



## IMPROVING THE QUALITY AND EFFICIENCY OF SERVICES BASED ON INNOVATIVE FACTORS

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**Abstract:** This article examines the problems of improving the quality of services and ensuring efficiency through innovation. The article shows how to increase competitiveness in the service sector through sustainable development, digitalization and technology. It also analyzes how economic growth and social development are related to innovative technologies. New strategies and digital transformation processes help to ensure the quality of services is sustainable and efficient.

**Keywords:** innovation, quality, service quality, digitalization, artificial intelligence, Six Sigma, Lean and TQM methods, improving the quality of services.

**Introduction.** In the context of sustainable economic growth, the service sector plays an important role. Therefore, improving the quality and efficiency of services is one of the important tasks for each organization and company. Especially in a competitive environment, new methods and technologies for providing services require the use of innovative approaches to improving the quality of services. In this study, we found it appropriate to study the role of innovative technologies and methodologies in improving the quality of services.

Improving the quality of services is an important means for companies to maintain competitiveness and ensure customer loyalty. In an era of rapidly changing customer demands and needs, organizations need to constantly improve their services. Innovative technologies and new methods of providing services are of great importance in implementing such changes. Improving the quality of services requires, first of all, the use of new methodologies to ensure customer satisfaction with the services offered.

Innovative technologies play an important role in improving the quality of services. New technologies can improve services and provide more efficient services to customers. For example, artificial intelligence, big data analysis and automation make service processes significantly more efficient. Automation of service processes creates convenience for customers and increases the quality of service. It also allows customers to provide personalized services, which increases their satisfaction.

**Analysis and results.** The methodologies used to improve service quality are very diverse. These include Six Sigma, Lean, Total Quality Management (TQM) and many other approaches. The Six Sigma methodology is aimed at optimizing processes and reducing defects, which ensures high quality of services. The Lean approach is based on saving resources and simplifying processes, which increases the speed of services and ensures effective service to customers. TQM is an approach aimed at managing and continuously

improving the quality of services. These methodologies, together with innovative technologies, play an important role in improving service quality.

The Importance of Innovation and Quality Management



Introduction to Innovation Management



In the service sector, the use of innovative technologies and approaches based on methodologies is important in improving service quality. This process brings great benefits not only to companies, but also to customers. By using innovative technologies and methodologies, companies can improve service quality and meet customer needs. At the same time, such approaches allow to increase customer satisfaction and strengthen the company's loyalty to the market.

The use of innovative technologies is very important in improving the quality of services. In particular, digital transformation, artificial intelligence, and data analytics are widely used to improve the quality of services. Digital transformation creates the opportunity to automate service processes, quickly analyze data, and provide personalized services to customers. Artificial intelligence, for example, allows you to provide customers with quick and effective responses through chatbots and voice assistants.

One of the main advantages of using new technologies is to simplify and speed up services. For example, quick access to information using cloud technologies helps to improve the quality of services. There is also the opportunity to prevent errors and defects with the help of automated systems, and provide high-quality services. Digital technologies ensure that the cost of services is reduced and their provision is faster.

Change management plays an important role in improving the quality of services. Organizations need to continuously monitor progress when implementing new ways of delivering services. Process improvement can be achieved using methodologies such as Lean, Six Sigma and TQM. All of these can help improve the speed, efficiency and quality of services. Each methodology provides a unique approach and helps companies become more competitive.

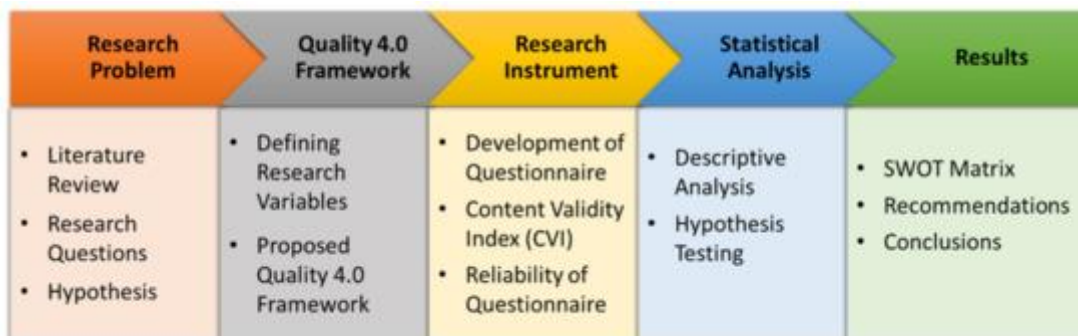
Human resources, that is, employees, are important in improving service quality. The skills of employees, their approach to customer service and their participation in the implementation of innovative technologies have a direct impact on the quality of services. Continuous training of employees and their introduction to new technologies play a major role in improving service quality.



**Figure 3. Digital transformation from Quality 1.0 to Quality 4.0.**

Innovative approaches to improving quality in the service sector lead to direct and effective results. New technologies, such as the Internet of Things (IoT), blockchain and big data, allow for more efficient and personalized service delivery to customers. With the help of IoT, customer needs are monitored in real time and services are provided on this basis, which allows for quick and effective decision-making.

The use of new technologies allows for deeper analysis and data-based decision-making in the individual provision of services. For example, using machine learning and artificial intelligence, companies can offer personalized services to customers. These methods make it possible to predict customer behavior and requirements in advance, which results in more effective services.



**Figure 4. Proposed research methodology.**

Quality management systems play a significant role in service delivery processes. They allow companies to make service processes more efficient and sustainable. At the same time, such systems help automate and optimize all stages of service delivery. Also, the use of



effective quality control methodologies in service development, such as Lean or TQM, effectively helps ensure high quality services.

Staff training and their adaptation to new technologies play an important role in improving the quality of services. Employees adapt to new methods and technologies of service provision, providing quality services to customers. New technologies and approaches allow customers to provide services faster and more accurately.

Digital technologies and automation play a key role in implementing innovative strategies. By introducing technologies, it is possible to accelerate service delivery processes and increase efficiency. For example, with the help of artificial intelligence and robotics, customer service processes can be automated and, as a result, the need for human resources can be reduced. This not only helps to reduce costs, but also reduces errors and improves the quality of service.

The development of innovative types of services in the service sector serves to fully meet customer needs. For example, with the help of online services and platforms, customers can use services anywhere and at any time. This, in turn, increases the quality of service, as customers have the opportunity to choose the most convenient and profitable conditions for themselves.

When implementing innovative methods, it is very important to choose the right methodology for assessing service quality. This requires collecting customer feedback, measuring the effectiveness and efficiency of the service, as well as determining certain indicators for each service provider. These methodologies serve as the basis for continuous monitoring and improvement of the quality of service.

Innovative strategies play an important role in improving customer relations. With the help of new technologies, service providers establish direct and effective communication with customers. Also, the ability to monitor customer needs in real time and quickly satisfy them is of great importance in improving the quality of services.

Innovative methods help create new business models in service delivery. For example, many companies are basing their services on a subscription model, providing customers with regularly updated services. This method allows service providers to establish long-term relationships with customers. At the same time, companies are trying to maximize customer satisfaction by adapting their services to individual needs using new technologies.

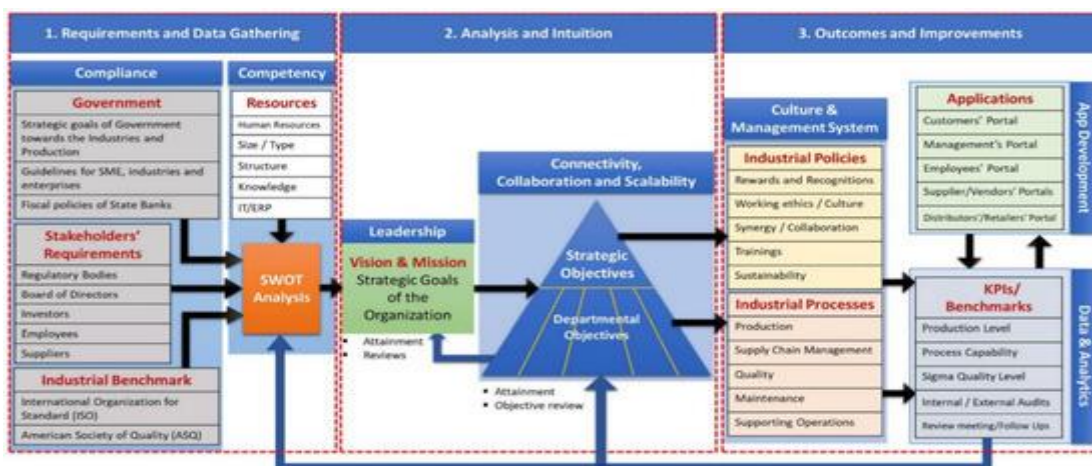
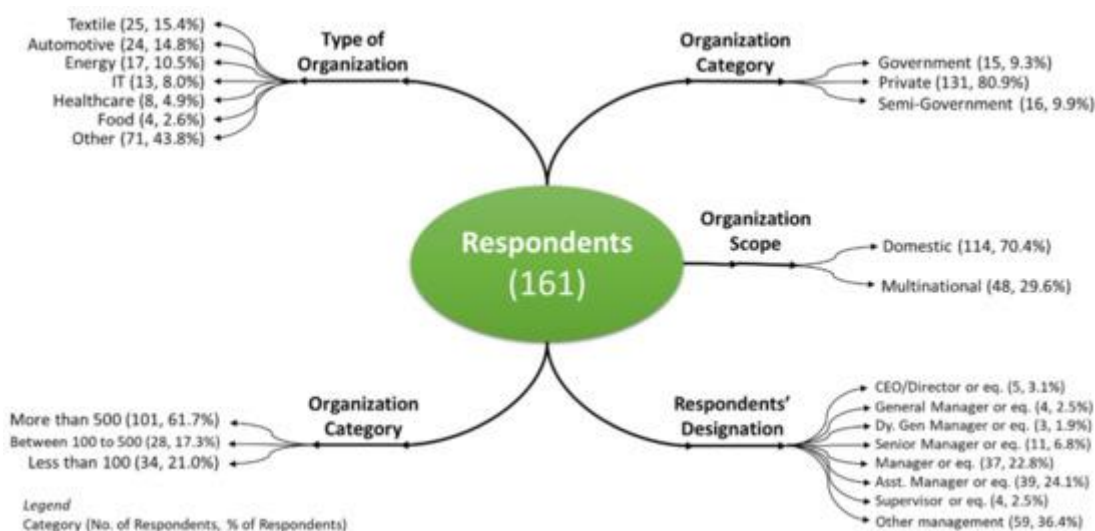


Figure 5. Proposed Quality 4.0 framework.

In order for organizations to achieve innovative approaches, modern management systems are necessary. These management systems are implemented by monitoring the quality of services, selecting qualified personnel, organizing training and training courses. At the same time, organizations are using innovative methods to evaluate services, such as collecting and analyzing customer opinions, surveys and monitoring social networks. These methods help to continuously improve the quality of service.

Introducing innovative services plays an important role in increasing competitiveness. To stand out among competitors, companies must constantly update their services, offer new and unique services to customers. Innovative services create new values for customers, which intensifies competition. Therefore, constantly introducing innovations in the service sector increases the competitiveness of the company and strengthens its position in the market.

Today, digital transformation and the introduction of new technologies are of great importance in the service sector. Service companies are trying to further improve the quality of service to customers by introducing innovations such as the Internet, mobile applications, artificial intelligence, blockchain technologies and IoT (Internet of Things). For example, through mobile applications, customers will be able to choose services that suit their needs and quickly access them. This helps to increase customer satisfaction.

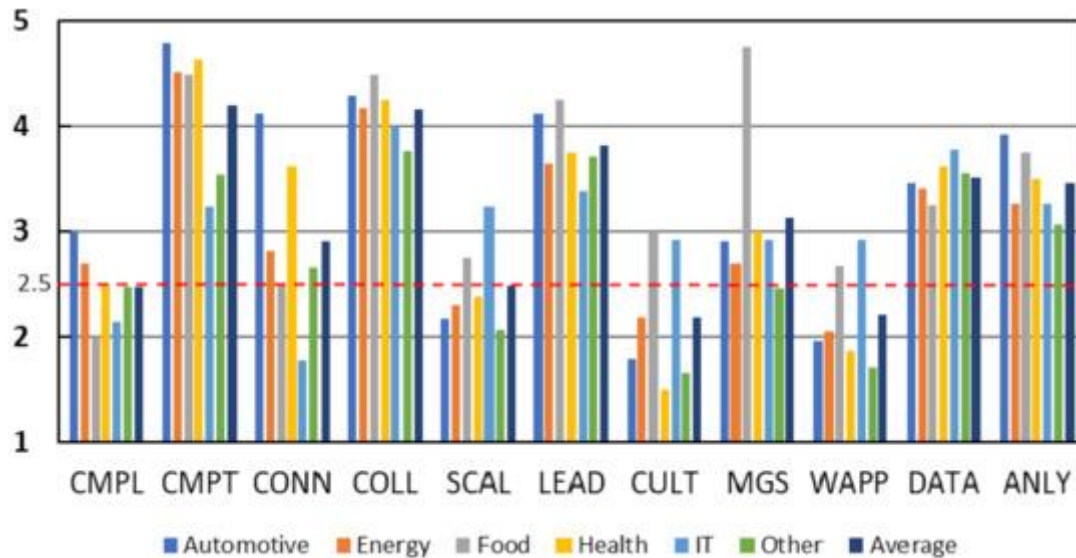


**Figure 6. Number and percentage of respondents according to their organization's industry, category, and scope and their designation.**

Data and analytics allow for smarter decisions in service delivery. By collecting and analyzing large amounts of customer data, companies will be able to optimize services and adapt them to individual needs. For example, service companies provide personalized recommendations based on customers' past behavior and preferences. This makes service more efficient for customers.

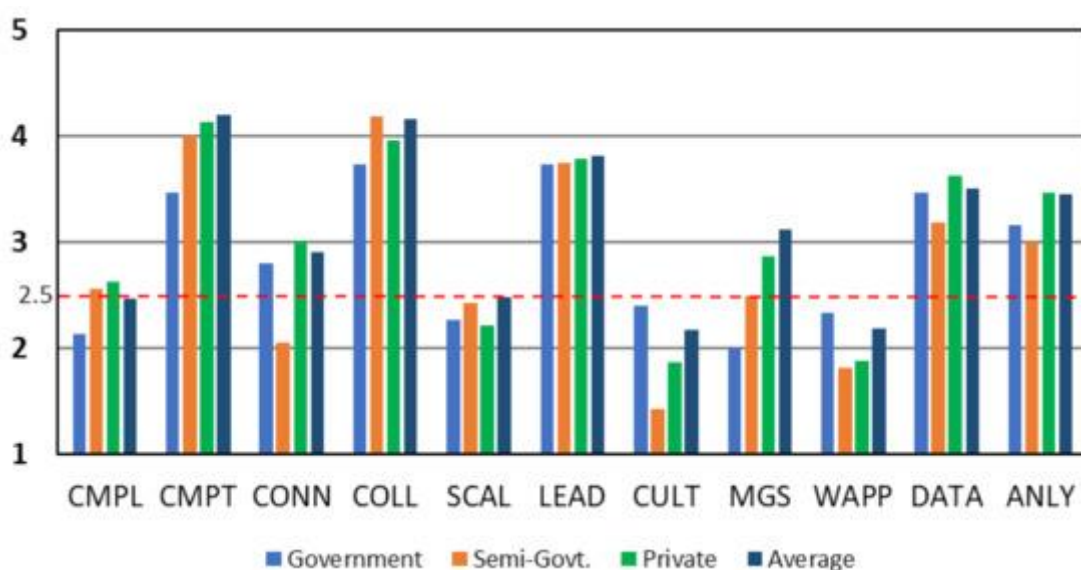
Innovation in the service sector leads to the creation of new services and products. Companies introduce advanced services using modern technologies. For example, by creating virtual and augmented reality (VR and AR) services, customers can be provided with new experiences in various areas. These services create new opportunities for customers and increase the competitiveness of the company. New services also help diversify the market and serve the growth of the company.

Digital technologies are accelerating innovation in the service sector. Companies increase their competitiveness in providing their services using new technologies. For example, online platforms, mobile applications and automation play an important role in improving services. Such technologies allow for faster, better and cheaper services. Customers, in turn, can benefit from the provision of services 24/7, which increases convenience for customers.



**Figure 7. Mean scores for each of the eleven Quality 4.0 dimensions by type of organization.**

Artificial Intelligence (AI) is widely used in customer service. Automated services are provided using AI systems to communicate with customers, answer questions, and personalize services. For example, chatbots can quickly respond to customer requests, and AI can recommend services that are tailored to customer needs. As a result, customers receive high-quality services and convenience.

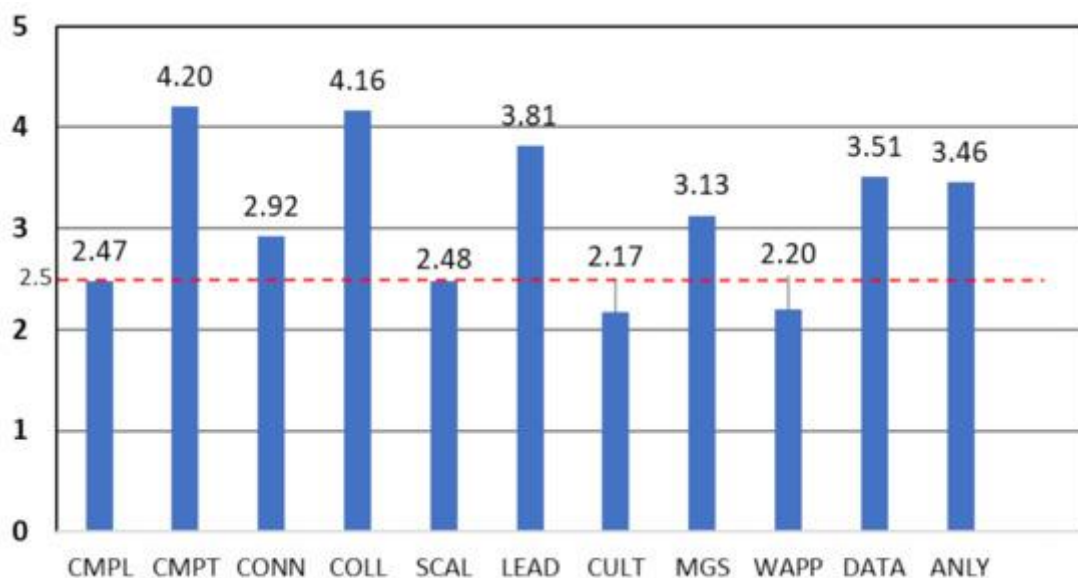


**Figure 8. Mean scores for each of the eleven Quality 4.0 dimensions by organization category.**

Innovations are not only affecting technology, but also new business models in the service sector. New business models, incorporating digital technologies, create convenient services for customers. For example, "on-demand" services, such as taxi or food delivery services, allow for fast and efficient service delivery based on customer demand. The introduction of these business models helps companies create new sources of revenue.

New technologies, in particular, cloud computing, big data, and the Internet of Things (IoT), are fueling innovation in the service sector. Cloud technologies create opportunities to make services more efficient, reduce costs, and serve customers faster. For example, through big data, companies will be able to analyze customer behavior and also provide services that are more tailored to their needs. IoT, on the other hand, helps automate services and adapt them to individual needs.

Personalization in the service sector is seen as an important innovative approach. Knowing exactly what customers want and providing them with personalized services creates a huge advantage for companies. For example, banks and online shopping platforms create individual offers for customers based on their history. Such an approach helps to build strong relationships with customers and increases their loyalty.



**Figure 10. Overall mean scores for the eleven Quality 4.0 dimensions.**

Evaluating and measuring service quality allows companies to measure the effectiveness of their services. Many methodologies are used for this, for example, the SERVQUAL model. This model helps to identify five key dimensions of services (reliability, responsiveness, trust, personal approach and stress). At the same time, companies can continuously improve service quality by analyzing customer feedback and service processes.

Digital innovations are rapidly becoming widespread in the service sector. New technologies, such as artificial intelligence and machine learning, allow companies to optimize service processes and create new opportunities for users. With the help of AI, companies can provide better and faster service to customers. Also, with the help of MO, it is possible to predict customer needs and preferences and create personalized services. Such technologies increase competitiveness and strengthen customer loyalty.



Innovative technologies help to accelerate and optimize service processes. Among them, automation, digital platforms, remote services and mobile applications play an important role. For example, service companies can facilitate interaction with customers through mobile applications and make services more convenient. Also, through the "Internet of Things" technologies, it is possible to create personalized experiences in service provision, which increases customer satisfaction.

The introduction of innovations in the service sector not only improves the quality of service, but also has a positive impact on economic and social development. New technologies simplify business processes, reduce costs and ensure efficient use of resources. Innovations allow customers to offer more convenient and faster services, which increases the competitiveness of businesses.

Innovative technologies in the service sector, including artificial intelligence, machine learning and cloud computing systems, greatly contribute to improving the quality of services. For example, with the help of AI, service companies will be able to predict customer preferences and provide personalized services. This will significantly increase customer satisfaction.

Digital transformation creates new opportunities in the service sector. Through cloud technologies and mobile applications, customers can receive services at any time and anywhere. Digital platforms, in turn, make communication between companies and customers more effective. The introduction of such technologies not only improves the quality of service, but also improves the overall efficiency of the business.

Artificial intelligence and machine learning technologies are widely used to improve efficiency in the service sector. By improving interactive communications with customers, providing personalized services and automating processes, companies increase their competitiveness. For example, automated response systems allow customers to be provided with quick and efficient assistance, which significantly reduces service processes.

With the help of cloud technologies, companies are accelerating service delivery processes. Cloud platforms not only create new opportunities for companies, but also provide convenience for customers. Through such systems, for example, all services for customers are shared through a single platform, which saves the user's time and simplifies the use of services.

**Conclusions and recommendations.** Innovative technologies play a significant role in improving the quality and efficiency of service delivery. Innovations create convenience for customers through, for example, mobile applications, online services and digital platforms. With the help of these systems, customers can quickly and easily obtain the necessary services, which increases their satisfaction and ensures loyalty to the company.

Automation of service delivery processes and the introduction of robotics technologies allow companies to reduce errors, save time and optimize costs. With the help of automated systems, service providers can serve several clients at the same time, which increases the quality of service.

Innovative technologies, such as online platforms and mobile applications, can be used to establish effective communication with customers. With the help of such systems, customers will be able to use services at a time and place convenient for them. Also, the introduction of artificial intelligence and data analysis technologies in customer service significantly improves the quality of service.



Innovative methods and quality of service are optimization and quality improvement in service provision using innovative technologies. For example, in the private services sector, operational processes are accelerated using automation and digital systems. Also, data analysis in customer service creates opportunities to better understand their needs and requirements. These processes help to provide more efficient and individual services to customers. Improving quality and introducing innovations:

Innovative methods, in particular, are used to improve service processes using digital technologies. The use of databases, artificial intelligence and automation create the opportunity to establish more effective and interactive relationships with customers. All this allows you to improve the quality of services, as well as use resources efficiently. A good understanding of customer needs and the provision of services tailored to them is important for improving the quality of service.

Innovation, strategy, service quality, sustainable development, efficiency, digitalization, customer experience, competitiveness, quality management, technologies, economic growth, social development, entrepreneurship, modernization, innovative technologies, innovation management, digital transformation, service industry, increasing production efficiency, process optimization.

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