



INDUSTRIAL SECTOR IN THE DIGITAL ECONOMY

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Article history:	Abstract:
Received: 8 th August 2022 Accepted: 8 th September 2022 Published: 11 th October 2022	The vector of growth of all sectors of the economy is constantly shifting due to digitalization, with a growing usage of digital technology. Along with lean manufacturing technologies, universal digitalization has become a trend in recent years, and the use of IT in the fields of design and engineering, as well as production management, at all stages of the product lifecycle, is becoming an integral part of the process of complex change initiated at enterprises. This article discusses the industrial sector's role in the digital economy.
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The conversion of information into digital form or the digital transmission of data packaged into discrete signal pulses is referred to as digitalization [1]. As a result, the digital economy is defined as an economic activity based on digital technologies, such as electronic business and e-commerce, as well as electronic goods and services produced and sold by them, and contributing to increasing the efficiency and transparency of goods and services production.

The global economy is being transformed by digitalization. The introduction of digital economic instruments allows industrial firms to minimize the time it takes for items to access the market, increase the quality of products and services, and apply new business models.

It is widely assumed that the digitization of industry, dubbed "Industry 4.0" and "The Fourth Industrial Revolution" in international and domestic scientific literature, is inextricably linked with the notion of industrial development.

Three preceding industrial revolutions triggered the start of digitization of industry under the scope of Industry 4.0:

- the first replaced physical force with the energy of steam and water engines, creating machine tools, mechanical devices, transportation, and metallurgy;
- the second carried out electrification and the introduction of conveyor production, the development of the oil and chemical industries, railway transport, and communications (telegraph and telephone); and the third carried out electrification and the introduction of conveyor production, the development of the oil and chemical industries, railway transport, and communications (telegraph and telephone).
- the third brought automated technologies, ensuring the advancement of electronics and robotics, as well as the incorporation of information and communication technology (ICT) and software into manufacturing processes.

Today, the terms Fourth Industrial Revolution and Industry 4.0 are used interchangeably to describe the active and widespread use of information and digital technology in manufacturing processes and management.

It focuses on a new stage of economic growth based on the integration of physical and digital things in the spheres of production and consumption in the economy and society in its concept of the digital economy. This integration adds to a major increase in network communications and high-speed connectivity of people, processes, data, and objects, allowing for speedier decision-making in the face of rapid changes in environmental circumstances based on data analysis.

Today, an examination of the worldwide market for Industry 4.0 technology reveals that its quantities are steadily increasing. Simultaneously, the trends in the usage of IT in industry are:

- extensive data analysis
- artificial intelligence;
- shifting from in-line production to individual production;
- The desire of enterprises to integrate all solutions in order to create a single data space, etc.

Today, the most intense rivalry in the field of digital technologies is related with the development of high-tech equipment equipped with artificial intelligence. China's portion of worldwide venture capital investment for AI has increased from less than \$1 billion in 2010 to \$36 billion in 2018. China has a 28% stake, whereas the US has a 54% share [2].

Asia-Pacific (ARAS) is now regarded the most growing area, and MarketsandMarkets believes that it will become the largest market for the introduction of Industry 4.0 technologies [4].

Strong rates of development are spurred by three key geographical factors: first, high demand for robots in the industrial sectors of China, Japan, India, and South Korea; and second, high rates of development are stimulated by high rates of demand for robotics. Second, low manufacturing costs, particularly for huge production capabilities that meet not only regional but also worldwide demand. Third, there is considerable extra funding from the governments of the region's countries that receive super-profits from the innovation sector. China will have the top position in the volume of the Asia-Pacific Industry 4.0 market by the end of 2020, followed by Japan and South Korea. India is steadily establishing itself as the number two country in the world, catching up to South Korea [3].

One of the most significant paths of digital industrialisation in industrialized nations is the establishment of institutional conditions for the environment's preparation for digital transformation.

The unpredictability of the external environment is related with the requirement for continuous review and updating of industrial growth directions. Successful scientific and technological development initiatives in countries such as the United States, Japan, Germany, Korea, and Sweden have contributed to the formation of positive global experience and the development of advanced manufacturing technologies that serve as the foundation for Industry-4.

The most developed nations have a propensity to construct their own industrial platforms, devise measures for the development of local technology, and import manufacturing from other countries. The notion of digital industrialization is focused on the creation of an environment that is ready for digital transformation. The digital competitiveness ranking indicated that the element of future preparedness is stronger in industrialized nations than in underdeveloped countries. It should be mentioned that in industrialized nations, the digital transformation of industry is assured, among other things, by a wide number of players, including small and medium-sized firms. For example, the EU nations' national development objectives are more congruent with the European policy of the Digital Agenda for Europe [5]. The EU economic strategy is now developing a package of measures to eradicate outmoded practices and usher in a new era of industrial development.

The requirement for digital technologies is influenced by differences in technological tendencies among countries. In industrialized nations, the socioeconomic sphere is more developed and oriented toward digital technologies, but in developing countries, this demand is less intense, owing to the dominating 3 and 4 technical orders, poorly constructed digital spaces.

Opportunities for industrial transformation are provided by research assistance, networking of industry partners, and standardization. Germany's work on standardization and the growth of digital manufacturing through diverse business models, for example, contribute to the country's continued leadership in cyber-physical system technology and industrial collaboration.

There are issues with the formulation of institutional circumstances, labor resources, policy renewal, insufficient investment, and the development of a data management culture for smart manufacturing. Government policy encourages businesses to invest in new technology in order to remain competitive in the future.

The introduction of a single information space into production, through which enterprise management systems and industrial equipment may communicate data in a timely way, is a crucial requirement for the integration of an industrial firm into the digital economy.

The instruments of the digital economy in industry are defined as the methods of digitizing all physical assets of the firm and integrating them into digital ecosystems with the data of the enterprise's business partners. The systematization of digital technologies allows us to establish that they can be classified into three groups: tools for digitization and combining vertical and horizontal value chains; tools for creating and operating a digital business model; tools for providing access to customers; and tools for digitizing industrial enterprises' offers of goods and services.

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