
CONFERENCE ARTICLE**Organizational and Economic Mechanisms for Digitalizing Management Processes in Manufacturing Enterprises****Ochilov Baxtiyor Mominjonovich**

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Abstract: Digital transformation is changing management in manufacturing enterprises by integrating production, finance, logistics, human resources and customer relations into unified information environments. The purpose of this thesis is to identify organizational and economic mechanisms that enable enterprises to digitalize management processes effectively and convert technological investment into measurable economic results. The research applies system analysis, comparative analysis and synthesis of academic and institutional sources. The findings show that successful digitalization depends not only on ERP, MES, IoT, cloud platforms and data analytics, but also on process redesign, responsibility allocation, personnel development, investment evaluation and performance monitoring. A coordinated organizational-economic mechanism can reduce transaction costs, increase transparency, accelerate decision-making and improve resource productivity.

Keywords: Digitalization, manufacturing enterprise, management process, organizational mechanism, economic mechanism, digital transformation, ERP, Industry 4.0, efficiency.

Introduction

Manufacturing enterprises operate under volatile demand, shorter product life cycles, rising quality requirements and continuous cost pressure. Traditional management systems based on fragmented information flows and delayed reporting limit the speed and quality of decisions. Digital technologies allow production processes to be connected with planning, accounting, procurement, logistics and market information in real time. The World Bank notes that digital technologies create stronger productivity and growth effects when supported by suitable institutions, skills and organizational conditions [1]. Thus, digitalization should be understood not simply as automation, but as an organizational and economic transformation of enterprise management.

The problem is especially important for manufacturing enterprises that coordinate material, financial and information flows across many functional units. The purpose of the research is to substantiate a mechanism for integrating digital tools into management while ensuring economic efficiency, organizational adaptability and sustainable implementation.

The study uses system analysis, comparative analysis and synthesis. Scientific works on Industry 4.0, smart manufacturing and digital competition were examined together with international institutional reports. The system approach treats digital management as an interconnected set of technological, organizational and economic elements. Comparative analysis distinguishes traditional functional management from digitally integrated management, while synthesis is used to formulate a unified organizational-economic mechanism.

The analytical framework covers business-process integration, data-based decision-making, responsibility allocation, economic justification of digital investments and employee competencies. These dimensions reflect the principle that technological modernization creates value only when managerial structures and incentives adapt to the new information environment.

The research shows that the organizational mechanism of

digitalization should begin with mapping and redesigning management processes. If inefficient procedures are merely transferred into electronic form, technology may accelerate information exchange without eliminating duplication, excessive approvals or unclear responsibility. Process redesign should therefore accompany the introduction of ERP, MES, CRM, IoT and analytical platforms. Industry 4.0 similarly emphasizes vertical and horizontal integration, decentralized decision-making and networked production systems [2].

A second organizational component is clear responsibility for digital transformation. Digitalization should not be assigned only to an IT department because its effects extend to production, finance, supply, sales and personnel management. Cross-functional coordination is needed so that data standards, performance indicators and digital workflows remain consistent throughout the enterprise. Managers increasingly move from manual control toward data interpretation, exception management and continuous process improvement.

The economic mechanism should connect digital projects with expected financial and operational outcomes. Investment decisions should include implementation costs, staff training, integration, cybersecurity, maintenance and expected economic effects. Benefits may arise through lower downtime, reduced inventories, shorter production cycles, fewer defects, lower administrative costs and more accurate planning. Digital projects can therefore be evaluated through return on investment, total cost of ownership, payback period, productivity growth and cost reduction.

Real-time data also changes managerial control. Smart and connected technologies provide continuous information about equipment, products and operations, creating opportunities for predictive maintenance, quality control and resource optimization [3]. The management system becomes more preventive and less dependent on retrospective reporting, which reduces information asymmetry between management levels and can lower coordination costs.

Human capital remains a central condition of digital

transformation. OECD research emphasizes the importance of foundational, ICT and complementary skills in the digital economy [4]. Manufacturing enterprises should therefore combine technology investment with training in digital platforms, data interpretation and process-oriented management. Incentives should reward employees not merely for using new systems, but for improving measurable operational results through them.

The results confirm that digital transformation cannot be reduced to purchasing software or equipment. Porter and Heppelmann show that connected technologies reshape value creation, internal activities and competitive strategy [3]. For manufacturing enterprises, this means that organizational structure, decision rights and performance measurement must evolve together with technological infrastructure.

An effective organizational-economic mechanism can be viewed as a continuous cycle in which strategic objectives determine priority processes; processes are redesigned; appropriate technologies are selected; investment efficiency is assessed; personnel are trained; systems are integrated; and results are measured through operational and financial indicators. Performance feedback then guides further improvement. This converts digitalization from a one-time modernization project into a continuous management process.

For Uzbekistan, this approach corresponds with the broader direction of the “Digital Uzbekistan – 2030” strategy, which established digital transformation as a national development priority [5]. Manufacturing enterprises can translate this direction into enterprise-level outcomes by prioritizing projects with measurable economic effects and avoiding fragmented solutions that do not exchange data.

Digitalization of management processes in manufacturing enterprises is most effective when technological modernization is supported by organizational redesign and economic discipline. The proposed mechanism combines process integration, cross-functional governance, data-based decision-making, investment evaluation, competence development and performance monitoring. Its practical value lies in linking digital tools with productivity, cost, quality, speed and transparency. Enterprises that treat digitalization as a coordinated organizational-economic transformation are more likely to achieve sustainable efficiency gains than those that treat it as isolated automation.

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