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ABSTRACT

The term “digital manufacturing” can be interpreted quite broadly. Initially, computer-aided design systems fell under this definition. Then they began to include product life cycle management systems. It is clear that cloud technologies, additive manufacturing and augmented reality will also influence the development of digital manufacturing.

KEYWORDS

Information technology, the term “digitalization”, robot, digital modeling, smart city.

INTRODUCTION

"What is digital manufacturing and what changes will the new traditions create?" the thought makes us all think. "What is digital manufacturing and how will it change the industry?" Let's put the questions in the column on the agenda and discuss the existing opinions about it. Emphasis is placed on manufacturers of robots and robotic complexes, information technology and consulting (consulting is the activity of advising leaders, managers (management) on a wide range of issues in the field of financial, commercial, legal, technological, technical, expert activities). experts, management system modernization

(improvement, renewal in accordance with the requirements of the times) specialists, as well as enterprise managers who are "confused about the digitization" of their production, the relevance of this analysis is demonstrated [1]

First idea. Although we try to call the term "digitalization" new, let's pay attention to the fact that it appeared at the beginning of our century. Previously, this concept meant a set of practical systems, and mainly they are at the stage of technological preparation of production, namely:

Research Article

BASIC DUTIES OF DIGITAL PRODUCTION

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automation of the process of developing programs for digitally controlled machines;

automation of the development of technological processes of assembly; automation of issues related to the planning of workplaces in robot programming;

were used for integration (aggregation, scaling) with the plant level (or Manufacturing Execution System, MES systems) and ERP resource management systems [2]

In recent years, with the emergence of new advanced technologies, this term has gained a wide interpretation. To date, "digital production" means, first of all, the use of digital modeling and design technologies of the production processes of products and booms throughout their entire life cycle. Essentially, it refers to the digital creation and production of products and processes. Among the modern industrial changes that "digital manufacturing" entails (some of which are happening today), the following are the main takes place according to directions.

Digital modeling - the concept of making a digital likeness, i.e., making a product in a virtual model, including equipment, production process and company personnel (employees), develops; Mustaqil ishlaydigan (avtonom) robotlar avvalgi avlod namunalariga qaraganda ko'proq sanoat funkuyalarini amalga oshirish, mustaqil xarakter qila olish, moslasha bilish va ijro eta olish imkoniyatiga ega bo'ladi;

Horizontal and vertical integration of systems - integration of information systems used on a large scale at present has been implemented, but it is necessary to establish closer interaction at different levels within the enterprise and between different enterprises. The industrial Internet of things, which is

connected to a single network due to the large number of sensors and equipment coming from production;

It's clear that cloud technologies, additive manufacturing, and augmented reality will have an impact on digital manufacturing. The main changes are due to the technologies mentioned above.

Second idea. "When interpreting the term "digital production", we pay attention to its broad meaning. This concept originally served to represent automated design systems. Over time, this term has expanded to include product life cycle management systems. It is clear that "cloud" technologies, additive manufacturing and augmented reality will have an impact on the development of digital production. A similar term "digital oil field" is used in oil production.

In fact, the digital model of an object or process and its existence in the information space throughout its life cycle is a pillar of this concept. Therefore, digital production is considered a completely different quality of these processes: the terms of starting the production of new products and its price decrease by tens of percent and sometimes several times [3]. Significant high level of labor productivity and the ability to work remotely and collaboratively and cooperation of project participants are observed. Business will be able to predict all processes and control costs.

Digital production is a form of production organization in which all operations are automated, digitally programmed machine tools and robotic equipment are used. the quality of the output will increase significantly;

the level of complexity of the manufactured product will increase; the requirements for employees will increase; production automation will cause changes in

all stages of product production, including its development.

Third idea. Digital production has already penetrated into various fields of activity. Industrial production is certainly not an exception. Much has been written about the various factors of "digital manufacturing", supertechnologies, superrobots and supermaterials. It's really, really good. However, we would like to draw your attention to the following aspect of this issue: now some digital technologies have been replaced by integrated technologies - enterprise life cycle management, product life cycle management, and even some node life cycle management. The item is not "iron-elbow" itself: you made it, sold it and forgot it. It is considered a subsystem that is a part of another system, and in turn, the system it is a part of is part of another system, it is in the process of interaction with other systems and the environment.

The manufacturer will have to think about these relationships and further modernization (modernization) until they are removed from use and disposed of the item (use it in a useful way). New examples of this include the obligation to equip cars with emergency response systems. This vehicle must be equipped with appropriate sensor, communication and navigation tools. In other words, the vehicle remains under monitoring even after it is sold as a commodity. The concepts of "Internet of things", "smart city" mean that many of the objects we use are not only "smart" by themselves, but also environmental objects interacting with other objects. provides that it will be observed by Only a few years ago, self-driving cars were introduced to the public [4].

The concept of digital production will fundamentally change the activity of the enterprise. Intangible assets - intellectual property objects, strategy, policy, methodology, business - processes, information,

competence (skills), skills and abilities, the ability to solve problems related to abstraction, and others are invaluable. . The consumer becomes a participant in the interaction process and becomes an element of the system being created. So it needs to be worked with and added to the value chain.

Fourth idea. One of the main tasks of digital production is the production of products based on individual orders. For this, all processes in the enterprise must be fully automated. These processes include construction work, technological preparation of production, provision of materials and components, production planning, product development and its sale. In this case, it is necessary to create a single information space in an industrial enterprise, with the help of which all automated management systems and industrial equipment of the enterprise will be able to exchange information quickly and on time.

Fifth idea. Digital manufacturing is the application of ideas and technologies that are driving "digital manufacturing" to manufacturing processes. The basis of digital production is to take information from an arbitrary place, collect it, and transfer it to the desired place. This is facilitated by the daily use of smartphones, sensors, video cameras, GPS trackers, radio tags, etc., as well as the development of the Internet of Things. Based on them, the "network culture" will fundamentally reshape the business model in many areas. In addition, computing power will also vary significantly. Previously, information was stored on hard drives, and reading data from it was considered a "narrow place." Thanks to the transition to "In-memory" technology, the speed of data processing has increased several times. Software solutions are being made to look "intelligent", the need for analytical prediction, machine learning technology, and artificial intelligence has arisen. They

are taking upon themselves to perform tasks that previously belonged only to the human mind. [5].

Let's look at the meanings of some terms used in this field and get acquainted with them.

Import of digital products - the granting of exclusive rights for digital products or the right to use digital products by a legal entity or individual of a foreign country to a legal entity or individual of the Republic of Uzbekistan, or the implementation (activity) of a legal entity or individual in the electronic information environment, regardless of the location, to perform certain actions.

Export of digital products - the granting of exclusive rights for digital products or the right to use digital products by a business entity of the Republic of Uzbekistan to a legal entity or individual of a foreign country, or the electronic information of a legal entity or individual, regardless of the place of implementation (operation) in the environment, the implementation of a certain action that does not have a material result.

Information transport devices are magnetic, optical, laser or other electronic information carriers used to create, record, transmit, receive, store or otherwise use digital products.

Having observed the above-mentioned points, made an analytical analysis, we come to the following conclusion.

1. The term "digitalization" is not a new term, it appeared at the beginning of our century. Previously, this concept meant a set of practical systems and they were mainly used at the stage of technological preparation of production. Currently, "digital production" means, first of all, the use of digital modeling and design technologies of the production

processes of products and booms throughout their entire life cycle. Basically, it is about creating and manufacturing digital counterparts of products and processes. A description of the changes in modern industry envisaged by "digital production" was presented. It was shown that "Cloud" technologies, additive manufacturing and augmented reality will affect digital production.

2. The term "digital manufacturing" originally referred to automated design systems. Digital production is a form of production organization in which all operations are automated, digitally controlled machines and robotic equipment are used.
3. Now some digital technologies have been replaced by integrated technologies - enterprise life cycle management, product life cycle management, and even some node life cycle management. The concept of digital production will fundamentally change the activity of the enterprise.
4. One of the main tasks of digital production is the production of products based on individual orders. For this, all processes in the enterprise must be fully automated. and a single information space should be created.
5. Digital manufacturing is the application of ideas and technologies that are driving "digital manufacturing" to manufacturing processes.

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