

Ways to use intellectual platforms in the Republic of Uzbekistan

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Abstract. The article is scientifically based on the development of the activities of JSC "Ohangarontsement", a cement producer in Uzbekistan in the digital economy, based on the use of intelligent platforms. Ways to reduce the cost and increase the efficiency of products based on digital information and communication technology are presented.

1 Introduction

Today, the experience of the developed countries of the world shows that the source of economic growth of countries is the development and effective use of intellectual technologies, innovative products and services. Reforms in this area were launched in India 40-50 years ago, and in 2019 the revenue from this sector reached \$159 billion [1]. According to the experience of countries such as South Korea, Japan, China, India, Finland, two times more investments were invested than in other countries, they are mainly focused on the production of industrially necessary devices, software, information and communication technology products and intellectual services and their effective application in industries. According to a World Bank study, in 2020, most economically developed countries achieved an increase of 3-3.9% of the country's GDP, 7.2% per capita income through the use of information and intelligent platform technologies in production and services, which led to an increase in the number of Internet users by 15% (compared to 2017) [2].

In world practice, various aspects of the development of industrial enterprises based on the effective use of intelligent information and communication technologies have been carefully studied by foreign economists, such as: huwal M. Davis; Ali Hoshim, Bill Alan, Eduardo Talero, Desai P. He was Jem Dener, Ebenezer Laser, Reimo Suomi, Emilia Gombaz [3-9].

The issues of effective use, management and digitalization of intelligent platforms and information and communication technologies in the industrial sectors and services of the national economy in our country have been studied in detail by such scientists as: A.N. Aripov, B.A. Begalov, A.Sh. Bekmuradov, T. K.Iminov. N.A.Iminova, A.T.Kenzhabaev, B.Sh.Makhkamov, N.M.Makhmudov, M.A.Makhkamova, Sh.I.Otajonov, T.Z.Teshabaev, G.B.Shonazarova, G. A. Khamdamova, S. S. Salomova O. I. Shibarshova [10-25] and a number of others.

2 Methods

In the context of the digitalization of the economy, the organization of production based on an intellectual platform is not only the main source of growth that ensures the development of an individual economic entity, but of the entire system. Today, the diversification of enterprises based on innovative technologies operating in the sectors of the economy of Uzbekistan will strengthen their sources of income and profitability, but also provide an important basis for reaching new heights in the world market of our country. In particular, computerization, robotization and, ultimately, the digitalization of the production processes of industrial enterprises is one of the sources of income growth. In the context of the digitalization of the economy, the organization of new types of production through the use of new information and communication technologies in industries and in all sectors of industry and the application of information and communication technologies to existing production processes will lead to economic and social benefits.

The research used comparative and logical analysis methods.

Based on the study, the author substantiates that the emergence of several new types of services for organizing a digital production process through the use of ICT in the production process of industrial enterprises:

- a qualitatively new logically organized type of product (service);
- a type of intelligent service that is significantly improved in the enterprise's production process and compared to services available in the market;
- new service with some logical and digital improvements in product development;
- Services offered to market segments in manufacturing processes and presented as a broad system of manufacturing facilities enabling digital manufacturing.

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One of the types of services that form the production process of an enterprise on a new basis is the services of an intelligent platform. The intelligent platform is a network software hardware “superstructure” that allows the use of intelligent technologies to diversify, adapt and organize new production processes through automation, robotization and, finally, digitalization of the production process [26].

In our opinion, the evolutionary transition of production to intellectual services in the formation of an informed society towards a digital society is conditionally carried out in three stages. At the first stage, industrial enterprises felt the need for ICT services. During this period, the main service was the development of automated data transmission, as well as automated production processes (Fig. 1).

With the development of society, as a result of the increase in information and communication technologies in production processes, the demand for industrial

automation began to grow, and there was a need for modern technologies in production. As a result, the process of automation of ICT systems was implemented. Thanks to the computerization and robotization of systems and networks, there has been a transition to a broadband environment, which means that now society has realized the need to implement not only services, but also a programmed production process.

At the second stage, software logical intelligent platforms were used to program the production process. Intellectualization has become dependent on factors such as the spread of ICT types, quality improvement, digitization level, platform level, networking level. The development of smart platform technologies in industrial sectors of the economy and, eventually, the addition of robotic manufacturing and software services has led to the convergence of smart services.

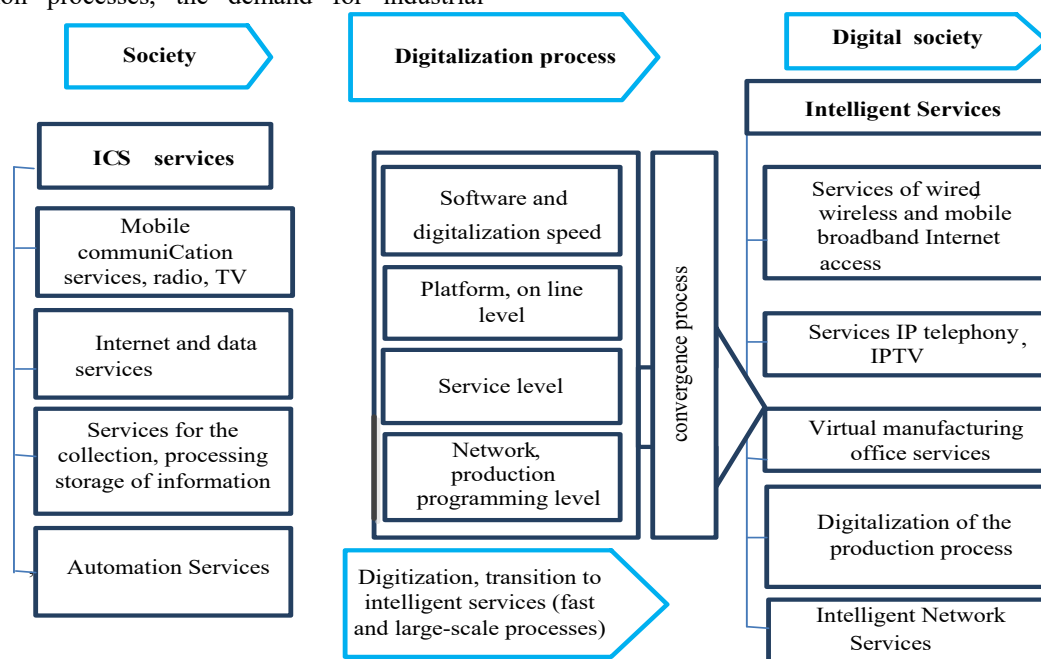


Fig.1. Convergence of the production process and services of the intelligent platform[24]

At the final stage, as a result of globalization, one can observe the transition of the information society to the digital economy. In it, society provides the production process with broadband Internet services, software, intelligent platform technologies and many additional types of digital services, as well as the use of intelligent network services in the production process. In such an environment, the production process in industry is carried out on the basis of intelligent platform technologies, the development of which leads to the formation and development of a separate market for intellectual services in production. In his research work, the author systematized the factors influencing this process in the activities of industrial enterprises (Fig. 2).

There are three main factors influencing the development of the intelligent platform technology market in the industry, which, in turn, can be divided into several parts. The first factor influencing the development of these technologies is the funding factor.

The financing factor consists of indicators such as rapid reimbursement of costs for organizing services, cost reduction due to an increase in the size of the business.

The second factor influencing the development of intelligent platform technologies in manufacturing is the increase in the size of the service market. The desire of society for a digital economy will automatically lead to the expansion of the market for intellectual services. This, in turn, makes the services of this platform an integral part of other types of production processes and some services.

The third factor influencing the development of intelligent platform technologies in the real sectors of the economy is technological development.

3 Results and Discussion

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The third factor influencing the development of intelligent platform technologies in real sectors of the economy is technological development. The process of technological development consists of such parts as the expansion of the scope of intellectual services (based on digitalization), the introduction of new modern technologies that allow intelligent management of production processes as a result of the globalization of information.

JSC "Akhangarancement" is one of the leading enterprises in the cement industry of the Republic of Uzbekistan. The design capacity of the enterprise for the production of cement-2 is 180,000 tons per year. It also includes the Combine of Building Materials and Structures, which produces a wide range of reinforced concrete structures and concrete mixtures. The main activities of Akhangarancement are the production and sale of cement, the production and sale of concrete and reinforced concrete products, the production of refractory bricks, the exploration and development of minerals, the extraction and processing of mining waste. Processing, transport services, loading and unloading operations in road and rail transport, wholesale trade and foreign economic activity, etc. (Table 1). Since 2004, the State Committee for Architecture and Construction of the Republic of Uzbekistan has been producing high-quality cement based on GOST 10178-85, as well as GOST 31108-2003.

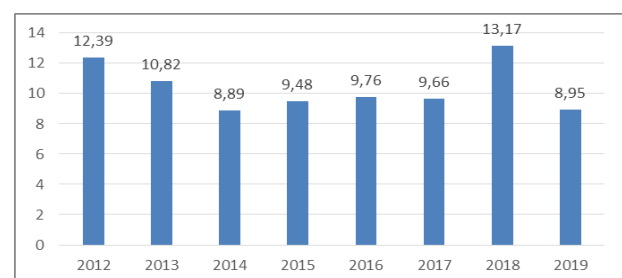
In order to organize the production of high-quality cement and other building materials that meet modern and international standards, Akhangarancement JSC adopted an investment program for 2017-2025. The purpose of this modernization program is to ensure the transition of the enterprise to a new "dry" method of cement production, which involves the use of ICT and software technologies at all stages of production by creating an intelligent platform.

Table 1. Economic indicators of Okhangarocement JSC

	2012	2013	2014	2015	2016	2017	2018	2019
Volume of cement production	1533700	1620131	1700501	1771000	1863000,0	1875000,0	1623970,0	1885669,0
Wage Fund (thousand soums)	11611960,5	14514950,7	19366534,4	20740904	22522117,9	26362788,3	30621488,5	47014466,5
Electricity consumption (thousand m ² .)	202672	204829	207663	213200,0	211519,0	203851,0	173098,0	194252,0
Consumed natural gas (thousand.m ²)	244797	263864	265906	266543,0	275910,0	269922,0	239031,0	265934,0
Number of key employees	1201,0	1217,0	1211,0	1223,0	1193,0	1194,0	1124,0	1184,0
The number of auxiliary and additional thread workers	59,0	63,0	61,0	55,0	58,0	56,0	52,0	54,0
Level of technological renewal (thousand soums)	1090000,0	1370000,0	1650000,0	-	4419210,0	2090000,0	1000000,0	1100000,0

Today, the state of the production processes of society, equipped with ICT and digital technologies, does not meet the demand (diagram 1).

We know that the basis of any production process is 3 factors: the object of labor, labor tools (ie buildings and structures, equipment and technology) and labor power. Table 2 shows the analysis of the level of renewal of fixed assets (total equipment) of JSC "Ohangarontsement" for 2015-2019, one of these three factors.



Diag. 1. State of equipping JSC "Akhangarancement" with ICT and digital technologies (%) [24].

Table 2. Analysis of the level of renewal of fixed assets (total technical technologies) of JSC " Akhangarancement " (thousand rubles) [24]

	Years				
	2015	2016	2017	2018	2019
Initial cost of fixed assets	196688284	219862872	254631527	403376478	420881915
Depreciation of fixed assets	132111971	153739198	169226466	267440335	297080236
Residual value of fixed assets	64576313	66123674	85405061	135936143,00	123801679
Fitness of fixed assets,%	32,83	30,07	33,54	33,7	29,41
Cement production volume	1771000	1863000	1875000	1623970	1885669
New fixed tools added	4232210	4419210	2090000	10000000	13000000
Renewal rate of fixed assets%	6,55	6,68	2,45	7,36	10,5

The data show that in 2017, the level of technical and technological renewal in the joint-stock company fell by 2.45%, and in the remaining years, it can be seen as an increase compared to previous years.

The rapid penetration of the digital economy and its capabilities, Internet technologies, computer networks, various digital platforms, mobile communication equipment and electronic services into our lives in recent decades has led to the acceleration and facilitation of "digital production", has established a reorganization of informatization and digitalization capabilities by economic sectors and countries of the world.

In the digital economy, the main factor is the management of production using information and communication technologies and tools, the use of digital data, the processing of large data sets, their quick and easy analysis and use, electronic payments, electronic services, electronic payments, e-commerce, which require reorganization. processing of production processes.

The conceptual model for creating an intelligent platform in industrial enterprises provides a holistic view of the relationship between production processes and the control system, the integration of production and its digital control provides preliminary design and step-by-step implementation of these processes.

The enterprise makes full use of the achievements of modern digital technologies in improving the production process, manage production through programming and digitization, and on this basis ensure integration between departments and workshops. To solve these problems, the author has developed a system of links between problems and solutions for the use of intelligent platform technologies in improving the enterprise management system (Fig. 2).

The analyzes show that, despite the scale of work on the introduction of digital technologies and innovative developments in the country's cement materials industry, the existing financial, scientific and technical potential is not fully used.

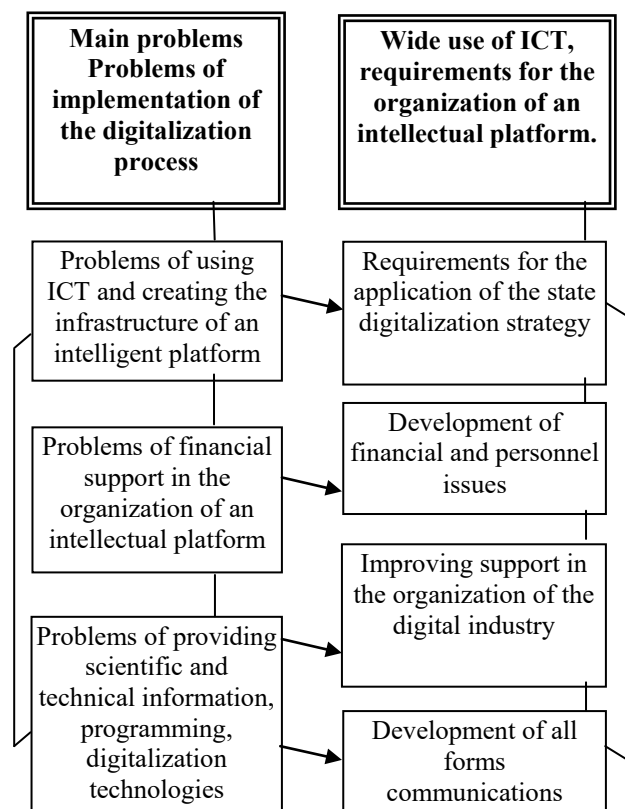


Fig. 2. Communication system between the organization of the intelligent platform and the development of ICT [24]

This, in turn, includes the introduction of digital technologies at cement production enterprises and the management of an intelligent platform, the digitalization of the statistical base and reporting activities, the digitalization of production activities, the digitalization of processes at the subject and system levels, the organization of the integration of micro- and macro-level systems, the implementation of the effective operation of other processes on digitalization.

In this work, a model was developed for the effective organization of the use of digital technologies based on the infrastructure of an intelligent platform in Akhangarancement JSC (Fig. 3).

The production process infrastructure based on the company's intelligent platform includes: digital organization of production processes, process security

from raw materials to finished cement, electronic digital signature and identity management system, fact-finding system using blockchain technology, Internet process systems, packaging and transportation of products. In a digital economy, the production process at an enterprise must be carried out with reliable information security. As part of this information integration, information about the production process must be calculated electronically in real time on a daily basis. This will need to be done through a mutually integrated data exchange interface.

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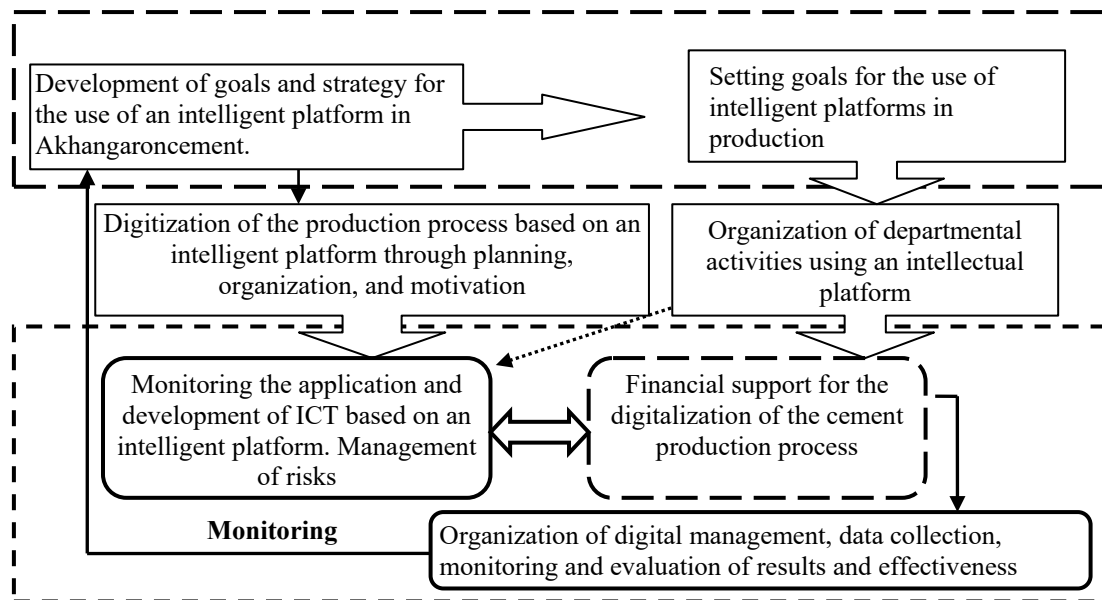


Fig. 3. A model for the effective organization of the use of ICT based on the infrastructure of an intelligent platform in Akhangarancement JSC [24]

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consumer survey, identifying the various factors that influence demand patterns and supply processes, modeling them, developing application capabilities and content levels, and how the state can influence and encourage digitalization processes.

4 Conclusion

Studies on the effective development of industrial enterprises based on an intellectual platform made it possible to draw the following conclusions:

During the COVID-19 pandemic, which has become a global problem in the world, the digitalization of production processes and the organization of new production processes based on the Industry 4.0 intellectual platform have highlighted the relevance and necessity of the digital economy.

The main goal of applying and using technologies of digital and software products through the creation of an intelligent platform in industrial enterprises is, on the one hand, to achieve high profits, on the other hand, to increase the efficiency of users.

The processes of demand and supply formation of digital technologies and intellectual services in industrial enterprises play an important role in the modern market economy. It covers topics such as a comprehensive

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