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## **Industry 4.0 Impact**

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The fourth industrial revolution or simply – Industry 4.0 – is a new attitude to production, based on the introduction of a large number of technologies in the industry. The advantage of the fourth industrial revolution is an increase in efficiency, the protection of workers due to the reduction of jobs in hazardous working conditions, an increase in the level of competitiveness, and more. The technologies of the fourth Industrial Revolution can completely change the existing ways of perceiving the world around us, processing data, coordinating actions, producing products and services. They offer organizations and individuals entirely new opportunities to create value. Over time, these technologies will change everything we take for granted today - from the mechanisms for the production of goods and services to the tools for communication, work and perception of the world around us. Today, advances in neurotechnologies and biotechnologies make us think about what it means to be human [1].

Like previous industrial revolutions, the fourth one will change not only production, but all human life - economic relations, relations between people. Artificial intelligence and the creation of robots, 3D printing and the Internet of things, virtual reality, neuro- and biotechnology – all these new methods are becoming part of the daily existence of mankind every day.

The fourth industrial revolution is leading us to a widening gap between the rich and the poor. The number of

investments in projects that develop artificial intelligence is growing, as the technologies of these projects can reduce costs for companies by an order of magnitude. And job cuts will be a side effect.

According to McKinsey forecast:

- In eight years, approximately 400 million people will have lost their jobs due to the fact that their functions will be performed by numerous programs and robots.

- 53 percent of workers believe that automation will change or make their job obsolete over the next ten years.

- 77 percent of workers will soon be forced to acquire new skills or completely change their qualifications due to the introduction of robotic products in enterprises.

- 80 percent of men are already acquiring new job skills as a result of robotization compared to 74 percent of women.

- 34 percent of adults who do not have secondary and higher education do not consider it necessary to develop new digital skills.

- 69 percent of people aged 18 to 34 are positive about the potential impact of digitalization on the labor market. Their opinion is shared by 59 percent of people aged 35 to 54 and 50 percent of people over the age of 55 [2].

*Virtual and augmented reality.* Today, the most famous formats that are adapted for virtual and augmented reality are video games and all kinds of educational programs. But with the development of technology, VR and AR are not just a gaming tool. Virtual and augmented reality are being introduced into professional areas. Enterprises and departments feel the need for advanced corporate training methods: when training soldiers, for example, VR is used to train soldiers, pilots and salesmen, engineers. In the future, VR and AR will be actively used in healthcare, real estate, education and the military.

**Big data.** Every day there is more and more information. In the areas of public administration, industry, medicine and other areas, a significant amount of information is generated every day. But simple software is not capable of checking such coverage. Thus, machine learning is engaged in information processing. The latest analysis capabilities of such arrays affect different areas of human life, including business, healthcare, communications and entertainment. Today, BigData methods help to search for missing people, etc.

**Artificial intelligence.** Artificial intelligence is the property of intelligent systems to perform creative functions that are traditionally considered the prerogative of man. Artificial intelligence provides an opportunity for Personal Computers to learn from their own experience. Also, computers can get used to the parameters that the user sets. Computers today can perform tasks that only humans could do. Often in cases of implementation of Artificial Intelligence, from computer chess players to unmanned vehicles, natural language processing is especially important, as well as the possibility of its most detailed training. With the help of such technologies, it is possible to "train" computers to perform tasks by processing a large amount of data and identifying any patterns in them.

The term "artificial intelligence" appeared 66 years ago, but has only reached real popularity today, against the backdrop of growing data volumes, updating algorithms, improving computing power and inventions designed to store data. In the fifties, the first research in the field of artificial intelligence started. They were aimed at solving problems and developing systems of computation based on symbols. Ten years later, the presented direction attracted the attention of the US Department of Defense: the military from America began to train computers to imitate the mental activity of people.

The work presented by the leadership of advanced research projects of the US Department of Defense became the basis for forming the rules of automation and the formal logic of reasoning used on computers of modern production, mainly for systems that are designed to support decision making in smart search engines designed to complement and enhance human potential.

*Industry 4.0 in our country.* Today, various enterprises are paying attention to business processes in the concept of "Industry 4.0" around the world. And the Republic of Belarus is no exception. The level of digitalization of enterprises in the country is growing every day. Today, scientists are creating a regulatory framework and actively adjusting the development of digital systems and attracting investments. The possibility of obtaining economic indicators contributes to the use of technical and technological tools associated with the concept of "Industry 4.0". Every month in the Republic of Belarus, up to 50% of profits are sent to innovation funds, and this aspect also applies to private enterprises.

#### References:

1. World' Best Banks Industry 4.0: Technologies, Outcomes, and the Future of Manufacturing [Electronic resource]. – Mode of access: <https://global.hitachi-solutions.com/blog/industry-4-0-technologies-outcomes-and-the-future-of-manufacturing/>. – Date of access: 11.04.2022.
2. Industry 4.0 and the fourth industrial revolution explained [Electronic resource]. – Mode of access: <https://www.i-scoop.eu/industry-4-0/> – Date of access: 15.04.2022.