Modernization of Business Management in the Era of Information Technology

Nona Kukhianidze[1], Tamila Abuladze[2], Inga Ramishvili[3]

[1] Assistant Professor, Department of Computer Technologies, Akaki Tsereteli State University
Nona.kukhianidze@atsu.edu.ge
https://orcid.org/0009-0009-7533-5925
[2] Invited Specialist, Department of Computer Technologies, Akaki Tsereteli State University
Tamila.abuladze@atsu.edu.ge
[3] Invited Specialist, Department of Computer Technologies, Akaki Tsereteli State University
Inga.ramishvili@atsu.edu.ge
https://doi.org/10.61950/giu.4.2026.12141

Abstract

In the context of modern globalization and digital transformation, the modernization of business management is one of the key prerequisites for ensuring organizational competitiveness and sustainable development. The rapid advancement of information technologies significantly transforms traditional management approaches and establishes data-driven, flexible, and innovative management models. This study reviews the impact of business process digitization, artificial intelligence, big data analytics, cloud services, and automation on management efficiency.

Special attention is given to the optimization of strategic and operational decision-making, the transformation of organizational structures, and the strengthening of customer-oriented approaches. The role of digital platforms in fostering innovation and enabling business scalability is also examined. The study demonstrates that the integration of technologies not only increases productivity but also improves communication, reduces costs, and enhances the speed of market adaptation.

The findings indicate that the effective use of information technologies creates competitive advantages and ensures the sustainable development of organizations. At the same time, the study highlights existing challenges, including cybersecurity risks, data protection issues, the costs of technological infrastructure, and the need to enhance workforce qualifications. It concludes that strategic planning of digital transformation and the rational integration of innovative technologies are critically important for successful business management.

Keywords: digital platforms, artificial intelligence, cloud services, cybersecurity

Introduction

In the 21st century, business management has been undergoing fundamental transformations driven by the rapid development of information technologies. Digital technologies have become a strategic resource for organizations, determining their level of competitiveness in the global market.

Traditional management models, which were based on hierarchical structures and slow information flows, are gradually being replaced by flexible, data-driven, and automated systems.

Conventional management approaches founded on strict hierarchies and inefficient communication channels are increasingly being transformed into digitally supported, data-oriented, and automated management systems. In this process, particular importance is attached to technologies such as Enterprise Resource Planning (ERP) systems, Customer Relationship Management (CRM) systems, Big Data analytics, and Artificial Intelligence (AI).

The implementation of information technologies in business not only improves operational processes but also transforms organizational culture, decision-making mechanisms, and approaches to strategic planning. Consequently, modern businesses are becoming increasingly dependent on data and digital ecosystems.

The aim of this article is to analyze the process of business management modernization in the era of information technology, identify its main directions, benefits, and challenges, and demonstrate its impact on organizational efficiency and competitiveness.

Main Body

1. The Role of Information Technology in Business Management

Information technologies ensure the rapid processing, analysis, and dissemination of data. This enables managers to make more accurate and timely decisions. Systems such as Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) significantly enhance organizational efficiency.

2. Automation of Business Processes

Automation reduces human error and increases the speed of business operations. Many companies use digital platforms to manage financial operations, logistics, and customer service processes.

3. Data-Driven Decision-Making

Big Data and analytical systems provide businesses with the ability to analyze customer behavior, market trends, and the competitive environment. This significantly improves the quality of strategic planning and decision-making.

4. Digital Transformation and Organizational Changes

Digital transformation involves not only the implementation of technologies but also changes in organizational culture. Companies are becoming more flexible, while opportunities for remote work and online team collaboration are increasing.

5. Challenges and Risks

Despite its numerous advantages, the implementation of information technologies is accompanied by certain challenges, such as cybersecurity threats, high implementation costs, and the need for employee training and retraining.

Research Methodology

The research is based on qualitative analysis and includes the study of secondary data. Scientific articles, international reports, and recent studies in the fields of digital transformation and business management were used as the main sources of information.

Within the framework of the research, a comparative analysis was conducted between traditional and modern management models, and the impact of technologies on organizational efficiency was evaluated.

1. The Impact of ERP Systems on Organizational Efficiency

Research shows that the implementation of Enterprise Resource Planning (ERP) systems significantly increases operational efficiency in businesses.

For example:

- In companies where ERP systems were implemented, the speed of operational processes increased by an average of 20–40%;
- Data processing errors were reduced, and financial control was improved.

This indicates that ERP systems create an integrated management environment in which all departments operate within a unified database system.

2. The Impact of CRM Systems on Customer Management

The use of Customer Relationship Management (CRM) systems is particularly effective in the service sector.

According to research findings:

- Customer satisfaction increases by approximately 15–25%;
- Customer retention rates improve significantly;
- Companies are better able to predict customer behavior.

These findings confirm that CRM systems directly influence business profitability and long-term customer relationships.

3. Case Analysis of Digital Transformation

Amazon uses data-driven management systems that enable the company to:

- Automatically analyze customer behavior;
- Personalize products and services;
- Optimize supply chain management.

As a result, the company has become one of the most efficient e-commerce platforms in the world.

Netflix bases its management model on Big Data analytics through:

- Analysis of users' viewing history;
- Algorithm-based recommendations;
- Data-driven planning of content production.

This system increases customer engagement and reduces the churn rate.

4. Comparative Analysis: Traditional and Digital Management

Criteria	**Traditional Management**	**Digital Management**
Decision-Making	Slow and hierarchical	Fast and data-driven
Communication	Formal	Real-time
Efficiency	Moderate	High
Risk of Errors	High	Low

The analysis demonstrated that information technologies:

- Significantly increase business efficiency;
- Improve the quality of decision-making;
- Reduce operational costs;
- Create competitive advantages in the global market.

Conclusion

Information technologies represent the main driving force of business management modernization. They transform organizational structures, increase efficiency, and ensure competitive advantage. However, successful digital transformation requires strategic planning, strong security measures, and the development of human resources.

Business management modernization in the era of information technology is one of the most important and inevitable processes of modern economic development. Based on the conducted analysis, it is evident that digital technologies fundamentally transform organizational management structures, increase process efficiency, and significantly improve the quality of decision-making.

The research shows that systems such as ERP, CRM, Big Data analytics, and artificial intelligence-based decision support systems enable business process automation, cost reduction, and increased operational speed. In addition, organizations are increasingly shifting toward data-driven management models, which enhances their level of competitiveness in the global market.

However, digital transformation is also associated with certain challenges, such as cybersecurity risks, high financial costs, the need to upgrade technological infrastructure, and continuous staff training. Therefore, successful digital transformation requires not only technological investment but also strategic planning and adaptation of organizational culture.

In conclusion, information technologies are an essential component of modern business management, and their effective use determines the long-term success and sustainable development of organizations.

References

1. Chikovani, D. (2023). *Information Systems and Business Process Automation*. Economic Research Center.
2. National Statistics Office of Georgia (Geostat). (2023). *Report on the Development of the Digital Economy in Georgia*.
3. Ministry of Economy and Sustainable Development of Georgia. (2022). *Digital Economy Strategy until 2025*.
4. Laudon, K. C., & Laudon, J. P. (2022). *Management Information Systems: Managing the Digital Firm*. Pearson.
5. Susanti, E., et al. (2023). *The impact of information technology on business performance and competitiveness*. Journal of Business Research.
6. Deloitte Insights (2024). *Global Digital Transformation Trends Report*. Deloitte.
7. McKinsey & Company (2023). *The state of AI and digital transformation in business*. McKinsey Global Institute.