



SCIENTIFIC AND THEORETICAL BASIS OF AUTOMATION OF FINANCIAL PROCESSES IN INDUSTRIAL ENTERPRISES

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Annotation: *This article explores the scientific and theoretical foundations of automating financial processes in industrial enterprises. It analyzes the ways to improve efficiency through digitalization of financial management and the implementation of modern information and communication technologies. The advantages of using automated systems in optimizing financial reporting, planning, analysis, and control are discussed. Moreover, foreign experiences are reviewed and adapted recommendations for local industrial enterprises are proposed. The study contributes to enhancing the financial stability and competitiveness of industrial enterprises.*

Key words: *industrial enterprises, financial processes, automation, digitalization, information technologies, financial management, efficiency, innovative solutions, reporting systems, management decisions.*

Nowadays, the effectiveness of financial management plays a crucial role in ensuring the successful operation and competitiveness of industrial enterprises. Timely and accurate execution of financial processes contributes to the sustainable development of the enterprise, rational use of resources, and improvement of profitability indicators. From this point of view, the automation of financial processes is becoming increasingly relevant.

Modern information and communication technologies and digitalization capabilities provide industrial enterprises with the opportunity to improve financial operations, and to manage financial reporting, planning, and control mechanisms quickly and reliably. Automated systems reduce human-related errors, save time and resources, and enhance the analytical potential of financial information.

Furthermore, the experience of developed countries shows that the implementation of digital financial management systems enhances the overall quality of management in industrial enterprises. Therefore, in Uzbekistan's industrial sector as well, there is a need to thoroughly study the scientific and theoretical foundations of financial process automation, adapt modern approaches to national conditions, and implement them in practice.

Efficient management of financial processes in industrial enterprises primarily creates the necessary conditions for fulfilling their core mission and consistently developing production capacity. Research in financial management shows that the consistent and rational management of a company's financial resources contributes to improving overall operational efficiency. In essence, financial management refers to the processes of directing a company's financial resources toward achieving its objectives, distributing them appropriately, and exercising control over them. As a result of these processes, the company can more easily implement its tactical and strategic plans on an economically sound basis.

Although financial management is viewed as a separate area of activity, in practice, it constitutes a network of interrelated processes within the enterprise. This requires that planning, budgeting, financial forecasting, and monitoring stages be carried out in a coordinated manner among different departments of the company. Therefore, financial management processes should not be considered solely within the scope of one department or specialist, but rather in close connection with the entire management system and production processes. For this very reason, the automation of financial operations serves as a tool that enables these interrelated processes to be carried out more quickly, reliably, and with fewer errors.

The automation of financial processes in industrial enterprises can be examined through four key historical stages:

1970-1990: The Personal Computer Era

- Emergence of electronic spreadsheets and early financial software

- Microsoft Excel enabled the automation of financial operations
- MRP (Material Requirements Planning) systems introduced the concept of enterprise resource planning

1990-2000: The ERP Systems Era

- ERP systems like SAP began optimizing financial management in enterprises
- Financial software became available through the internet
- The concept of cloud technologies began to take shape

2000-2015: The Internet and Cloud Services Era

- The SaaS (Software as a Service) business model allowed companies to automate without significant capital investment
- Big Data technologies improved financial decision-making
- Integration of IoT (Internet of Things) devices in manufacturing and financial systems began

2015-2025: The Digital Transformation Era

- Blockchain ensured transparency and security in financial processes
- Artificial intelligence and machine learning advanced financial forecasting
- Financial processes were fully automated under the "Smart Factory" concept

The experience of foreign companies shows that properly planned digital transformation not only improves economic performance but also enhances social responsibility and environmental sustainability factors. Indeed, management based on accurate real-time data helps reduce paperwork, save resources, and minimize waste in intermediate processes. Therefore, when summarizing foreign approaches to automating financial processes in industrial enterprises, it can be noted that the success of such initiatives largely depends on the alignment of several factors, including the political will of top management, the skill level of employees, the readiness of IT infrastructure, and economic incentives.



1-Figure. Countries Implementing Promising Projects for Industry 4.0

Currently, in order to digitize industries and adapt to the Fourth Industrial Revolution, various large-scale initiatives and strategies have been developed across different regions of the world. For example, in Europe, the term "Industrie 4.0" was promoted by Germany, with projects such as the "Digital Agenda for Europe Program" and "Factories of the Future," aiming to develop industries, implement digital technologies, and transform enterprises to modern standards. In the United Kingdom, the "Future of Manufacturing" program, and in France, the "Nouvelle France Industrielle," focus on adapting manufacturing processes to the digital ecosystem. In North America, particularly in the United States, initiatives like "AMP and AMP2" (Advanced Manufacturing Partnership), "Industrial Internet Consortium," "NNMI Program" (National Network for Manufacturing Innovation), and "Made in the USA" actively work on implementing innovative manufacturing technologies, expanding robotics, and artificial intelligence. In South America, Brazil is striving for digital transformation through initiatives like "Towards Industry 4.0" and "AMTs" (Advanced Manufacturing Technologies).

In Asia, China leads with "Made in China 2025" and "Internet Plus," while Japan is focusing on industrial development in harmony with human interests through "Society 5.0" and "Future Vision 2030." South Korea is pushing forward with "Manufacturing Innovation 3.0" and "FP3P," focusing on high-speed technological development, while other Asian countries are promoting skilled

workforce training and digitization policies through programs like "Productivity 4.0" and "TVET" (Technical and Vocational Education and Training). India is developing digital infrastructure across the economy with its "Digital India Programme," while ideas like "RE 2020" and "Citizen Intelligence" in some regions further deepen the process of digital transformation. Although these initiatives vary in names and strategies, their ultimate goal is to strengthen global competitiveness through the application of advanced technologies, improving manufacturing efficiency, and achieving societal well-being.

Foreign experiences confirm that such automation processes not only have a positive impact on the economy but also on environmental and social aspects. Germany's "Industrie 4.0" model, the United States' "AMP" or "Industrial Internet Consortium" programs, Brazil's "Towards Industry 4.0" project, and policies in Asia such as "Made in China 2025," "Society 5.0," and "Manufacturing Innovation 3.0" are supported by strong government backing and economic incentives to implement digital solutions in enterprises. The increase in the efficiency of digital transformation is recorded across the entire chain, from budget planning to risk assessment and minimizing paperwork. For instance, a reduction of 20-50% in accounting errors, a 10-30% saving in labor, and a shortening of reporting processes from several days to hours show that these results are also attractive for businesses from an investment perspective.

Automation of financial processes in industrial enterprises is becoming an integral part of modern management systems. Through this process, the accuracy, speed, and analytical capabilities of financial information significantly improve within companies. Automated systems enable the complex implementation of financial planning, reporting, analysis, and control functions, which play a crucial role in decision-making.

Research shows that automation not only enhances financial efficiency but also promotes the effective use of human resources, increases labor productivity,

and reduces operational costs. In particular, the use of information and communication technologies (ICT) and artificial intelligence accelerates the digital transformation of industrial enterprises.

Moreover, based on the analysis of foreign experiences, it has been identified that the phased implementation of digitization, starting from initial financial departments and expanding to the overall management system, is the most optimal approach. This approach could also be successfully implemented in industrial enterprises in Uzbekistan.

In conclusion, automating financial processes is a crucial tool for ensuring the financial stability of industrial enterprises, establishing prompt and reliable management, and strengthening their position in the global competitive environment. This underscores the need to develop complex strategies based on scientific approaches for the sector.

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