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CURRENT STATUS OF INDUSTRIAL PRODUCTION AND SERVICES MARKET IN KASHKADARYA REGION

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Abstract: This article discusses the current situation in the market of industrial products and services in the Kashkadarya region and the sustainable development of the local industrial digital services market, including conducting big data analysis, various goals and objectives, methods of processing information resources of industrial enterprises, various situations and data processing processes, tracking the source of products in the process of virtual surveillance, identifying shortcomings in the stable operation of work processes and taking necessary measures to eliminate these shortcomings, and at the same time ensuring cybersecurity is one of the most important tasks in the sustainable development of the digital regional industry. In this current digital economy, the activities of the regional industry aimed at protecting information systems, networks, and programs from digital attacks are highlighted.

Key words: Ensuring cybersecurity, information systems of the regional industry in the digital economy, information resources of industrial enterprises, stages of industry development, technical and technological re-equipment, introduction of the digital services market.

Annotatsiya: Mazkur maqolada Qashqadaryo viloyatida sanoat mahsulotlari ishlab – chiqarish va xizmatlar bozorida hozirgi holati hamda Mahalliy sanoat raqamli xizmatlar bozorini barqaror rivojlanishida katta ma'lumotlar tahlilini olib borish, turli maqsad va vazifalar, sanot korxonalarining axborot resurslariga ishlov berish usullari, turli xil holatlar hamda ma'lumotlarni qayta ishlash jarayonlari, Virtual kuzatuv jarayonida mahsulot manbasini kuzatib borish, ish jarayonlarini barqaror borishida kamchilliklarini aniqlash va ushbu kamchiliklarni bartaraf etishda kerak choralar ko'rilishi va bir qatorda raqamli mintqa sanoatini barqaror rivojlantirishda kiberxavfsizlikni ta'minlash ham juda muhim vazifalardan biridir. Bu hozirgi raqamli iqtisodiyot sharoitida mintqa sanoatining axborot tizimlari, tarmoqlari, va dasturlarini raqamli hujumlardan himoyalashga qaratilgan faoliyatlarini yoritilgan.

Kalit so'zlar: Kiberxavfsizlikni ta'minlash, raqamli iqtisodiyot sharoitida mintqa sanoatining axborot tizimlari, sanot korxonalarining axborot resurslari, Sanoatning rivojlanish bosqichlari, texnik va texnologik qayta jihozlash, raqamli xizmatlar bozorini joriy etish.

Аннотация: В статье рассматривается текущее состояние рынка промышленных товаров и услуг в Кашкардарьинской области и устойчивое развитие местного рынка цифровых услуг для промышленности, проводится анализ больших данных, рассматриваются различные цели и задачи, методы обработки информационных ресурсов промышленных предприятий, различные ситуации и процессы обработки данных, отслеживание источника продукции в процессе виртуального наблюдения, выявляются недостатки в стабильном функционировании рабочих процессов и принимаются необходимые меры по их устранению, а также рассматривается обеспечение кибербезопасности как одна из важнейших задач устойчивого развития цифровой региональной промышленности. В статье освещаются мероприятия, направленные на защиту информационных систем, сетей и программ региональной промышленности от цифровых атак в условиях современной цифровой экономики.

Ключевые слова: обеспечение кибербезопасности, информационные системы региональной промышленности в условиях цифровой экономики, информационные ресурсы промышленных предприятий, этапы развития отрасли, технико-технологическое переоснащение, внедрение рынка цифровых услуг.

INTRODUCTION

Virtual monitoring is also important in the implementation of analytical processes. In the process of virtual monitoring, it is necessary to monitor the source of the product, identify shortcomings in the stable operation

of work processes and take necessary measures to eliminate these shortcomings. At the same time, ensuring cybersecurity is also one of the most important tasks in the sustainable development of the digital regional industry. This is an activity aimed at protecting the information systems, networks, and programs of the regional industry from digital attacks in the current digital economy. Ensuring cybersecurity combines technology, people, information, and processes to guarantee operations in the presence of attackers. In the sustainable development of the local industry digital services market, big data analysis is carried out, various goals and objectives, methods of processing information resources of industrial enterprises, various situations, and data processing processes are implemented. According to comparative analyses of scientific research conducted by foreign and domestic scientists, it was concluded that the principles of innovative development of the industrial structure of the region using digital technologies should be emphasized on the gradual formation of a new digital transformation process, and this process is associated with the fourth generation of industry.

Based on comparative analyses, today the market of digital services in industry is gradually diversifying under the influence of the digital economy through the introduction of modern technologies for data management. As a result, the work carried out in our country on the modernization of industrial enterprises, technical and technological re-equipment, and the effective use of information and communication technologies in the management system is contributing to increasing the volume and quality of production in the regions and taking a worthy place in the world market.

REVIEW OF LITERATURE ON THE SUBJECT

In particular, the research of Russian scientists AN Romanov, VP Koserov, GA Titorenko presented the fundamental foundations of the development of information systems, methodological aspects of the design and development of information systems for industries and sectors of the national economy, econometric models, statistical analysis and automated advisory information systems. Creation of the first chess-playing program (In 1954, REND analysts A. Newell, J. Shaw and G. Simon began writing a chess-playing program. A. Turing and K. Shannon, as well as a group of Dutch psychologists, volunteered to help them. The Chess Program (NSS) was written in 1957. Its work was based on heuristics, that is, rules for choosing a solution in the absence of theoretical foundations;

As D.O. Rogozina noted, the use of information and communication technologies (ICT) and complex data analysis to analyze the key factors of value creation and digitize industrial production processes will lead to a qualitative leap in efficiency, reduce costs, and become one of the important factors in shaping the competitiveness of industrial enterprises. International Data Corporation (IDC) International Data Corporation) According to data from the Institute for Advanced Research, the market for cognitive systems and artificial intelligence technologies in 2016 was worth about \$7.9 billion in monetary terms. In 2017, it is expected to grow by 59.3% and reach \$12.5 billion. Analysts believe that by the end of this decade, the average annual growth rate will be 54%. As a result, the value of products in the industry in 2020 will exceed \$46 billion. The largest share of this market is occupied by cognitive applications that automatically study data and make various predictions, recommendations or forecasts. Investments in AI software platforms that provide tools, technologies and services based on structured and unstructured data amount to \$2.5 billion per year. The AI market in the region, healthcare and life sciences, is also expected to grow by 40% annually, reaching \$6.6 billion in 2021, according to Frost & Sullivan.

RESEARCH METHODOLOGY

This study is aimed at a comprehensive assessment of the current state of the industrial production and services market in the Kashkadarya region, in which systemic, regional and economic-analytical approaches were adopted as the methodological basis. The research methodology is based on the principles of considering the regional economy as an integrated socio-economic system, identifying the interdependence of industry and service sectors, and assessing their impact on regional development. The study ensured the combination of theoretical and empirical methods. Within the framework of theoretical methods, the methods of analysis and synthesis of economic literature, induction and deduction, comparison and generalization were used. Through these methods, foreign and domestic scientific views on the development of industrial production and the services market were systematized, and their aspects relevant to the conditions of the Kashkadarya region were identified.

ANALYSIS AND RESULTS

According to global macro models and analysts' estimates, Uzbekistan's industrial production is expected to grow by 8.50 percent this quarter. In the long term, Uzbekistan's industrial production is expected to trend

around 8.50 percent in 2022 according to our econometric models. In the development of the digital services market in the industry, it is important to provide the necessary elements to bring technological progress and strengthen the economy, as well as to apply the following industry trends.

First: Conducting analytical processes, that is, developing better systems for manufacturers in the context of recent events and the use of digital technologies to manage various types of processes.

Second: Supporting new levels of flexibility in implementing digital investments.

Third: It is necessary to expand its capabilities to reduce trade impacts and other disruptions in ensuring supply chain stability.

Fourth: Manufacturers need to know where and when to recalibrate global production volumes, and the supply chain needs to be digitally enabled, enabling real-time operations across complex supply chains.

The system models the process taking into account economic and real-time production tasks: the degree of conversion of hydrocarbon feedstock in the process changes depending on the variables affecting pyrolysis (reaction temperature, residence time of the feedstock in the furnace coil, pressure), as well as the selectivity of the process for various reaction products. For each possible operating mode of the RTO furnace, the composition and value of the target products in the cakes are calculated. Various digital technologies are used to design the market for digital services in industrial production. In particular, from cyber-physical systems, cloud computing from systems, internet tools (Internet of Things, IoT) and industrial Internet tools (Industrial Internet of Things, IIoT), Artificial intelligence, digital twins and other technologies.

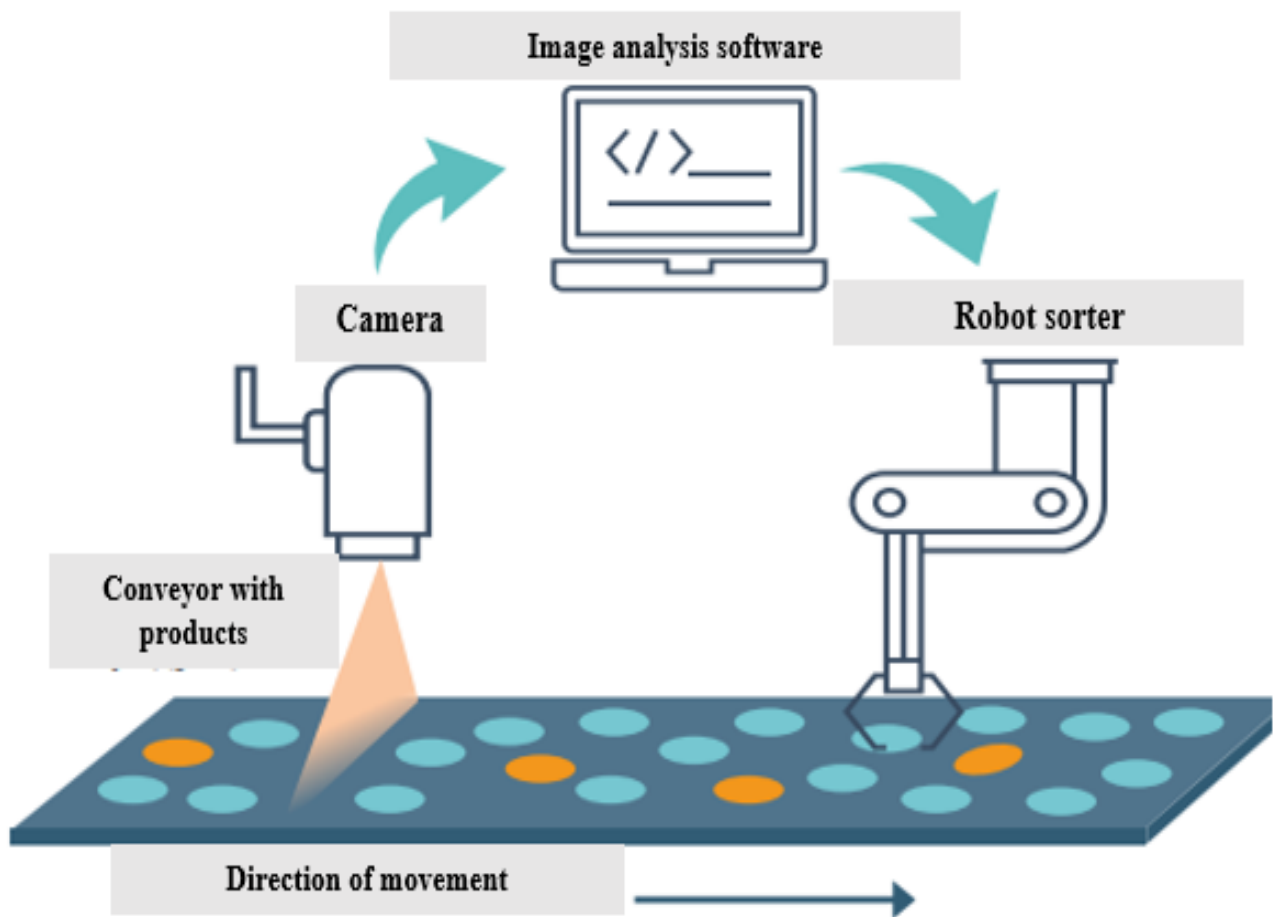


Figure 1. Organizing the digital transformation process in the industrial digital services market

Artificial intelligence actually includes various software systems and the methods and algorithms used in them, the main feature of which is the ability to solve intellectual problems as a person would think about solving them. Among the most popular applications of artificial intelligence are predicting various situations, evaluating any digital information with an attempt to draw conclusions from it, as well as analyzing various data by searching for hidden patterns (data mining).

Based on a retrospective analysis of the digital services market in industry, the views of scientists on economic relations and the management of scientific and technological progress are summarized in Table 1.

Table 1. Key strategic directions for organizing the digital transformation process in the industrial digital services market

Strategic directions of the transformation process	Duties
Application of BIM technologies in the life cycle of commercial infrastructure facilities	-BIM-based digitization covers all processes of the life cycle of commercial infrastructure facilities, ensuring an increase in the quality of use and service provision;
Formation of a common «Electronic Systems System» based on Bigdata and Artificial Intelligence	- formation of a single integrated electronic commerce system; -the integrated system includes information on city infrastructure and a number of other data; - the use of big data technology and Artificial Intelligence in the process of managing the digital services market
Using digital platforms and IoT technology to organize the digital services market	- Introduction of Internet technology in the process of managing trade and obtaining information directly from sensors of business facilities, as well as meters;
Application of information and analytical tools in managing the digital services market	- Expanding the use of information and analytical tools in business, including semantic analysis of text and speech, multidimensional statistical analysis, and processing of complex events in the process of considering citizens' appeals;
Implementation of Blockchain Technology in the Digital Services Market	- Using technology to increase the transparency of commerce, conduct digital transactions, documents, voting results, as well as develop crowdsourcing projects and monitor the work performed.

BIM- this is a technology that allows you to create a multidimensional model of a construction object, which contains all the information about it. Moreover, this model is used not only for construction, but also for the operation of the object. Therefore, it is absolutely wrong to think that BIM is only a graphic 3D projection. The capabilities of the technology are very wide. Information modeling implies a completely new approach to building construction and management, in which absolutely everything is taken into account. All this allows you to avoid possible changes in the design, reduce construction costs, and most importantly, save time. The introduction of BIM has made it possible to make the right decisions at all stages of the life cycle - from investment to commissioning and even demolition.

However, this technology also requires financial costs. In particular, it is necessary to purchase special software and equipment for training. However, in the future, these costs will be offset by reducing the costs of designing and organizing the construction of the building.

Big data(big data) - a very large volume of heterogeneous and rapidly flowing digital data that cannot be processed by conventional methods. In some cases, the concept of big data also includes the processing of this data. Basically, the object of analysis is called big data. The term bigdata was coined in 2008. Clifford Lynch, editor of the journal Nature, used the term Bigdata in a special issue dedicated to the very rapid growth of the world's data. However, big data existed before. According to experts, data flows of more than 100 gigabytes per day are called big data.

Big data analysis helps to identify patterns that are beyond human perception. This in turn creates opportunities to improve and enhance all areas of our daily lives, including government, medicine, telecommunications, finance, transportation, manufacturing, and more, and to find alternative solutions to problems.

IoT-These are physical devices, vehicles, appliances, and other objects, all of which use electronic circuits, software, sensors, and mechanical actuators connected to the Internet. This connectivity allows these objects to communicate with each other and exchange data, thereby creating more opportunities for direct integration between the real world and computer systems, thereby increasing efficiency and economic benefits. It reduces physical labor for people. In 2017, the number of IoT devices grew by 31 percent compared to the previous year, reaching 8.4 billion devices, and according to estimates, this number will reach 30 billion by 2020. The global value of the IoT market is estimated to reach \$ 1.7 trillion. IoT involves extending Internet connectivity to devices beyond conventional devices, such as desktops, laptops, smartphones, and tablets, and extending it to non-smart devices without Internet connectivity. Devices using this technology can communicate and interact with each other over the Internet; they can also be monitored and controlled remotely.

Blockchain— this is a technology that allows system participants to securely transfer assets to each other without intermediaries. For example, blockchain can store records of money transfers. In cryptocurrencies, blockchain is used to record information about who transferred virtual money, to whom, and how much. However,

other assets can also be stored on blockchain. In general, everything that can be written on paper can also be written on blockchain, with the only difference being that blockchain cannot be tampered with or forged.

In general, if we analyze in depth the digital services market and its policies in the current industry of developed countries, we certainly looked at its history and development evolution, and as a result of the research, we examined a number of developed countries based on comparative analysis:

It is appropriate to analyze the development of the industrial sector in countries based on the study of the dynamics of key indicators reflecting their development in the context of global changes in economic processes. First of all, it should be noted that the main and most important indicators in analyzing the industrial sector, both in a separate region and in the country, are gross domestic product (GDP) and gross value added.

The table below shows the dynamics of the gross domestic product of countries currently ranked among developed countries in 2022-2024, as well as the economic growth rates for the year under review.

Table 2. GDP growth rates of CIS and G7 countries in 2022-2024

Countries	Growth rate, %			GDP, billion dollars		
	2022	2023	2024	2022	2023	2024
Armenia	2.8	3.0	3.1	11.3	11.7	12.3
Azerbaijan	2.9	3.1	2.7	44.2	45.5	48.8
Belarus	0.6	0.8	2.1	57.6	58.1	60.3
Canada	1.4	1.8	1.8	1702.4	1719.4	1783.3
France	1.6	1.7	1.7	2462.2	2562.2	2650.2
Germany	1.3	1.4	1.2	3517.0	3617.0	3727.6
Italy	0.6	0.8	0.8	1789.4	1879.4	1922.2
Japan	0.5	0.8	0.2	5005.7	5085.7	5163.7
Kazakhstan	2.5	2.8	3.2	171.5	188.5	204.6
Kyrgyzstan	4.8	2	4.9	7.1	7.6	8.0
Moldova	3.4	3.8	3.8	7.6	8.1	8.5
Russia	1.1	1.5	1.5	1552.0	1654.0	1712.0
Tajikistan	5.2	5.5	6.0	7.6	8.2	8.9
Turkmenistan	4.8	5.1	5.0	50.0	52.0	57,669
USA	1.4	1.6	1.9	2589.8	2607.8	2689.841
England	1.8	2.1	1.8	21109.3	21239.3	22063.044
Uzbekistan	5.8	6.0	6.0	72.3	75.5	79,742

According to the data presented in Table 2, it can be observed that the three leaders in terms of GDP are the following countries: the USA, Japan and Germany. The countries that lag behind among the countries studied are Kyrgyzstan, Moldova and Tajikistan. Table 3. Indicators of industrial production volume due to the digital transformation process in 2020-2024 by country

Table 3. (billions, dollars)

Countries	2018	2019	2020	2021	2020	2022
Belarus	98.3	109.4	120.1	132.8	151.0	178.6
France	366.7	362.6	368.8	371.0	378.3	379.7
Canada	233.9	245.6	244.4	244.3	257.6	266.1

Italy	490.4	485.1	493.6	500.3	515.8	522.7
Germany	1160.8	1176.5	1193.6	1209.4	1242.2	1254
Japan	1735.8	1765.9	1743.5	1744.5	1793.8	1813.2
Kazakhstan	72.4	72.5	71.34	69.6	75.4	77.7
Moldova	2.10	2.3	2.27	2.3	2.37	2.5
Russia	556.4	569.8	565.1	577.6	589.5	606.6
USA	3239.6	3339.0	3305.	3241.0	3316.2	3446
England	445.6	451.8	457.1	461.6	466.56	471.3

Based on the data presented in Table 3, the following conclusions can be drawn: The largest values in this table are given by the indicators of Germany, Japan and the USA; In the Russian Federation, the indicators of industrial production during the period under study show a positive growth trend. Thus, in 2022 this indicator amounted to 606.69 billion US dollars, in contrast to the corresponding period in 2014, which amounted to 556.4. We can see that the scientific approach to managing and ensuring the security of the digital services market in industry was adequately developed by world economists Taylor, Frank, Lilian Gilbreth and Henry Gantt. As the creators of the digital services market management in industry, they achieved high efficiency in improving many manual labor operations by automating them using observations, measurements, logic and analysis. Analyzing production efficiency and finding its main components is the first phase of the informatization of industrial production. Taylor, for example, measured how much iron ore and coal a person could lift with shovels of various sizes. They recorded the observations made at the research site with a film camera on magnetic tape and, in order to accurately measure, studied what movements a person made to perform certain operations and how much time he spent on each movement.

As a result of the reforms carried out to develop the region's industry in the context of the digital economy, methods of using modern technologies to develop the industrial structure are emerging. More attention is being paid to communication services and communication services. The creation of modern models of regional industry depends more on information exchange and improvement of information models.

Here, we will consider the structure of the information model of the development of the industrial structure by sector and the experience of analyzing and calculating it based on calculations performed in ICT. The general scheme of the calculation experiment is shown in Figure 1.

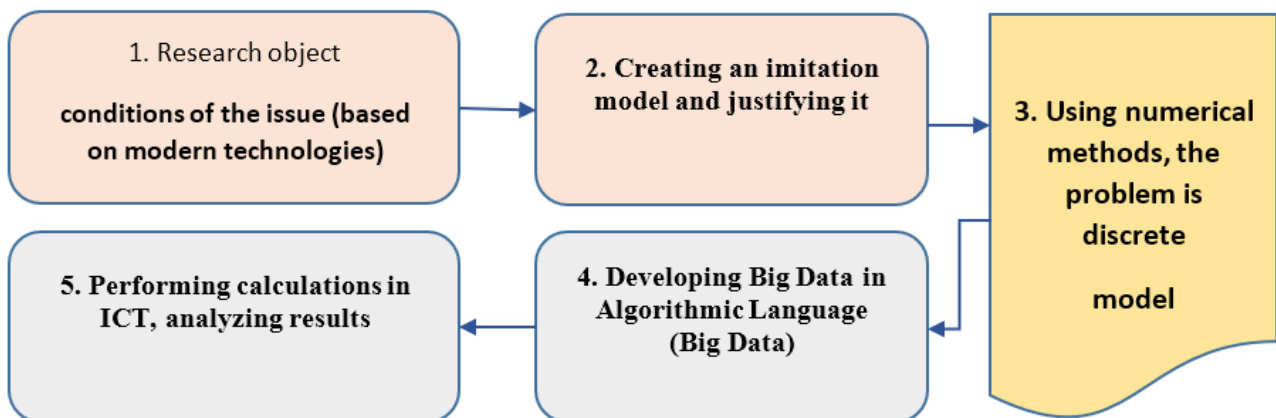


Figure 1. General scheme of the experience of calculating the information model of the digital services market in the regional industry

In big data computing (BDC), the numerical results obtained are deeply analyzed and evaluated. Since the database consists of a large amount of data, the following security principles are developed in order to maintain the security and confidentiality of big data, and the database security specialist, depending on the results, draws conclusions about the process being analyzed, influences its implementation based on a specific goal, develops control tools, and makes recommendations.

This is shown in Figure 2.

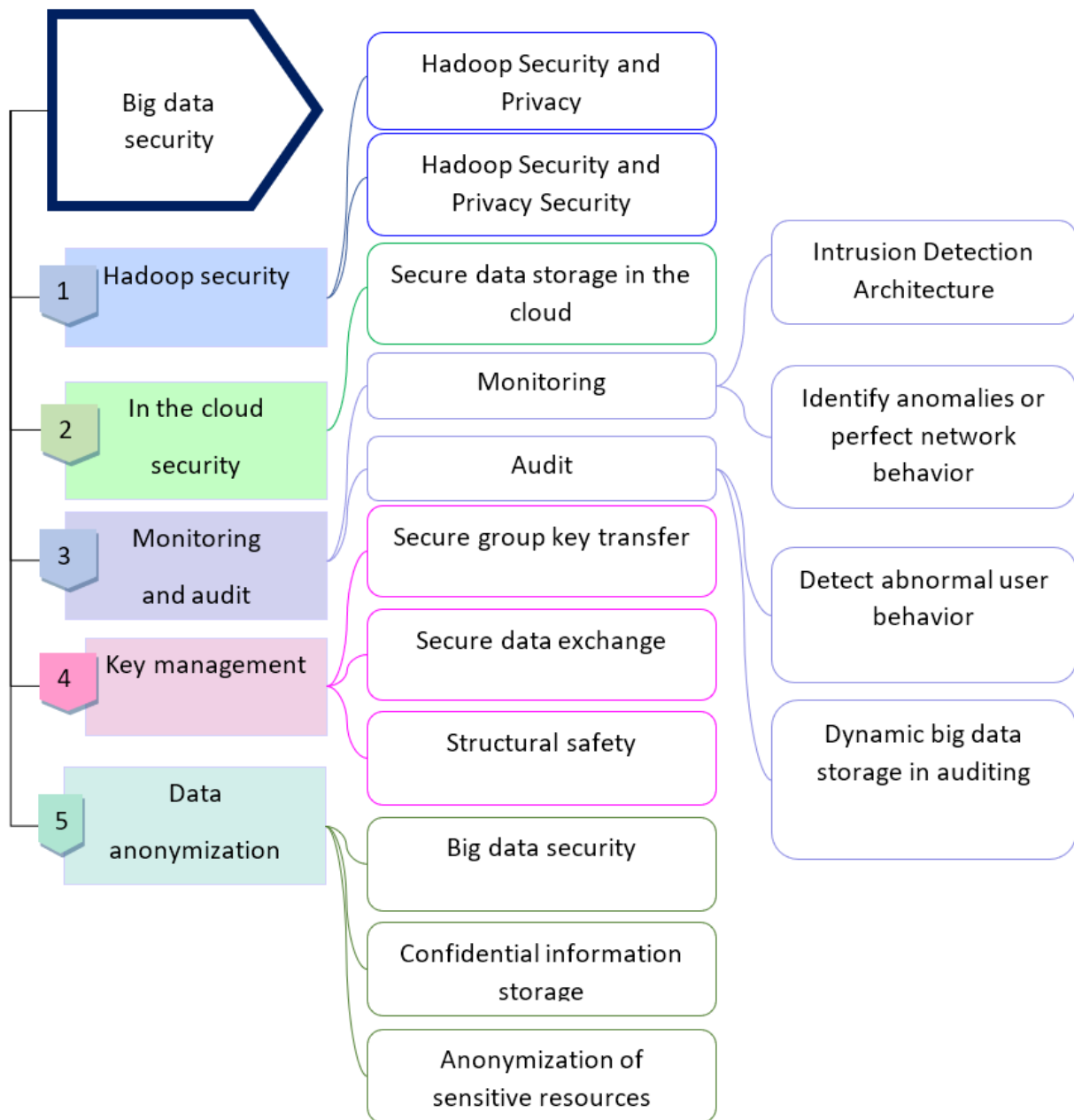


Figure 2 Creating a global database for implementing digital services market processes in industry

In the process of digitizing the digital services market in the regional industry, a large database will certainly be formed. It is also necessary to implement a number of measures for the stable operation of electronic resources of the digitized industrial system. These include Hadoop security, cloud security, monitoring and auditing, key management, and data anonymization. The use of these security parameters is of great importance in managing the electronic systems of the regional industry. Various digital technologies are used to develop e-commerce in industrial production. In particular, cyber-physical systems, cloud computing from systems, internet tools (Internet of Things, IoT) and industrial Internet tools (Industrial Internet of Things, IIoT), Artificial intelligence, digital twins and other technologies. Cyber-physical systems are a system of interacting devices, means of data transmission, processing and storage. They are the main components of the architecture of automation of complex object management and are considered promising tools. Digital twins used for virtual visualization, simulation and study of complex operational products, and then the obtained data is used to significantly improve the time to market, cost, quality, etc. of the product. Creating digital twins is essential for validating designs, modeling changes, analyzing the impact of changes and optimizing performance. Digital twins allow you to optimize the management of production processes, identify anomalies and provide predictive maintenance. Digital twins are created both for products manufactured by an industrial enterprise, and for the

enterprise itself and its workshops. A digital simulation model of the enterprise allows you to plan the optimal placement of technological, auxiliary and auxiliary equipment, create diagrams of engineering networks at the workshop and enterprise level as a whole.

Industrial Internet of Things (IIoT) is the application of IoT technology in industrial environments, specifically the connection of devices, sensors, and devices controlled by cloud technologies. The Internet of Things for enterprises enables the collection and analysis of data from connected resources, people, and places, offering actionable analytics in industrial environments.

The new concept of the digital economy is a single system for storing, processing and transmitting all information in the field of human activity using digital technologies. Through the digitalization of the economy, it is possible to build a new economy with a creative approach. According to the results of analyzes conducted by authoritative international organizations, the digital economy allows to increase gross domestic product by at least 30 percent, at the same time, eliminate the shadow economy and sharply reduce corruption. It is clear that this area will be a serious impetus for the high development of all sectors and industries in our country.

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CONCLUSION AND SUGGESTIONS

As a result, the “robot revolution,” which economists and analysts of the largest banks talk about, will allow the global economy to reduce labor costs in production by 18% to 33%, while increasing productivity by 30%. In total, there are about 400 companies engaged in the production of robotics on the global market.

Modern trends in “digital transformation” in industrial enterprises are associated with the integration of used IT systems. Adaptive production systems are being developed. There is a transition from descriptive analysis to the formation of forecasts of scientific and technical development of industrial sectors. The results of such analytical work in the context of the digitalization of the economy are increasingly used in the formation and implementation of state programs. Over the past 20 years, information technologies for leading industrial enterprises have become a driver of the development of e-business from a service function. Rapidly aging systems and applied information technologies create the essence and boundaries of possible changes in industry within the framework of digitalization and provide a completely new qualitative level of added value to their products [9]. In addition, predictive analytics, as an extension of SCADA systems - another information technology within the framework of industrial digitalization - allows you to make very accurate forecasts for the future: costs, failures, necessary repairs, etc. Brain structure analysis is reverse engineering, which involves first understanding the intricacies of the human brain and then representing what the brain does in terms of hardware and software. As a result, scientists hope to create a computer with human-level artificial intelligence. Several large projects (with investments of billions of dollars) are aimed at achieving this result. The main goal of the international Human Brain Project (HBP), led by a team from the Swiss Federal Polytechnic School in Lausanne, led by Professor Henry Markram, and involving more than 100 scientific groups from around the world, is to model the human brain. The goal of the project is to synthesize all the knowledge that humans have gained about the brain into a single complete model of the brain inside a supercomputer.

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