9%, with changes mainly affecting smartphones and tablets, which saw a 15% increase in the market. It also predicted a small decline in the PC market and high growth in the corporate industry. [40]

It should be expected that a change in leadership is likely in the global technology market, in particular, the emergence of China as the most important rival of the United States in the field of major scientific and technical developments. The role of other developing countries will also increase. The struggle for technology and world leadership in this field will intensify between countries. In the future, technology change will increase even more.

It should be noted that the maximum influence on the development of the technology market will be played by international TNCs. Actually, they will determine the directions and branches of its development. Small developers will not be able to compete with them, which will lead to the absorption of the latter.

In 2023, local tech booms should be expected in almost all countries, but the largest growth should be expected in Russia, China, India and Brazil. That is, most investors will receive 60% of their profits from developing countries, and not from Western Europe, the USA and Canada. [40]

In 2023, large capitals will settle in "cloud" data storage systems. Preliminarily, about \$100 billion will be spent on cloud computing, which is 25% more than in 2021. [40]

By 2023, almost all companies will switch to their own corporate social networks, and this is a serious decline in the field of public corporate "social networking". [40]

Expenditures on large databases will increase - companies will be interested in high-quality equipment and software for storing information. This can be a direct path to wealth for developers of such systems.

Large companies will actively exploit crowdfunding - shifting part of their work to small startup teams. They will join the corporate network only for the

duration of the creation of a particular product or service. Each IT industry should replenish its startup exchanges, which, of course, will work on cloud technologies. Profits, again, will go to big companies like Google, Amazon, Salesforce, etc.

Thus, the global technology market will continue to develop continuously, which will make life easier for a person, increase his efficiency, free him from performing certain operations, and automate the production process. It should be noted that the most promising areas for the development of the global technology market are the development of the mobile Internet, robotics, mechanical engineering, as well as the intensification of the international exchange of licenses.

3.2 Implementation of new technologies in the enterprise`s management system

Improving enterprise management based on the creation of an effective information system must be understood, first of all, as a process of deep integration of information technologies and business technologies into the practical activities of managers at all levels. Information is one of the most important types of production resources, and in the conditions of market relations, one of the urgent tasks is the rational use of each unit of information in order to increase the beneficial effect of its consumption. At the same time, it is assumed that there is a complete, reliable and timely use of a set of information resources directly for enterprise management, as well as for external users of economic information and regulatory authorities.

In this chapter we will consider suggested actions and adapt current strategy of LUKON, LTD to the to Ukrainian market. Suggested strategy we can divide on several blocks:

1. Development of telegram-bot.
2. Customizing of Instagram and Facebook Advertising.
3. Customizing of Instagram and Facebook account to sales platform.

4. Creation of account on TikTok platform, filling it with the relevant content.
5. Cooperation with opinion leaders on the TikTok, Instagram platforms, making collaborations.
6. Consolidation of data.
7. Estimating of the results.

First block – development of telegram-bot involves involvement of external company for development of the bot. Firstly, with switching to the bot, user will have a brief questionnaire about the request he has. Based on received answers and existed database the bot will suggest to the customer the most convenient product within available stock; the list of stores where this item is available; option to book the good for trying at some particular time and store; option to book the good for some period of time; and option to order the item online.

During the operation, bot will collect users answers, and convert them to database (table 3.1).

Table 3.1

Preliminary database formed by the bot

User	Source	Interaction	Step 1	Step 2	Step 3	Step 4
@user 1	Instagram	1	1	1	1	0
@user 2	Facebook	2	1	1	1	1
@user 3	Telegram	1	1	1	1	0
@user 4	TikTok	1	1	1	0	1

Source: constructed by the author

Column “User” can be correlated with the serial number of the user.

Column “Source” will collect the data from which platform customer has reached to the bot. Further, this will help us to measure the effectiveness of promotions on different platforms (banners in internet, social networks, personal recommendations).

“Step N” – will reflect the clicks user made, steps he has taken at the bot. Each option on survey button will have its unique meaning of number of the step,

which will give us the information about requests user made, and which questions were the triggers to stop session.

For example, user could come to the Step 3, where bot suggests him the item, based on the request (table 2.1), but user doesn't check where he could buy it or order, thus, "Step 4" is equal to zero. But after, he comes back to the bot again, and checks the store and orders the item. Then Step 4 and 5 will be "1".

Thus, column "Interaction" gives us the information about number of sessions with the bot, which will also provide us with the information about how many attempts user needs to become a customer.

Besides bot, we have to customize advertising of the brand among Instagram. This may engage production of the content in appropriate format. We suggest to prepare it for two target groups: corporate clients of offices and various companies

(60% of customers) and gamers and programmers (40%). Talking about opinion leaders, or influencers, we need to understand that a charismatic blogger can gather a huge audience that trusts his judgments, listens to advice - we don't even need to warm up. This promotion may be more effective than others, but there are risks. If we make the wrong choice of the influencer for advertising or the wrong cooperation, the investment may not be justified. There are main steps which we should make for choosing appropriate influencers:

1. Formulation of advertising goals. Our goals are: to increase audience; increase brand awareness; expand a client base.

2. Finding opinion leaders. There are special services that keep records of popular bloggers, as well as provide services for the placement of advertising campaigns, but you can also search manually. We propose to use catalogs (Publicfast Discovery, Getblogger) and social networks.

3. Ranking and scoring There are many small or new players in the influencer marketing market who offer their services to brands. This is not a bad option and you can use it to your advantage. After all, if an influencer proposes himself, it means that he is more interested in cooperation than you are. It is easier

to negotiate with him and easier to bargain. True, the result may be different – to the point that it will not be at all. On the other hand, a strong PR or an account with hundreds of thousands of subscribers does not guarantee rapid success either. Assessing the influencer, you plan to work with requires a comprehensive approach.

4.Choosing a partner. We will work with different opinion leaders on different platforms for different parts of our target audience. To reach biggest part of our TA – corporate clients of offices and various companies – we will work with opinion leaders on the Instagram platform. To reach gamers and programmers – the best idea is TikTok. The reason of such differentiation is age of our TA. Young people use preliminary TikTok, while Instagram has a wider audience and is popular among young people and middle-aged people. During development of the Facebook account we won't use any opinion leaders because it is not necessary.

This block is customizing Instagram account to sales promotion platform.

The best is to roll out the feature at the official account @lukonukraine. It already has 10 thousand followers, 2.5 thousands of average engagement in publications and 5.6 thousands of average users' engagements in stories. This account gives us much wider number of users every day, than all the stores in Ukraine has it per day in total. In other words, there brand has all his customers in one place, no matter where they are geographically located.

The account content preferably may be published in time of the highest engagement of the users (figure 2.1), from 9 a.m. to 3 p.m. – when users are the most active.

Two last block and one of the most important in long-term perspective is consolidation of received data. As far company uses SAP for the records of its activities, LUKON, LTD may need to buy a license for using and consolidation the information within another platform, which we will need, to consolidate the data, collected by the bot. For further data consolidation, processing and archiving, there will be needed additional server and software for data analytics like Qlik or Power

BI. These softwares processing data from different sources (Telegram bot, SAP) and presents all the results in the form of graphs, pivot tables and in with the indexes and ratios we can request and program it in advance.

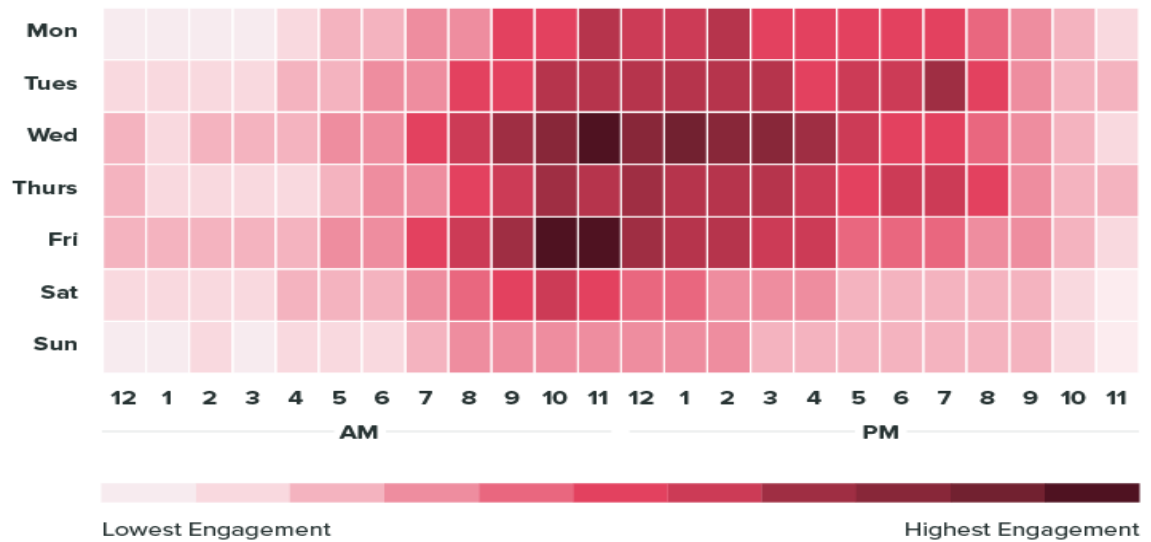


Fig. 3.1 Recommendations for LUKON, LTD about the best time for Instagram activity

Source: sproutsocial

All the expenses for implementation of suggested activities are represented in table 3.2. There also were added wages to employees who are needed to be engaged to the processes.

Total amount of the expenses is 696 040 UAH, which will not cause incremental changes on net income, which was equal to 1 055 191 UAH in 2019.

Basically, this set of actions provides company with two important opportunities: diversifies promotional current strategy, provides additional platform for public relations, new way of communication with target audience and provides marketers with the metrics, which may help to follow the result of promotion processes faster.

Table 3.2

Estimation of expenses for implementation of suggested activities at LUKON, LTD
(UAH)

Block of actions	Specification	Expenses
Telegram bot rollout	Bot coding	25440
	Server	22000
	Consolidation of all the information collected (wage per month)	15000

Data consolidation	Connecting to data analytics software	12300
	License for implementation of data collected in SAP to the software	20000
	Consolidation of all the information collected (wage per month)	19000
Instagram promotion	Collaboration with bloggers (10 influencers)	120000
	Creating the content	30000
	Targeting advertisement in Instagram	50000
	Maintaining company's profile in Instagram (wage per month to SMM)	10000
Facebook promotion	Creating the content	10000
	Targeting advertisement in Facebook	50000
	Maintaining company's profile in Facebook (wage per month to SMM)	7800
TikTok promotion	Collaboration with bloggers (10 influencers)	170000
	Creating the content	60000
	Targeting advertisement in TikTok	70000
	Maintaining company's profile in TikTok (wage per month to SMM)	4500
Total	X	696040

Source: constructed and calculated by the author

To our point of view, implementation of suggested action could also be as a preliminary indicator of condition of the market and help specialists in developing or improvement of promotional strategy. These opportunities will not only maintain current market share which brand holds but will also help to stay in the loop with the customer and provide him with the right product at the right place faster.

Taking into account the transition of the country's economy to market conditions of management, the methodology for creating information support as an essential element of effective management of the development of an industrial enterprise needs to be further developed. First of all, this concerns the definition of the target function and structure of the information support system at each stage of enterprise development, as well as methods for the formation and improvement of information models for the economic management of industrial enterprises. New rational management schemes based on information systems do not require large time and resource costs, which, in turn, leads to significant cost reduction, increased efficiency and competitiveness.

The introduction of information technology into the activities of the company only at first glance represents a change in one of the four elements - "organizational structures and systems". In fact, this element is interconnected with the rest of the components included in the system, and the imbalance will inevitably entail:

- a change in the tasks,
- types and characteristics of work and the quality of their performance;
- revision of informal relations (organization culture);
- staff resistance.

From the point of view of the use of information technology, almost the entire set of companies on the market can be divided into four categories, in which:

- 1) in the process of development, various, unrelated systems for accounting and managing an enterprise in certain areas of activity, such as sales, purchases, warehouse, accounting, personnel, etc., have been introduced;
- 2) an integrated information system was introduced, developed "on order" and including components from the listed list of possible modules, but not corresponding to the modern level and the requirements of constantly emerging new standards;
- 3) practically no information technologies are used (with the exception of accounting) in the management of processes and resources; an attempt was made to implement an industrial system, the characteristics of which correspond to the requirements of one of the accepted standards (MRP, MRPII, ERP, etc.), but the implementation result is unsatisfactory.

At present, a view has been formed of the organization as a complex open social system, a mechanism that takes input elements from the environment external to the organization and subject them to various transformations, resulting in output elements.

Thus, the introduction of information technology would be wrong to consider as a self-sufficient process of changing one of the elements of the model. In fact, it is part of a more general process of change that affects all components of

the system in question, affecting the organization as a whole. Making changes without considering this influence can lead to unpredictable consequences.

Any industrial ERP system offers many modules for implementation: sales planning, production planning, inventory management, financial module, warehouse accounting, etc. Which of the proposed options should be implemented first, which should be implemented second, and which will not be required at all? Changes in the soft system should be started from the first stage of the OR methodology, and only at the stage of setting goals, the process of introducing new information technologies should be considered as one of the many components of development activities. Below is a possible list of stages that need to be passed in order for the process of setting a problem, developing and implementing a solution to be most efficient and effective.

Further, assuming that at this stage the process is branching into a set of parallel events, we will trace only one process - the process of implementing an IT solution. Having a model presented in the form of a description of the processes, structure, systems and regulations that should be implemented as a result of the implementation of the information system, it is possible to prioritize the sequence of actions and determine which of the modules should be implemented first: warehouse, supply, production or finance. But in this case, do not rush.

Thus, when deciding on the implementation of information technologies, the following sequence of actions is recommended:

- 1) formulating a coherent image, vision of the future of the organization;
- 2) a written description of the shared vision;
- 3) mission statement;
- 4) development of the organization's business model;
- 5) diagnostics and analysis of the current state;
- 6) implementation of the Workflow system;
- 7) selection of the core of the information system and additional software;
- 8) design of the future system;
- 9) consistent implementation of the modules of the developed solution.

The main direction of restructuring the management structure and its radical improvement, adaptation to modern conditions has become the massive use of the latest computer and telecommunications technology, the formation of highly efficient information and management technologies on its basis.

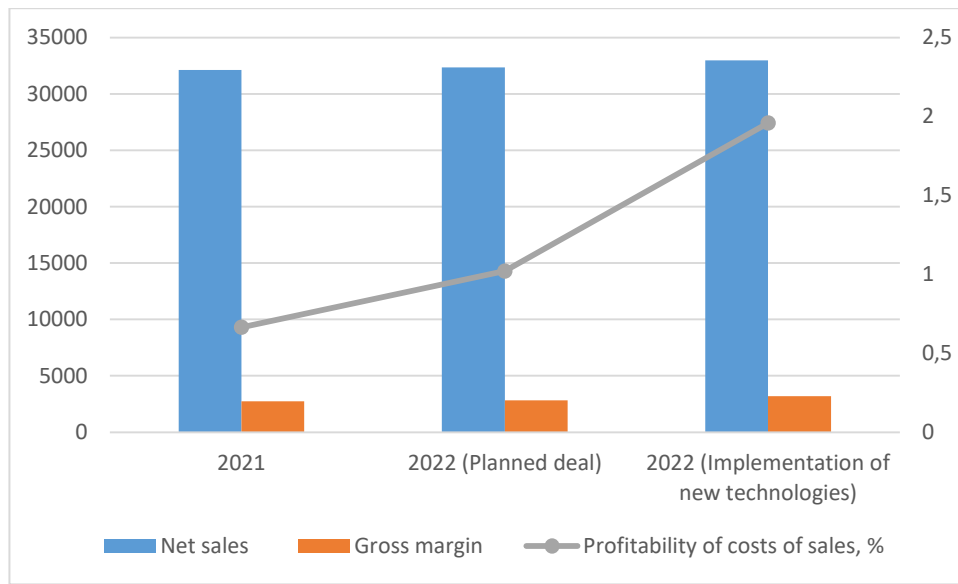


Fig. 3.3. Planning the result of the implementation of measures to improve the import operation of LUKON, LTD, 2022

Source: built by the author based on the company's data

The means and methods of applied informatics are used in planning, management, marketing and other areas of management and regulation of enterprises.

New technologies based on computer technology require radical changes in the organizational structures of management, its regulations, human resources, documentation system, recording and transmission of information. Of particular importance is the introduction of information management, which significantly expands the possibilities for companies to use information resources.

The development of information management is associated with the organization of a data and knowledge processing system, their consistent development to the level of integrated automated control systems, covering vertically and horizontally all levels and links of production and marketing.

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CONCLUSIONS

High technologies (English high technology, high tech, hi-tech) are the newest and most progressive technologies of our time. The transition to the use of high technologies and the equipment corresponding to them is the most important link in the scientific and technological revolution (STR) at the present stage. High technologies usually include the most knowledge-intensive industries.

High-tech industries traditionally include microelectronics, robotics, nuclear and aerospace industries, the microbiological industry and the informatics industry, which includes the Internet and the latest digital infrastructures, including mass communications.

In 2005, the number of regular Internet users in the world exceeded 1 billion people. And this number is constantly growing, and with it the Internet itself and the related service market are growing. Of the 10 largest companies in the world by capitalization, 3 work in the Internet, 3 more produce computers and software for them, and only 2 are not connected with high technologies at all.

It is believed that more than half of the cost of high-tech products consists of the so-called. expenditure on R&D, that is, on research and development work. In reality, the share of R&D is much higher and can pay off in decades.

However, the modern world is coming to understand that the price of high technologies cannot be too high, because in the end it is the latest scientific developments that determine the strategic vectors of movement not only for capital, but for the entire society, regardless of the degree of its involvement in consumption. Even 10 years ago, mobile phones were considered a luxury. Today they are used by 3 billion people - a little less than half of the world's population.

The activities of any organization can be represented as various interrelated business processes. Currently, the most effective way to organize a business is the complex automation of these processes based on the creation of one's own or the implementation of a ready-made information system.

Depending on the tasks to be solved, these systems are divided into information systems for enterprise resource planning (ERP), customer relationship management (CRM), information and documents (ECM), personnel (HRM), business information systems (BI), as well as supply chain management systems (SCM). These systems facilitate and simplify the work of employees of the enterprise, significantly reducing the amount of paper work. Moreover, the automation of business processes leads to the unification of the activities of individual departments of the enterprise into a single system, a single process.

The production activity of enterprises is carried out on the basis of establishing constant information, technological, labor, financial, managerial links between personnel, structural units, management and control subsystems. An ordered set of these connections determines the structure of enterprise management, which is characterized by such concepts as elements, connections and levels.

The organizational structure of the enterprise is a set of divisions of the main, auxiliary and service industries. The management structure is an orderly set of interconnected management positions that are in a stable relationship with each other, ensuring the functioning and development of the enterprise as a whole. There is a close relationship between them - the structure of the organization reflects the accepted division of labor between departments, units and employees, and the management structure creates mechanisms for coordination between them. Changing the organizational structure of the enterprise usually causes a change in management structure.

The history of the holding Lukon began in 2007, at that time, the future CEO of the holding, headed a small meat-processing company, its workshop of about 200 m² was located in the premises.

At Lukon, people believe that the success of a project depends largely on its preparation and structure. Even before you start explaining HR processes, you should enlist the support of your management, prepare methodological materials,

and arm yourself with patience. If possible, ask for help from colleagues who have previously performed similar work in their firms.

Thus, based on the results of the analysis, we can draw the following conclusion about Lukon: the employee turnover of the enterprise has increased, the number of sick leaves per year has increased, mainly attributable to adaptable workers. In general, the personnel accounting system is currently working effectively, however, in order to identify the main causes of the above problems, it is necessary to carry out a more detailed diagnosis of the adaptation subsystem of personnel management Lukon.

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APPENDICES

Appendices A. Generalized classification of innovations by features

Innovation	
<p>1. In terms of cyclical development:</p> <ul style="list-style-type: none"> • the largest • large • medium • small 	<p>2. In terms of intensity:</p> <ul style="list-style-type: none"> • zero order • first order • second order • third order • fourth order • fifth order • sixth order • seventh order
<p>3. Depending on the degree of use of scientific knowledge:</p> <ul style="list-style-type: none"> • based on fundamental scientific knowledge • on scientific research with a limited scope • on existing scientific knowledge • on a combination of different types of knowledge • on the use of one product in different areas • spillovers from major programs • on already known technology 	<p>4. If possible, life cycle planning:</p> <ul style="list-style-type: none"> • innovations that embody scientific ideas, revolutionize the productive forces and are fixed in their composition, as a new integral element (forecast object) • qualitative shifts in individual elements of the productive forces, meaning a change in generations of technology while maintaining the original fundamental principle (a long-term object) • quantitative changes, improvement of individual parameters (objects of current and long-term planning)
<p>5. In terms of structural characteristics:</p> <ul style="list-style-type: none"> • at the entrance • at the exit • enterprise structure innovation 	<p>6. According to the method:</p> <ul style="list-style-type: none"> • experimental • straight
<p>7. From the point of view of linking with individual areas of activity:</p> <ul style="list-style-type: none"> • technological • production • trading 	<p>8. By management level:</p> <ul style="list-style-type: none"> • national economic • industry • territorial • primary management

<ul style="list-style-type: none"> • social 	
9. In the field of management: <ul style="list-style-type: none"> • products • processes (technological) • work force • management activities 	10. By deadlines: <ul style="list-style-type: none"> • 20 years or more • 15-20 years • 5-10 years • up to 5 years
11. According to the degree of coverage of the life cycle: <ul style="list-style-type: none"> • R&D, development and application • R&D, theoretical 	12. By volume: <ul style="list-style-type: none"> • Point • Systemic • strategic
13. In relation to the previous state of the process (system): <ul style="list-style-type: none"> • replacing • canceling • opening • retro innovations 	14. By appointment aimed at: <ul style="list-style-type: none"> • implementation efficiency • production efficiency • improvement of working conditions • improving product quality
15. According to the source of planning: <ul style="list-style-type: none"> • central • local • spontaneous 	16. By performance: <ul style="list-style-type: none"> • implemented and fully used • implemented and poorly used • non-implemented
17. According to the level of novelty: <ul style="list-style-type: none"> • radical, changing or re-creating entire industries • systemic • modifying 	18. Depending on the size: <ul style="list-style-type: none"> • discovery of new areas of application (increases efficiency by 10-100 or more times) • use of new principles of functioning (increases efficiency by 2-10 times) • creation of new constructive solutions (increases efficiency by 5-10%) • calculation of parameter optimization (increases efficiency by 2-10%)

Source: compiled by the author