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**АКТУАЛЬНЫЕ ПРОБЛЕМЫ ЭКОНОМИКИ
И УПРАВЛЕНИЯ НА ПРЕДПРИЯТИЯХ
МАШИНОСТРОЕНИЯ, НЕФТЯНОЙ И ГАЗОВОЙ
ПРОМЫШЛЕННОСТИ В УСЛОВИЯХ
ИННОВАЦИОННО-ОРИЕНТИРОВАННОЙ
ЭКОНОМИКИ**

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Представлены доклады секционных заседаний XI Международной научно-практической конференции «Актуальные проблемы экономики и управления на предприятиях машиностроения, нефтяной и газовой промышленности в условиях инновационно-ориентированной экономики». Рассматриваются проблемы экономики, менеджмента и маркетинга предприятий машиностроения, нефтяной и газовой промышленности, а также проблемы повышения конкурентоспособности с учетом специфики протекания инновационных процессов на микро-, мезо- и макроэкономическом уровнях. Кроме того, обсуждаются вопросы государственного и муниципального управления экономическими процессами, связанными с инновационной деятельностью предприятий, определяются меры по координации деятельности вузов и бизнес-структур.

Предназначены для студентов, аспирантов, специалистов в области управления экономикой предприятия и государственного управления.

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СЕКЦИЯ III

ТЕОРИЯ И ПРАКТИКА ИННОВАЦИОННОЙ ЭКОНОМИКИ

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VIRTUALIZATION PATHS ENTREPRENEURIAL ACTIVITY IN UZBEKISTAN

The article considers the draft concept "Digital Uzbekistan 2030" and describes the basic directions of digital development of Uzbekistan. The author examines the technological and sectoral models of digitalization, proposes a conceptual approach to the virtualization of the activities of enterprises in Uzbekistan based on the model of "digital twins".

Keywords: digital economy, virtualization models, virtualization, "digital twin" model, e-commerce.

The development of the digital economy (DE) in the countries of the world takes place according to different models, thus discrepancies are associated with different development priorities and special national management methods. Taking into account various features of development and management methods, we can note the following models of development: the model of the digital service sector (Great Britain) and digital production (Germany), the model of predominance of public (China) or private (USA) management. The main factors of success in digital transformation in the company's activities include the level of development of the innovation system (capable to generate innovations and quickly transfer them to mass production), as well as

the education system (which should provide highly qualified personnel for DE). The introduction of digital technologies allows businesses to enhance their potential both organizationally and technologically. Enterprise virtualization models are associated with the government's adoption of development programs, models of DE and the directions of its formation. Taking into account various approaches, experts suggest technological, process, platform, and growth-based approaches to model formation [1, p. 13].

Problem statement

Currently, the platform approach of the enterprise virtualization model is used for the development of e-Commerce DE sectors. Today, financial transactions, especially banking are being digitalized at a significant pace. New members such as Alibaba Group with its own payment system and Amazon.com are entering the financial market. On the other hand, banks are being to be engaged in new, unusual activities. The main components and features of the enterprise virtualization model in "Industry 4.0", include the followings [2, p. 283]:

- horizontal integration of business processes and value creation processes (value networks) - end - to-end processes within a single information space of the enterprise-with a consumer and with a supplier;

- vertical integration of the internal production chain of enterprises (networked manufacturing) – data collection from Executive mechanisms up to the planning system (ERP) and advanced control mechanisms from the ERP level and down;

- end-to-end digital integration of design processes (digital integration of engineering), continuous design engineering "Industry 4.0" (the Fourth industrial revolution) is a production organization concept the value of which is provided by integrating physical objects, processes, and digital technologies that monitor and create virtual copies of physical processes in real time, make decentralized decisions and allow machines to interact with each other and people.

Most of the research on the impact of digitalization of the economy is devoted to its impact on economic growth. Moreover, the positive impact of investments in the high-tech sector on the level of GDP of the European Union country is revealed [3, p. 1]. It is also clear that digitalization has a positive impact on GDP per capita, the level of employment and the growth of the level of employment of the population [4, p. 65]. Existing initiatives and current programmes in the range of development countries highlight the factors influencing on socio-economic development, namely, a high level of inclusion of digital services, a sufficient level of investment, adequate income, sufficient level of digital literacy, high literacy, high level of complexity of involvement of the state in the development of initiatives and programmes (the state creates a regulatory framework capable of developing digitalization sectors, to conduct a pilot test of the program, and then the business scales initiatives and support them).

Research questions

The implementation of the main directions and priorities of the concept will be carried out through the implementation of activities defined in national, branch, sectoral plans and strategies of development, as well as the inclusion of three

components in the development process:

- businesses that use digital innovations to introduce new business models, invest in infrastructure and employees to develop their digital skills;

- the society that expands opportunities for the use of digital technologies by creating demand for digital products, increasing the level of digital literacy and competencies, increasing the income of the business environment in its composition, or creating new business models;

- the state that supports the entire process of digitalization, provides education, promotes investment, exports of services and goods, increases the level of trust of citizens and businesses, and guarantees flexible legislative regulation. As a result of the implementation of the concept, consumers are expected to receive high-quality and inexpen-

sive Internet and mobile communications, eliminate digital inequality between cities and villages, supremacy of the electronic record and strengthen the confront against corruption. Taking into account the proposed concept of "Digital Uzbekistan 2030", the author suggests technological and industry models of virtualization of enterprises in Uzbekistan, which can be combined into a model of "digital twins".

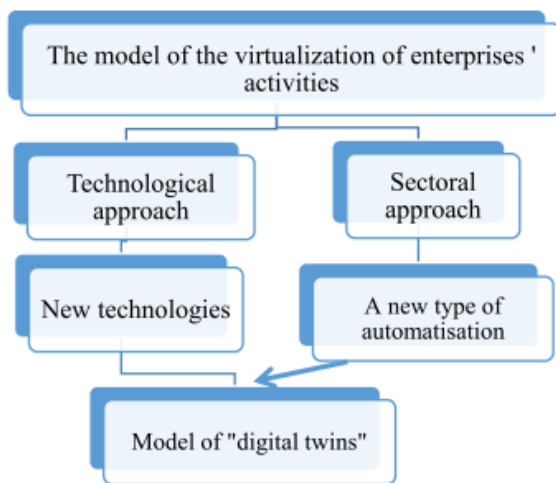


Figure. The conceptual approach of the virtualization of enterprises activities in Uzbekistan [7]

The digital twin model proposed for the use of activity virtualization in domestic enterprises is based on numerical modeling, which allows you to calculate the operational characteristics of the designed (developed) product and the influence of various factors [8, p. 8]. Proper use of this model allows you not only to work with primary sources of information, but also to manage the process of product development and manufacturing itself, to analyze the current state, predict the long term state, plan, timely solve problems and take measures to eliminate them [9, p. 18].

Domestic enterprises, the management of which sets a priority goal of rapid digitalization of all production processes, have a chance to become competitive organizations in modern innovative markets.

Research results

The digital twin model makes it possible to consider a combination of various factors related to each other, which makes the production process more unhindered [10, p. 95]. Among the most important features of digital twin models are the following:

- the ability to predict and simulate various physical processes, which is capable of timely elimination of failures;
- the possibility to use new technologies that allow you to process (accumulate) large massive data more quickly and efficiently;
- the existence of real parameters of the publication's functioning, reflecting the current situation and allowing you to assess the possibility of an accident (failure) at the current moment;
- models are considered to be stable elements.

The decision-making process is key in the work of industrial enterprises and structures, so the possibility of speeding up this process to account for the introduction of a new model is considered promising and necessary [11].

Digital twins are not inferior to their real counterparts in quality, which allows you to get access to the current characteristics of objects, mitigate risks, and create special conditions for operation and use. The main advantages of using these models include [12]:

1. In the short term prospects: The ability to monitor assets and optimizations made with the purpose of using the data usage process and resource discounts for their use, regardless the professional sphere. The introduction of technology in the real sector of the economy in the next two to three years will help to increase labor productivity by 10–25 % and reduce the costs by 10–20 %.

2. In the medium term prospects: it is necessary to use digital twin models in industry, as this increases not only management, but also operational efficiency. It becomes possible to use digital twin models in old ones, which is associated with the possibility of creating new products based on them, taking into account the factors of conditions and opportunities for creation and implementation.

3. In the long term prospects the model of digital twins is implemented as a tool for introducing innovations in the scientific and pro-

duction process, which becomes suitable for the collected and generated analytical data. Recommendations that are developed based on market and product analysis make it possible to create new business models.

Conclusion

The digital twin model makes it possible to consider a combination of various factors related to each other, which makes the production process more unhindered [10, p. 95]. Among the most important features of digital twin models are the following:

- the ability to predict and simulate various physical processes, which is capable of timely elimination of failures;
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