

Article

Econometric Analysis of the Relationship Between Service Quality and Economic Efficiency

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Abstract: This article analyzes the role of artificial intelligence and digital platforms in managing service quality in the service sector. In the digital economy, service quality is one of the important factors determining the competitiveness of enterprises. The study examined mechanisms for monitoring and managing service quality using CRM systems, artificial intelligence-based chatbots, Big Data analytics, and digital platforms. The results showed that artificial intelligence technologies are important in increasing service delivery speed, enhancing customer satisfaction, and improving operational efficiency. The results of the study serve to improve the digital model of service quality management in service enterprises.

Keywords: Artificial intelligence, digital platforms, service industry, service quality, CRM systems, Big Data.

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Introduction

In recent years, digital transformation processes in the global economy have been causing fundamental changes in all sectors of the economy. In particular, the service sector is one of the sectors that is rapidly introducing digital technologies and actively using innovative management methods. In the digital economy, the quality of services is emerging as an important factor determining the competitiveness of enterprises and customer loyalty.

The development of artificial intelligence technologies has created new opportunities for the process of managing the quality of services. AI-based systems allow for the automation of interactive communication with customers, rapid analysis of large volumes of data, and optimization of service processes. Digital platforms, on the other hand, allow for the management of service services in a single information environment, increasing the speed of service delivery, and monitoring service quality in real time.

Modern service enterprises are widely implementing CRM systems, Big Data analytics, and artificial intelligence-based service platforms. These technologies increase operational efficiency by automating service processes, reducing human error, and enabling accurate forecasting of customer needs[1].

At the same time, it is an urgent issue to scientifically study the organizational and economic mechanisms of service quality management based on artificial intelligence and digital platforms. In particular, analyzing the impact of digital technologies in improving service quality indicators and ensuring economic efficiency in the service sector is of significant scientific and practical importance.

The purpose of this article is to study the mechanisms of service quality management using artificial intelligence and digital platforms in the service sector and analyze their impact on service efficiency.

Literature review

Service quality management in the service sector and the impact of digital technologies on this process have been studied by many foreign and domestic scientists. This area is inextricably linked with the theories of marketing, management, service economics and digital transformation, and is aimed at identifying the relationship between service quality indicators and economic efficiency.

The methodological foundations of the theory of service quality are associated with the SERVQUAL model developed by American scientists A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry[2]. According to them, service quality is assessed by the difference between the level of service expected by consumers and the service actually received. Scientists emphasize that service quality is determined by five main criteria - reliability, speed, assurance, empathy and tangible elements.

Economist Michael E. Porter, who developed the theory of competitive advantage, emphasizes that service quality is one of the main factors of enterprise competitiveness. In his opinion, a high level of quality creates a sustainable competitive advantage for an enterprise and increases economic efficiency[3].

Erik Brynjolfsson and Andrew McAfee, who have studied the development of the service sector in the digital economy, emphasize that artificial intelligence and digital technologies play an important role in improving the efficiency of service delivery[4]. According to their research, Big Data and artificial intelligence technologies allow optimizing service processes and automating service quality monitoring.

Local economists have also paid special attention to the quality of services and digital transformation processes in the service sector. In particular, economist Said Ganievich Gulyamov emphasizes that the development of the service sector in the digital economy is directly related to service quality indicators. In his opinion, digital technologies increase the economic efficiency of service enterprises by automating service processes[5].

Uzbek economist Bakhodir Tursunovich Khodiev emphasizes that the development of the service sector in the national economy is one of the important factors of economic growth. In his opinion, an increase in the quality of services leads to an increase in labor productivity and economic efficiency in the service sector[6].

Also, economist Rauf Salimov emphasizes the importance of innovative technologies and digital management systems in improving management efficiency in the service sector. He believes that the introduction of modern information systems in service enterprises will improve monitoring of service quality.[7]

Economist Shavkatbek Ergashev emphasizes that the use of digital technologies in the services sector allows for increased speed of service provision to customers and reduced service costs[8].

Literature analysis shows that although the theoretical foundations of service quality management have been sufficiently developed, the organizational and economic mechanisms for managing service quality based on artificial intelligence and digital platforms have not been sufficiently systematized[9]. Therefore, the study of modern management mechanisms for improving service quality in the service sector is one of the current areas of scientific research.

Research methodology

This study used a systematic and comprehensive approach to study the role of artificial intelligence and digital platforms in service quality management in the service sector. The research used methods of analysis of scientific literature, comparative analysis, statistical generalization and econometric evaluation. Customer satisfaction index, service

speed and number of complaints were selected as service quality indicators. Regression and correlation analysis were used to determine the relationship between these indicators and economic efficiency. Also, the use of CRM systems, Big Data analytics and artificial intelligence-based platforms in service enterprises was evaluated in terms of their impact on service quality monitoring and management efficiency. Based on the results obtained, a digital model of service quality management was formed.

Analysis and results

In the digital economy, the service sector is emerging as one of the fastest growing sectors of the economy. The widespread introduction of modern technologies, especially artificial intelligence, Big Data, cloud services and digital platforms, is fundamentally changing service processes. This process also imposes new requirements on service quality management. Service quality in service enterprises is an important factor not only in ensuring customer satisfaction, but also in increasing economic efficiency[10].

A high level of quality increases customer loyalty, increases the repeat use of services and contributes to the sustainable growth of enterprise income. Therefore, improving service quality management mechanisms using digital technologies is one of the current scientific issues. Digital platforms also allow for real-time monitoring of service quality[11]. This helps to quickly identify shortcomings in the service process, optimize management decisions and increase the competitiveness of service enterprises. In this regard, the analysis of modern mechanisms for service quality management based on artificial intelligence and digital platforms is of significant scientific and practical importance.

Table 1 systematically shows the main digital technologies used in service enterprises and their impact on service quality indicators and economic results. Analysis of the table shows that digital technologies are emerging as an important institutional mechanism for service quality management.

Table 1. The impact of digital technologies on service quality indicators.

Digital technology	Main function	Impact on the quality of services	Economic result
CRM systems	Customer relationship management	Increases customer satisfaction	Incomes stabilize
Big Data	Analyzing large amounts of data	Demand forecasting determines	Resources are allocated efficiently
Sony's intelligence	Automated service	Service speed increases	Labor productivity increases
Digital platforms	Online service management	Transparency and convenience increase	Operating costs are reduced
KPI monitoring	Quality control	Employee productivity increases	Profitability increases

First of all, CRM (Customer Relationship Management) systems are an effective tool for managing customer relationships. CRM platforms allow you to store customer appeals, complaints, and service usage history in a single database. This helps to quickly identify shortcomings in the service process and improve service quality monitoring. As a result, the level of customer satisfaction increases and the income of service enterprises stabilizes.

Secondly, Big Data technologies allow us to analyze large amounts of data to determine the dynamics of demand in the service market. Based on data analysis, it is

possible to optimize service processes and effectively allocate resources. This will help improve service quality and management efficiency.

Third, artificial intelligence technologies increase the speed of service delivery by automating service operations. AI-based chatbots and automated consulting systems allow customers to be served 24/7. This reduces human error in the service process and increases labor productivity.

Fourth, digital platforms enable remote service delivery. Online service delivery systems increase customer convenience and ensure transparency in the service delivery process. This helps service providers reduce operating costs and improve service efficiency.

Also, the KPI monitoring system is an important management tool for monitoring the quality of service. Through KPI indicators, employee efficiency is assessed, shortcomings in the service process are identified, and an incentive mechanism is formed. This increases the economic efficiency of service quality management[12].

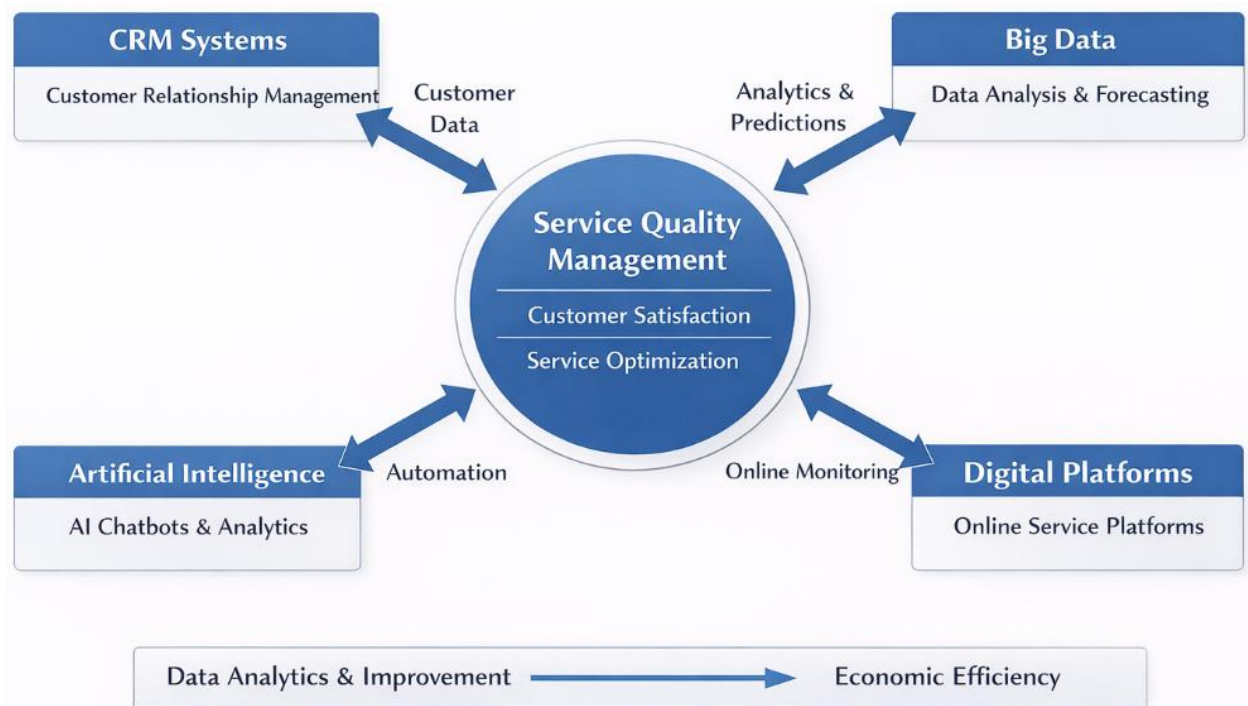


Figure 1. Service quality management model based on digital technologies.

Figure 1 illustrates a conceptual model of service quality management based on digital technologies in the service sector. The diagram shows CRM systems, Big Data, artificial intelligence and digital platforms as the main elements of service quality management. These technologies work in conjunction with the service quality management system, which is considered the central link.

According to the model, CRM systems serve to manage service processes by collecting and analyzing customer data. These systems record customer appeals, complaints, and service usage history, helping to effectively monitor service quality. This leads to an increase in customer satisfaction[13].

Big Data technologies, as shown in the diagram, allow you to analyze demand and customer behavior in the service market. By processing large amounts of data, service companies can optimize their service strategy and improve service quality indicators.

Artificial intelligence technologies also increase service speed by automating service processes. AI-based chatbots and automated service systems enable faster customer service and reduce human error[14].

The model identifies digital platforms as an important element that enables online management of service delivery. These platforms ensure transparency in the service delivery process and allow for real-time monitoring of service quality.

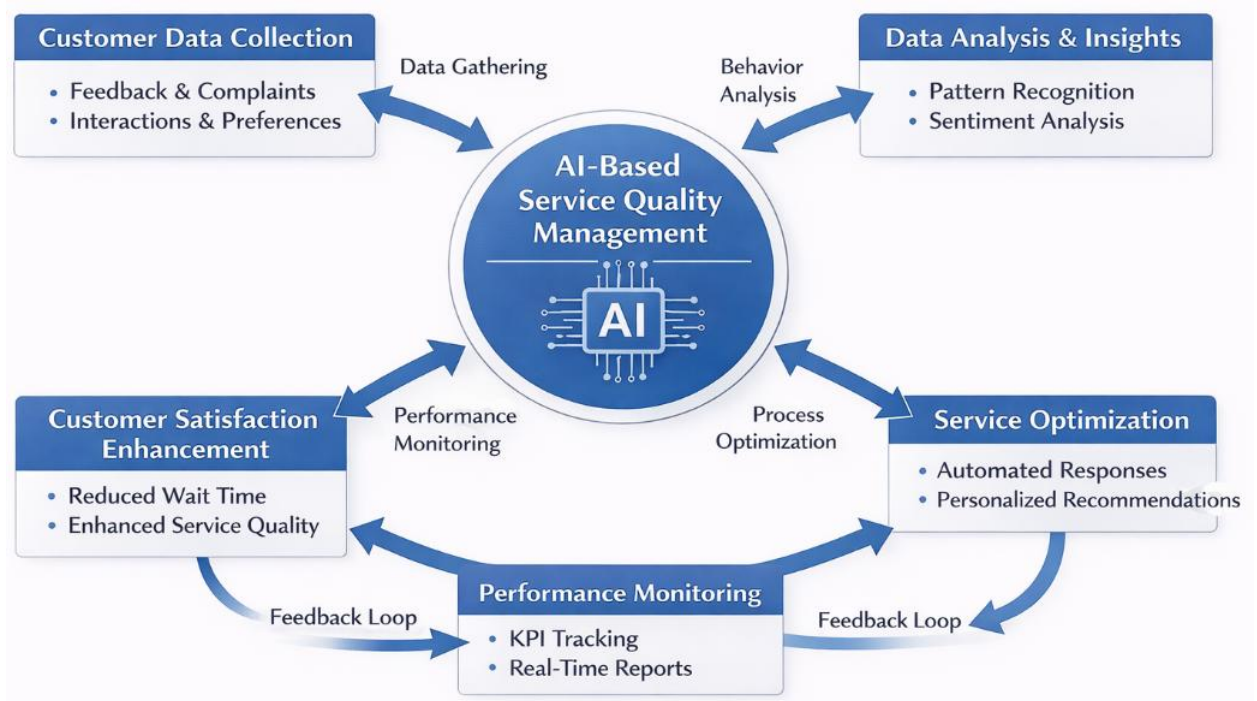


Figure 2. The process of service quality management based on artificial intelligence.

Figure 2 illustrates the process of AI-based service quality management step by step. The diagram shows that service quality management is a continuous cyclical process.

The first step in the process is to collect customer data. This step involves collecting information about customer feedback, complaints, and service usage habits. This information allows service businesses to identify customer needs and improve their service delivery processes.

The next step is data analysis. Using artificial intelligence and Big Data technologies, customer behavior and service quality indicators are analyzed. This analysis is important for identifying problems in the service process and improving services.

The next stage of the diagram is the optimization of service processes. At this stage, AI systems allow to increase the speed of service, reduce queues and automate service processes.

The next step in the process is to improve customer satisfaction. Artificial intelligence-based systems can identify customer needs and offer them tailored services. As a result, service quality and customer loyalty increase.

The final stage of the diagram is performance monitoring. Based on KPI indicators, the quality of services and the efficiency of the enterprise are constantly monitored. The results of this monitoring serve to further improve the service system.

In general, Figure 2 shows that the process of AI-based service quality management is a cyclical system of continuous improvement. This model serves to automate service quality monitoring and improve management efficiency in service enterprises.

The results of the study showed that in the digital economy, the system of service quality management in the service sector is fundamentally changing. In modern service enterprises, artificial intelligence, Big Data, CRM systems and digital platforms are playing an important role in optimizing service processes and improving service quality monitoring[15].

Analysis has shown that CRM systems allow for effective management of customer relationships and increase customer satisfaction. Big Data technologies, on the other hand, allow for the analysis of large amounts of data to determine the dynamics of demand for services and optimize service processes. Artificial intelligence-based systems increase the speed of service provision and reduce human errors by automating service processes.

Conclusion

Digital platforms ensure transparency of the service process by organizing service activities online and allow for real-time monitoring of service quality. As a result, operational efficiency in service enterprises increases, service costs decrease, and economic efficiency increases.

Thus, the widespread introduction of digital technologies in the service sector has become an important factor in service quality management, increasing customer satisfaction and ensuring the competitiveness of service enterprises. Therefore, in the future, it will be important to further develop digital management mechanisms in service enterprises, widely apply artificial intelligence technologies, and improve service quality monitoring.

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