

INTRODUCTION OF DIGITAL DOUBLES AS A KEY FACTOR DIGITALIZATION

student Mikhniuk A.Y.

scientific supervisor – senior lecturer Beznis Y.V.

Belarusian National University of Technology

Minsk, Belarus

In modern conditions, the economy is being transformed into an information economy, which consists in doing business with the mandatory use of the Internet technologies, computer networks, digital communications and modern communications, without which the enterprise does not have enough competitive advantages, in other words, digitalization. If we consider the digital economy as a whole, such a key tool of digitalization as the concept of digital twins should be mentioned. This concept was first mentioned in 2003 by Michael Greaves, a professor at the Florida University of Technology [1].

Digital twin (DT) is a virtual interactive representation of a real material object or process that is not a copy of it, or involves taking into account the connections between elements of human facts, the learning ability of the system itself, and all this together guarantees the formation of a digital life cycle of a product or service.

Digital twins are gaining popularity on the world stage, as they have a number of advantages that increase production efficiency by solving tasks such as: testing a process or production system quickly enough and with minimal costs, identifying bottlenecks and problems before starting production or operating an object, reducing financial risks, as well as risks associated with the safety of the personnel at work. There are fewer disadvantages of using a DT, but they are no less significant: the high cost of technology, little research into the processes, unpredictability in the behavior of artificial intelligence and low people's awareness of digital twin application and operation.

At the present stage, digital doubles are used in various industries. In the field of mining and processing of minerals. Siemens Corporation uses DT to develop engines, communication systems and even high-speed trains. In the energy sector, this technology is used in order to optimize the operation of power plants and avoid failures in the supply of electricity. The scope of application is wide including construction, design, retail, logistics, education, medicine [1].

According to the forecast of the largest research company Markets and Markets the global digital twins market will grow to \$48.2 billion by 2026. Domestic companies are also introducing digital doubles. At the moment, the use of digital doubles is just beginning to gain popularity in the Republic of Belarus. Since 2020, digital twins of oil fields have been actively introduced at Belarusneft software. Recently, Belarusian companies have been actively offering services to create a digital double.

Digital twin technology is one of the main strategic technological trends at the present time, which will continue to develop in the future. This technology is designed to change production methods, optimize processes, stimulate productivity growth and other performance indicators, as well as create new types of products.

References

1. Komrakov A.V., Sukhorukov A.I. The concept of a digital twin in the life cycle management of industrial facilities // Online scientific journal Scientific Idea [Electronic resource]. – Mode of access: <http://www.nauchidea.ru/>. – Date of access: 10.03.2023.