

INDUSTRIAL MANAGEMENT AND DIGITAL TRANSFORMATION: STRATEGIC APPROACHES FOR MODERN MANUFACTURING ENTERPRISES**Shen Xianli**

In modern industry, the concepts of digital transformation and smart manufacturing have become an important factor in ensuring the competitiveness of enterprises. In the process of transition from traditional production systems to modern, smart and flexible systems, enterprises face problems such as strategic management, skill development, reorganization of production processes and data-based decision-making. Therefore, the combination of industrial management and digital transformation is an important research direction to improve production efficiency and ensure sustainable development.

One of the main tasks of enterprises in the process of digital transformation is to integrate existing production processes with smart systems. Industrial Internet of Things (IIoT) devices and artificial intelligence technologies play an important role in this process. IIoT devices allow real-time data collection from production lines, which helps to optimize control, planning, and maintenance. For example, when creating a production schedule, data obtained through IIoT is used to analyze the efficiency of machine resources, identify process delays, and create the opportunity to maximize production capacity. At the same time, artificial intelligence systems are used for quality control and predictive maintenance, which helps to identify equipment failures in advance and ensure the continuity of the production process.

Implementing digital transformation in enterprises is not limited to technological upgrades, but also takes into account the human factor. It is necessary to implement strategic changes in management processes and retrain employees in new technologies. Advanced training programs ensure the effective use of new technologies by employees and prepare them to adapt to changes. At the same time, business process reengineering is an important condition for increasing the production efficiency of an enterprise and successfully integrating it into digital systems.

Another important direction for modern industrial enterprises is the introduction of sustainable and green production. Due to the increasing global environmental policy, enterprises are forced to use environmentally friendly production technologies. The green production model involves organizing the production process taking into account energy efficiency, waste reduction and recycling opportunities. Supply chain management is also important in this, since it is necessary to use environmentally friendly raw materials and materials, cooperate with suppliers, and ensure environmental sustainability throughout the entire life cycle of products.

Also, the development and implementation of data-driven decision-making systems increases the competitiveness of enterprises. Analysis and visualization of large volumes of data collected using digital technologies allows enterprise managers to make correct and quick decisions in real time. For example, tasks such as early detection of malfunctions on production lines, demand forecasts, and optimal management of raw material reserves are effectively implemented through data analysis.

In addition, the introduction of digital transformation and smart manufacturing systems allows enterprises to create new business models. For example, through the Manufacturing as a Service model,

enterprises can offer their production capacities as a service to other enterprises. This helps to increase production efficiency, reduce costs and create new sources of income.

In short, industrial management and digital transformation include technological innovation in enterprises, human resource development, reorganization of production processes and creation of sustainable production systems. The effective application of IIoT and artificial intelligence allows for optimization of the production process, strengthening quality control and predictive maintenance. At the same time, green production and data-based decision-making serve to increase the competitiveness of enterprises and ensure sustainable development. Modern industrial enterprises can make their production systems smart, flexible and environmentally sustainable by following the path of digital transformation.

In research, this direction focusing on the development of digital technologies is essential for enterprises to successfully compete in the digital era, optimize production processes, and develop sustainable development strategies. In this context, industrial management and digital transformation issues are of great importance as a priority topic in scientific research, practical work, and strategic planning processes.

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