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## DEVELOPMENT OF INDUSTRY 5.0: EXPERIENCE OF EU COUNTRIES, THE UNITED KINGDOM, AND PROSPECTS FOR UKRAINE

Vitaliy Tymoshchuk<sup>1</sup>, Lesya Dmytrotsa<sup>2</sup>

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1. student at the Faculty of Computer and Information Systems and Software Engineering  
*Ivan Pul'uj Ternopil National Technical University, UKRAINE*

**ORCID ID: 0009-0007-2858-9434**

2. Ph.D., Associate Professor of the Department of Computer Science  
*Ivan Pul'uj Ternopil National Technical University, UKRAINE*

**ORCID ID: 0000-0003-2583-3271**

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The rapid development of digital technologies, artificial intelligence, and cyber-physical systems has led to a new stage in the evolution of industry – the concept of Industry 5.0, which significantly expands the scope of the previous Industry 4.0 model. Contemporary global challenges, in particular issues of sustainability, environmental responsibility, and the growing need to strengthen the role of humans in technology-intensive production processes, determine the relevance of researching this paradigm.

The purpose of this review is to examine the concept of Industry 5.0 as a new model of industrial development, identify its key differences from the previous Industry 4.0 model, and review the readiness of the European Union, the United Kingdom, and Ukraine to implement it. The study aims to identify the relationship between technological development, the human factor, and the sustainability of industrial systems, as well as to outline the prospects and challenges associated with the transition to a new innovative production model.

Industry 5.0 is emerging as a new model of industrial development that goes beyond the digitally automated logic of Industry 4.0 and offers an approach focused on human needs and roles, as well as on the resilience of industrial systems capable of quickly recovering from external challenges [1]. Unlike the previous stage, which focused on efficiency and automation, Industry 5.0 integrates artificial intelligence, human-interactive robotics, and high-precision cyber-physical

systems with human creativity and an ethically balanced approach to the organization of production processes [2]. The new generation of industry is aims not only to increase productivity but also to enhance social welfare, environmental balance, and worker protection, as defined in the strategic priorities of the European Commission [3].

In this context, the European Union's growing emphasis on ensuring technological sovereignty and the ability to independently develop key digital solutions is important. The DIGITAL SME Summit 2024 emphasized that support for European cloud services, AI technologies, and open platforms is a prerequisite for strengthening the resilience and autonomy of European industry, especially for the SME sector [4]. This directly correlates with the vision of Industry 5.0, in which innovation is aligned with ethical principles, support for local technology solutions, and prioritizing the role of humans in all production processes.

An analytical review shows that the EU is the most structurally prepared for the implementation of Industry 5.0 thanks to comprehensive digitalization policies (DESI), the development of sustainable technologies, the expansion of research and innovation capacity, and large-scale automation programs for small and medium-sized manufacturers [5]. Member states are undergoing a consistent transition from technological modernization to a profound transformation of the business value model, from efficiency to sustainability, from automation to human-machine collaboration [6].

The UK is making significant progress thanks to the Made Smarter, Catapult Network, and national AI strategy programs, which encourage the adoption of robotics, computer vision, and autonomous manufacturing systems. The UK economy is moving towards Industry 5.0 through a focus on applied innovation and commercialization, rather than just regulatory and strategic planning [7]. This approach creates more flexible conditions for integrating new technologies into production chains and accelerates the adoption of AI and automation in real businesses.

The development of Industry 5.0 in Ukraine is uneven. The IT sector is developing rapidly, ensuring a high level of technological professional skills, but manufacturing enterprises demonstrate a low level of digital maturity and limited investment in modernization [8]. Government programs for digital transformation and industrial modernization are still in the early stages of implementation, however, Ukraine is actively integrating into the European regulatory framework and cooperating with international organizations in the field of innovation [9]. This creates potential for accelerated development once the economy stabilizes.

**Conclusions.** The analysis shows that Industry 5.0 offers a new approach to industrial development, combining technology, human participation, and a focus

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on sustainability. The EU is currently best prepared for this transition thanks to its advanced digital policy, innovation, and research support. The UK is moving in this direction through the rapid introduction of new technologies into production and the active commercialization of innovations. In Ukraine, the transition process is only just taking shape. Despite varying levels of industrial digitalization, the country has potential thanks to its strong IT sector and integration into the European digital space. Overall, Industry 5.0 defines the future of industry as a combination of technological development, a human-centered approach, and the responsible use of innovation.

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