MECHANISM FOR DESIGNING ELECTRONIC COMMERCE USING IT IN INDUSTRY

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Abstract: The article focuses on the introduction and use of digital technologies in industrial production using the electronic commerce design mechanism. During the research, production planning mechanisms and integrated information system of hardware and software tools were developed based on the instruments of realization of industrial products production through electronic commerce.

Keywords: e-commerce, e-commerce design, information system, enterprise management, automation, system efficiency, management decisions, management modules, software tools, integrated information system, information communication technologies, implementation instruments.

Introduction

In industrial production, the design mechanism of e-commerce using act is mainly based on artificial intelligence automated design system (ALT) cyber-physical production systems. In the development of industrial e-commerce, the knowledge economy requires intellectualization of industrial enterprises in order to produce, protect, exchange, distribute and develop these intellectual goods.

In order to design and implement electronic commerce using ICT in industrial production, it is appropriate to create innovative, flexible methods of production that interact in real time using robotics complexes and information technologies.

As noted by DORogozina, information communication technologies (ICT) and analysis of the main factors of value creation in the analysis of complex data and digitization of industrial production processes will lead to a jump in efficiency in terms of quality, decrease in cost and become one of the important factors in the formation of competitiveness of industrial enterprises [2].

According to Veselovskogo MY and Izmailovoy MAdigitization By combining the intangible processes of product development and production planning with physical production and operational support, it transforms the original e-commerce business model of industrial enterprises and creates new business opportunities by using globally distributed digitized assets and organizational resources [3].

Employees of enterprises serve as one of the most important production resources for the transformation of industrial production in the digital

economy. As stated by NS Morozova, digital business means that the employees of enterprises have digital competences necessary for the implementation of business processes [4]. In addition, the quality of digital competences must meet the requirements set by professional standards in the relevant field of activity [5].

According to IK Dashkov, from the point of view of the digital economy, its main assets are information and human capital [6] Ross, B., Stubbings, C., Sheppard, B., Kelly, etc. The level of readiness of employees in terms of digital competencies is the key to successful transformation of digital business. is the decisive condition [7]. At the same time, Frey, CB, Osborne, MA, the rate of introduction of digital innovations is significantly higher than the rate of acquisition of digital competencies, so the digital economy implies continuous training of personnel [8].

Currently, it focuses on digital technologies, combining physical and digital production. At the same time, artificial intelligence has a history of more than half a century.

The first work on artificial intelligence dates back to the 1950s. They started by trying to solve two problems.

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, appeared to help them ngilli became a chess program (NSS) was written in 1957. His work was based on heuristics, that is, rules for choosing a solution in the absence of theoretical foundations [9]);

In the conditions of global digitization and the information type of the economy, maintaining the competitive position of enterprises can be achieved only through the continuous introduction of innovations [10].

Integrated digital industrial production planning, more efficient use of assets, lower quality costs, and automation help improve productivity [11].

Various digital technologies are used to develop e-commerce in industrial production. Including cyber-physical systems,cloud computingsystems,internet tools (Internet of Things, IoT) and industrial Internet tools (Industrial Internet of Things, IIoT),artificial intelligence, from digital twins and other technologies.

Cyber-physical systems are systems of interacting devices, means of data transmission, processing and storage. They are the main components of the automation architecture of complex object management and are promising tools.

American scientist N. Viner's book "Cybernetics: Control and Communication in Animals and Machines" laid the foundations of cybernetics as a science, despite its great success abroad and the significant potential for the development of ideas in it. information technologies were negatively received in the USSR. The book was not translated into Russian for a long time and public access was limited [12]. books as ideas, as well as works expressed by the scientific community, became the object of criticism of Soviet ideologues.

The information technology industry is a set of networks (networks) related to the creation, storage, integration, processing and transmission of information. Operational data collection can be combined with the concept of information life cycle management. According to the Fisher-Clark model [13],

information technologies are included in the fourth sector of the world economy - the knowledge economy and the technological regime[14]. In the last third of the 20th century, the development of information technologies led to the emergence of the post-industrial (information) society and the concept of "new economy" [15]. In the information technology (IT) industry as it is today, logic algorithms over the past 100 years,

To increase the economic efficiency of the use of digital technology tools, the methodology of the management system of this activity is necessary. A progressive and proven method is a systematic approach. In the digital economy, a systematic approach is implemented in the form of a synergy of evidence-based methods for the introduction of digital technologies to business management and technological processes, as well as the development of strategic programs for the digitalization of industrial enterprises [16].

Over the past 20 years, information technology has transformed from a service function to a driver of e-business development for leading industrial enterprises. The rapidly aging system and applied information technologies create the essence and limits of possible changes in the industry within the framework of digitization and provide a completely new quality level of added value to their products [17]. In addition, as an extension of SCADA systems, predictive analytics - another information technology within the digitalization of industry - allows for very accurate forecasts for the future: costs, failures, necessary repairs, etc.

The success of the information technology industry and the successful development of Uzbekistan's IT companies is connected with the need for competition at the global level, where the main investments in these technologies are concentrated. In addition, this competitive struggle is an alternative foreign economic development factor for the export of raw materials [18].

Methods

Designing is the process of implementing an idea in the form of a specific product or system. This process requires multiple refinements of the idea. Traditionally, sketches, drawings, pictures, two- and three-dimensional models, experimental samples are used in the design process, experiments are conducted and the results are analyzed. In parallel, drawing documents are prepared, which are used in product development. CAD (Computer Aided Design), Computer Aided (automated) production, CAM (Computer Aided Manufacturing), automated engineering CAE (Computer Aided Engineering) systems are mainly used in this.

The following programming packages are mainly used in the automated design system: AutoCAD, "AutoCAD system is derived from the abbreviation of the English sentence Automated Computer Aided Drafting and Design, which means "automated drawing and design using EHM" and in some sense "automated design software system ” serves as an equivalent of the concept.

AutoCAD Civil 3D[24] Medusa, TrueCAD, KOMPAS, BAZIS, Cimatron[1][25], CADMAX [26], ArCon [27] ProPro Group [28], IronCAD [29], ArchiCAD [30], IndorCAD/Road [31],

[1]Cimatron Ltd., Israel http://www.cimatron.com/

SolidWorks [32], MicroStation Modeler, SolidWorks, T-Flix, CATIA [33] (Computer Aided Three-dimensional Interactive Application), PRO\Engineer, Unigraphics, etc.

In addition to the automation of drawing and graphic works and software packages (AutoCAD, AutoShade, AutoFlix, 3D-STUDIO, etc.)

offers opportunities to:

- graphic modeling, that is, computer programming in ALT

complex spatial constructions without having sufficient skills

use as a computing tool that allows you to work with;

- to create and maintain an information base (archive) of drawings; to create a database of standard elements of drawings according to their fields in order to create new ones based on existing elements;

- parameterization of drawings - construction of new size details and drawings based on existing drawings;

- preparation of visual information (slides, multiplication, etc.).

Automated design system-design according to the essence and

is an instrument used for drawing:

- although it is mainly intended for creating clear and finished drawings and pictures, it can also be used for creating "sketch" drawings;

- another method of application is the construction of two- or three-dimensional computer models for further analysis of the system or product and checking with other programs;

- SDB – numerical values can be obtained for numerically programmed machines, which allow rapid production of a sample copy of the product automatically;

- it is also possible to prepare two-dimensional drawings of communications and archive the project. Usually, the material result of using ICT is a drawing made on a graphic plotter or printer. At the same time, they can also be numerical values for use in other software packages or other production equipment.

Advantages of an automated design system:

accuracy; The time consumption of repetitive operations is sharp

decrease; files can be used in other programs.

Accuracy:

- because the technology is based on the use of computers, it ensures high accuracy compared to traditional methods of design and drawing;

- when drawing in the system, graphic elements (arcs, lines, circles, etc.) are stored as numerical data in the ALT file;

-stores data in high resolution. This makes it possible to create drawings with maximum accuracy in any case, that is, the exact value of the real object can be given in the drawing;

- automatic design systems (ALT) store information in digital form with high accuracy, therefore, it is necessary (and necessary) to create drawings in ALT with 100% accuracy, that is, the exact dimensions of the real object can be given in the drawing;

- if, for example, it is necessary to combine sections at certain points, the exact coordinates of the edge points of the section should be given. Thus, high resolution allows to bring the real dimensions of objects in the drawing;

- the use of ALT/ABT (automated control system) technology in design allows to create perfect mechanisms and tools;

-Therefore, the accuracy of

designing on the machine is a critical factor and there is no need to return to the old ways of creating sketches and drawings.

Dramatically reducing time spent on repetitive operations:

-maybe drawing a "sketch" by hand is faster than using ALT. However, when drawing large and complex drawings, especially drawings with repetitive elements, ALT methods are more effective.

- any action performed can be easily reused because the relevant information is saved in the ALT file. In other words, despite the fact that more work and time is spent to create the initial picture or drawing, it is possible to easily repeat these elements later;

-in addition, making changes to ALT files is faster than traditional methods;

Since the graphic elements of the drawings are saved in files, it is possible to replace only the necessary components, and then print it out or change it to another format.

Integration with automated design systems and other software is constantly improving. As a result, for example, if changes are made to a three-dimensional model, these changes will be automatically reflected in the corresponding two-dimensional drawing. One of the main advantages of such a connection is high efficiency:

Initially, the programs were created as a system for automating drawing and graphic work, allowing to correct mistakes made in the work process in simple and effective ways.

Further development of the system made it possible to draw two-dimensional drawings and model complex spatial and frame constructions widely used in various aspects of human activity. From the moment of its creation, the system has undergone serious enough changes until it reached its modern appearance. The computer provides designers and technologists with the full capabilities of ALT, which eases their hard work and allows them to engage in creative work, resulting in increased work efficiency.

Results and Discussion

The approach of the automated design system to the designer ensures that the efficiency of ALT, which has been hindered by the difficulties of algorithmizing design issues, will also increase:

In fact, it is not possible to attach a programmer to every constructor. This discrepancy can be overcome by the widespread use of practical software tools that allow communication with the constructor in "natural" language.

It should be noted that this applies not only to the field of computer graphics. Almost all modern software is user-oriented, communicates with him in an understandable way and provides him with complete freedom of action. Such a "communication" of a person with a computer can be carried out only in the interactive (dialog) mode, in which the user monitors the results of his actions on the screen.

ALT also provides the designer with almost unlimited opportunities to quickly obtain graphic data, communicate in a simple and effective language to control its processing, and control the results.

First of all, this applies to graphic communication, because graphics (drawings, schemes, diagrams, etc.) have the main position in ALT as the most effective way of presenting information.

Thus, the most labor-intensive part of the work can be automated.

According to the assessment of foreign construction bureaus, in the traditional design process, an average of 70% of the total labor cost is spent on the development and formalization of drawings, 15% on the organization and maintenance of the archive, direct design (development of the structure, execution of calculations, coordination with other areas and together with others) -15% is spent.

Many modern software systems aimed at designing industrial products have great capabilities of interactive graphics, creating and editing two-dimensional images consisting of product projections, lines, dimensions, etc., as well as initial drawing. based on the conditions, it allows to form realistic three-dimensional images of the product being designed, taking into account different methods of lighting.

1. ALT was previously non-existent and almost unattainable

offers opportunities.

2. The designer has entered a new environment - the environment of computer graphics

remains.

3. The quality of the ALT package is primarily for the constructor

the difficulty of switching to a new technology when using the package

determined by the level.

4. Currently, there are many ALTs with different objectives and complexity.

5. Graphic capabilities of the user system, its price and demand

chooses based on the available technical capabilities.

6. For most of the drawing-design works, simpler, but sufficiently wide-capacity machines are required, and a number of systems can meet this requirement.[24]

Through automated design systems, tangible and intangible products obtained as a result of using intellectual property achievements (discovery, invention, scientific and design projects, etc.) are created in the process of transformation of industrial enterprises to increase efficiency in one or another field of activity.

Complexity of industrial systems (systems based on the use of information technologies) requires taking into account the specific characteristics of digital technologies. It is responsible for the intellectual processing of information about changes in the state (efficiency) of complex objects and ensures the selection of management decisions.

In the process of digital transformation, providing the population with high-quality industrial products, modernizing industrial enterprises, establishing a new approach to enterprises and new services, transferring them to the digital transformation process, and thereby creating innovative service centers, smart technologies, intelligent services it is necessary to carry out extensive work on

Digital transformation and automation will reduce processing costs and increase economic efficiency in the manufacturing industry. In the past, manufacturing companies paid little attention to the cost of production, resulting in increased product costs. However, the growing integration of digital transformation leading to automation has helped reduce unnecessary costs. For example, digital manufacturing can shorten and increase innovation development cycles.

In order to maximize the impact of digitization in the development of e-commerce using ICT in industrial production, business processes need to be improved along the entire value chain, from

ideation to implementation and operational use. It is impossible to successfully develop the national economy without considering digital transformation as a priority goal of the country's development for the development of electronic commerce using ICT in industrial production.[25]

In order to organize the mutual integration of industrial production management with sectors and make optimal decisions, it is desirable to systematically build the digital transformation process on the four technological foundations of digital development:

- "big data", which means a sharp increase in the possibilities of data storage and processing in all types of computer systems, the basis of future artificial intelligence;

- sociality - the need to attract a large number of users, bodies performing various roles;

- mobility - the availability of information from anywhere in the process;

- cloudiness - a method of data storage.

Their combination can significantly reduce the cost of electronic business processes. Tailoring products to each specific customer's needs and delivering services when and where they are not.[26]

In fact, in the process of integrating industrial enterprises, the basis of the operation of the economic system as a strategic resource is not information, as in the previous evolutionary stage, but knowledge and powers, because in the future, as a result of the formalization of almost all information and knowledge, a certain permission due to the level of development of technology can be digitized by creating algorithms with a given level of complexity (Pic. 1).

With this approach, e-commerce in the industry should be understood not only as a digital management platform, an e-business analysis system, but also as an intellectual structural unit with the task of managing each employee of industrial enterprises. An element of the larger system mechanism should be developed by guiding the principles defined by the customer. This idea is based on the digital platform management model, basic principles and rules, according to which all participants of the process participate.[27]

In industry, e-commerce, as a socio-economic system, combines its own and third-party digital platforms to attract and use objects (resources), perform processes (functions) and realize specific goals (needs).

The results of the conducted research showed that e-commerce digitization processes are implemented in the industry, but not at a satisfactory level and are not comprehensively organized. Until now, the population is facing problems such as spending too much time and wasting resources [20]. As the world economy advances on the basis of scientific and technical development, there is a need for global database support in the digitization of electronic commerce in the industry. On the basis of this database [21], the development of electronic commerce and business processes in the industry, in turn, the study, analysis, processing and storage of this information is of great importance.

In particular, digitization of production in industry, that is, the organization of a database in the industrial sector based on modern technologies, is one of the factors of further improvement of industry activities and further improvement of the standard of living of the population.

Their comprehensive information about socio-economic processes in the

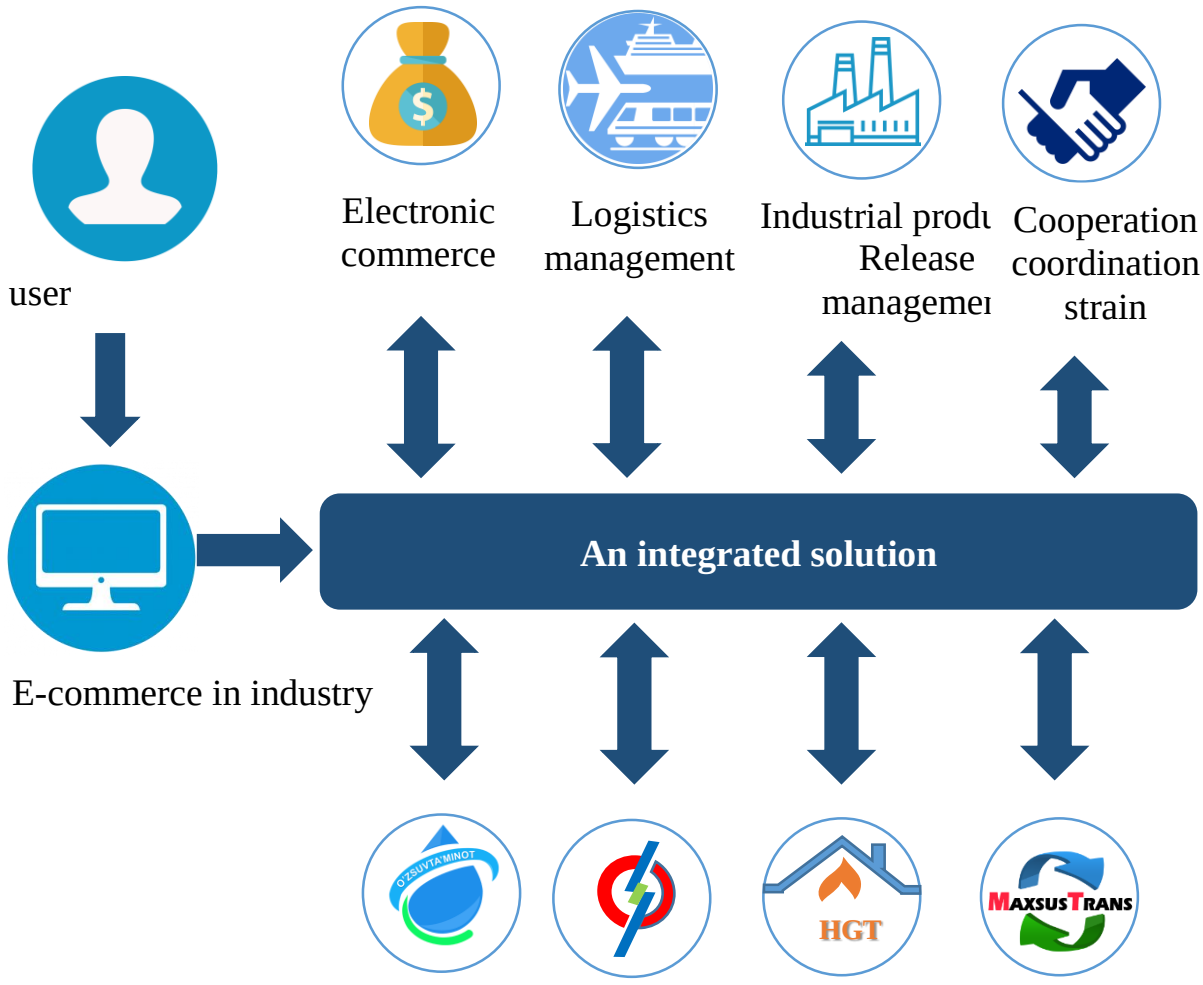
region is an important factor in the effective functioning of the employees of industrial enterprises.[28]

Such end-to-end or deep integration of multiple platforms enables the most efficient design and implementation of e-commerce development models in the industry. Due to reusable systems, elements and patterns, the level of competence is constantly increasing. , in the digitalization of e-commerce integration in the industry, transactions are optimized based on high-tech network distributed specialized and implemented solutions.

Thus, the study showed that integration, the introduction of uniform transparent rules for all participants of the e-commerce management system in the industry not only increases the efficiency and quality of e-commerce management in the industry. The same system, thanks to "flat" management and transparency of all information, also helps to get rid of such a serious problem as corruption.

Important assets - skills, knowledge, in other words, the need to create a digital database for the storage of existing information, analysis of the financial results of the enterprise, and effective management using the relevant core competencies[22].

It is worth noting that remote e-commerce has become a distinct factor characterizing the digital economy. Advances in digital technology, the Internet, mobile communications, and cloud storage have enabled employees to work remotely. As a result, almost every industrial enterprise raises the question of remote work of employees, because it significantly reduces its costs.



Pic 3. An integrated solution based on a digital platform.

As we can see in the picture, the level of introduction of information technology depends primarily on the characteristics of e-commerce business processes.

The integration of industries helps to optimize human resource costs, to simplify the establishment of relationships with consumers and contractors, and also to regulate the management of all industrial production and service processes.

The proposed project is intellectual and is a necessary process to adapt industrial enterprises to the modern conditions of digitalization of the economy. We consider this in the following SWOT analysis (Pic 4).

It is based on clarifying the study of digital integration of industrial enterprises as a global management system for all economic entities and their resources through digital platforms.[29]

Defines a digital platform as a set of integrated tools based on modern digital technologies, the use of which simplifies the management of operation and interaction both inside and outside the socio-economic system, revealing its content and allowing for its structure.

Naturally, without automating the storage, search and processing of relevant information, organizing regular control over the implementation of many utility employees creates certain difficulties. To solve these tasks, the tasks of automating the database, control and analysis of the "Sanoatda e-commerce" platform were developed on the basis of MySQL DBMS and put into use in the Chamber of Commerce and Industry of Kashkadarya region.[30]

S - STRENGTHS	**W - WEAKNESSES**
➢ Long-term development and implementation of state and regional programs for the development of e-commerce in industry; ➢ Creation of a regulatory and legal ground in the field of e-commerce in the industry; ➢ Labor force impact on e-commerce in industry; ➢ The transition of electronic commerce to the Billing system in the industry	➢ Inadequacy of e-commerce management equipment in the industry; ➢ Insufficient knowledge of personnel working in e-commerce in the industry ➢ Limited financial resources; ➢ Not having enough information on creating a comfortable service environment; ➢ Failure to use the news of scientific and technical development in a timely manner;
O - OPPORTUNITIES	**T - THREATS**
➢ The presence of investors' desire to invest in the sector on the basis of public-private partnership; ➢ It is possible to implement a perfect cluster system using foreign experience of	➢ Instability of prices and interest rates of e-commerce definitions in the industry; ➢ The market is not well established with other regions;

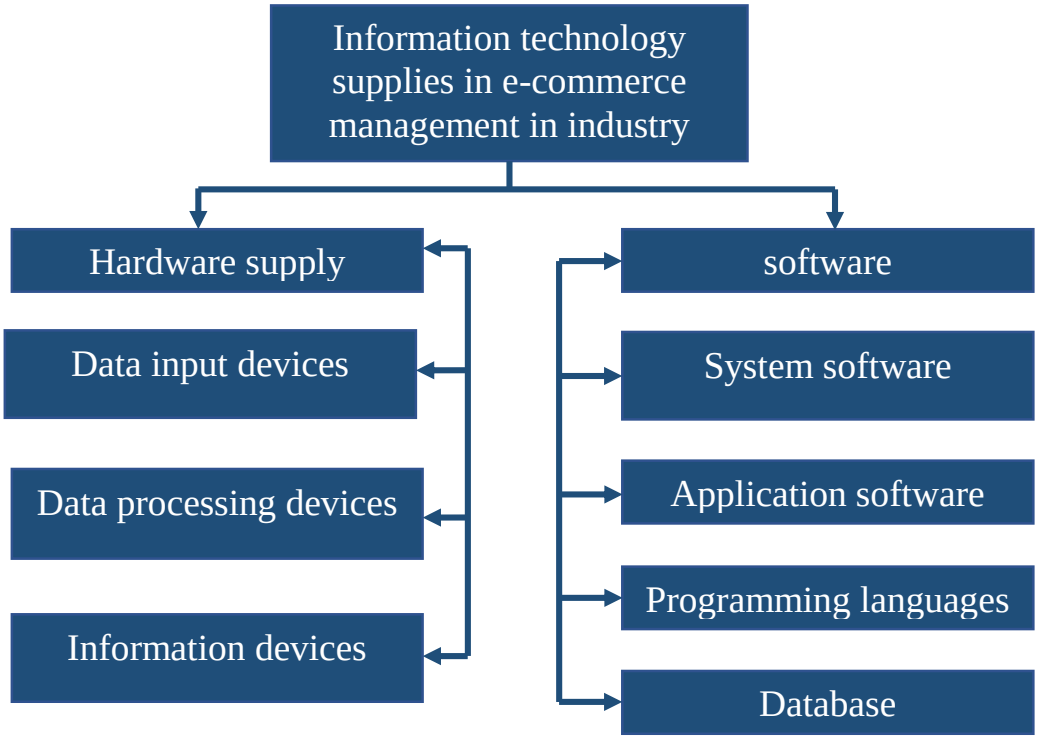
e-commerce in the industry ➢ Rapid market adaptability of e-commerce in industry;	➢ The lack of opportunity for legislative changes to always reach e-commerce entities in the industry;

Pic 4. SWOT analysis in the framework of creating a cluster in the field of housing and communal services and forming its operational concept.

The implementation of these complex tasks is not only the organization of automated storage of information about each resident (surname, first name, patronymic, republic, region, nationality, etc.), but also the funding allocated for all orders, execution periods, order implementation quantity, etc. are included in the database of the set of tasks. The availability of such information makes it possible to periodically send reminders to interested parties about the status of the implementation of a particular order.[31]

At the same time, the set of tasks allows for a meaningful analysis, which allows highlighting the most important issues that are relevant for the population of a particular region and the village as a whole. For example, the preference for a specific field of orders related to environmental issues indicates the need for prompt implementation of appropriate environmental protection measures in this field.

As part of the research, a utility service efficiency evaluation system was developed and put into practice in order to create convenience for utility service participants, including customers. In this case, a simple and convenient digital platform for the user is created in the interface of the information system by using HTML, CSS, and JavaScript tools of web technologies (Pic.5).



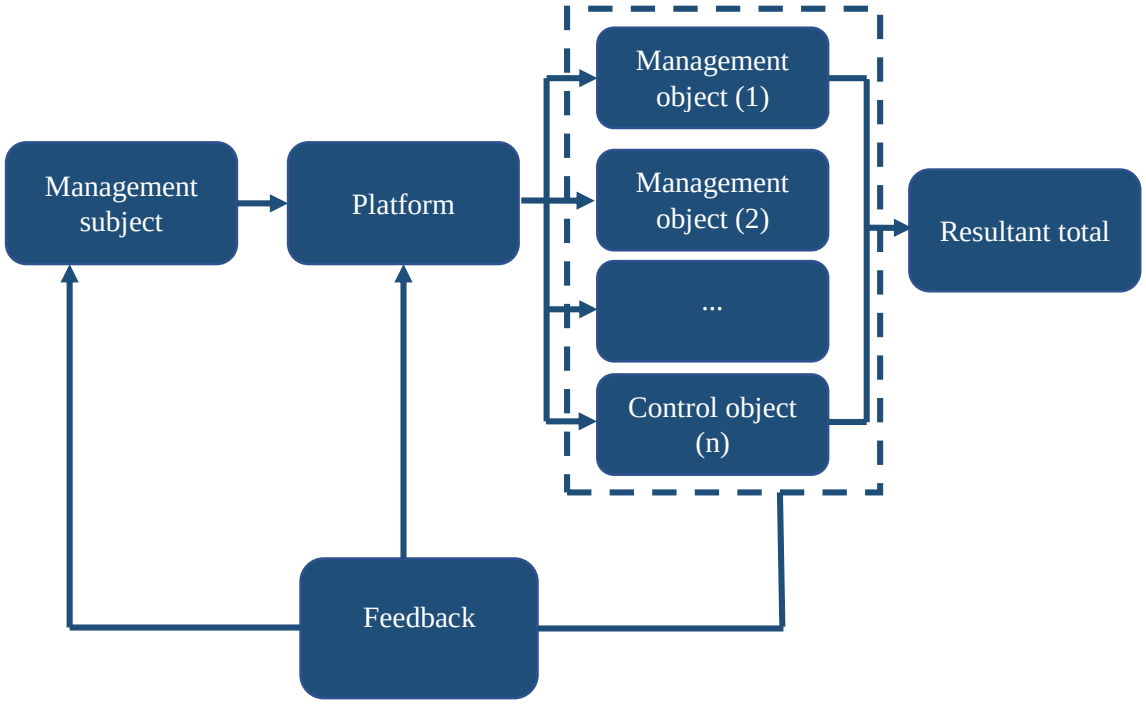
Pic 5.Information technology supplies in e-commerce management in industry.

The platform created by us consists of integrated tools based on innovative modern digital technologies. With this approach, the digital platform should be

understood not as an e-business analysis system, but as an intellectual structural unit with the task of managing each employee of the enterprise, by guiding the principles defined by the customer, it is an element of a larger system mechanism.[32]

The digital platform is based on the management model, basic principles and rules, according to which all participants of the process work.

Summarizing the above, digitalization of e-commerce as a system can be represented in the form of a scheme. In this case, the platform is a software product that "provides access, as well as operational" information sharing and collaboration for all subjects.



Pic 6. Management scheme in the digital economy.

In addition, the existing trends and tools of web technologies used in the creation of web platforms were used. In the creation of the information system, it was taken into account that the users have a high level of access to Internet services, and that most of the services are currently provided through special web platforms.[33]

Conclusions

In conclusion, the study considered various aspects related to the issues of digital transformation of socio-economic systems based on the integrated service integrator in the context of active digitization of e-commerce integrated communications in the industry and increasing its service level.

The most common technical requirements for database transformation are:

- creation of new e-commerce business models [34] (platforms, ecosystems, networks) in the industry;

-data analysis (data science);

- integration with partners through an open programming interface;

- ensuring digital security (security by design) at the level of system design;

-having advanced technologies

(artificial intelligence, robotics, 3D video, cloud services, virtual and augmented reality, internet tools, blockchain);

- electronic management, i.e. highly effective management organized with the help of information technologies, etc

As far as database requirements are concerned, competencies in system architecture and advanced technology are equally important [35].

The most sought-after intellectual information: design thinking, that is, user orientation in the development of products and services; digital psychology, i.e. behavioral economics taking into account big data analysis; emotional intelligence; communication skills etc. Assists in the implementation and use of network platforms and integrated automation tools with an intelligent database. Today, it is important to organize research in the field of digital transformation of the economy, and then to create unique, competitive, effective digital platforms by applying the obtained results in practice.

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