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THE IMPACT OF ARTIFICIAL INTELLIGENCE AND AUTOMATION ON SERVICE QUALITY

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Abstract. This article examines the impact of artificial intelligence and automation on service quality in the context of global digital transformation. The study analyzes how AI technologies improve service efficiency, personalization, customer satisfaction, and decision-making processes across various sectors such as banking, healthcare, education, and public services. Based on recent empirical studies, international reports from OECD and McKinsey, and regulatory frameworks such as the EU Artificial Intelligence Act, the research highlights both the benefits and challenges of AI integration.

Keywords: *artificial intelligence, automation, service quality, digital transformation, customer satisfaction, machine learning, service efficiency, OECD, McKinsey, EU AI Act*

Annotatsiya. Ushbu maqolada sun’iy intellekt va avtomatlashtirish texnologiyalarining xizmat ko‘rsatish sifatiga ta’siri global raqamli transformatsiya sharoitida tahlil qilinadi. Tadqiqotda AI texnologiyalarining bank, sog‘liqni saqlash, ta’lim va davlat xizmatlari kabi sohalarda xizmat samaradorligi, shaxsiylashtirish, mijozlar qoniqishi va qaror qabul qilish jarayonlariga ta’siri o‘rganilgan. OECD va McKinsey kabi xalqaro tashkilotlar hisobotlari hamda Yevropa Ittifoqining Sun’iy Intellekt bo‘yicha qonunchilik hujjatlari asosida AI texnologiyalarining afzalliklari va muammolari tahlil qilingan.

Kalit so‘zlar: *sun’iy intellekt, avtomatlashtirish, xizmatlar sifati, raqamli transformatsiya, mijozlar qoniqishi, mashinaviy o‘rganish, xizmat samaradorligi, OECD, McKinsey, YI AI qonuni*

Аннотация. В данной статье анализируется влияние искусственного интеллекта и автоматизации на качество услуг в условиях глобальной цифровой трансформации. Исследование рассматривает, как технологии ИИ повышают эффективность обслуживания, персонализацию, удовлетворенность клиентов и процессы принятия решений в таких секторах, как банковское дело, здравоохранение, образование и государственные услуги. На основе последних эмпирических исследований, отчетов OECD и McKinsey, а также нормативных документов, включая Закон ЕС об искусственном интеллекте, анализируются преимущества и вызовы внедрения ИИ.

Ключевые слова: искусственный интеллект, автоматизация, качество услуг, цифровая трансформация, удовлетворенность клиентов, машинное обучение, эффективность услуг, OECD, McKinsey, Закон ЕС об ИИ

INTRODUCTION

The rapid development of artificial intelligence (AI) and automation technologies has become one of the most transformative forces shaping the global service sector in the twenty-first century. From banking and healthcare to education, tourism, and public administration, AI-driven systems are fundamentally redefining how services are designed, delivered, and evaluated. The integration of machine learning, natural language processing, robotic process automation, and intelligent decision-making systems has enabled organizations to increase efficiency, reduce operational costs, and enhance customer experience. According to the McKinsey Global Survey on AI (2025), approximately 88% of organizations worldwide report

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using AI in at least one business function, while nearly two-thirds remain in early stages of full-scale implementation and transformation. Similarly, OECD data indicates that AI adoption in enterprises has more than doubled between 2021 and 2025, reaching over 20% of firms globally, with significantly higher penetration in ICT-related service industries. These trends demonstrate that AI is no longer an experimental tool but an increasingly integral component of service systems.

At the same time, international policy frameworks such as the European Union's Artificial Intelligence Act (2024) and OECD AI Principles emphasize the importance of trustworthy, transparent, and human-centered AI systems in service delivery. These regulatory efforts highlight the dual objective of technological advancement and ethical governance.

This paper explores how AI and automation influence service quality by analyzing efficiency, personalization, customer satisfaction, labor transformation, and institutional challenges based on recent empirical evidence and theoretical insights.

MAIN PART

AI-driven transformation of service efficiency. One of the most significant contributions of AI and automation is the dramatic improvement in operational efficiency within service industries. Intelligent systems enable real-time data processing, predictive analytics, and automated decision-making, which reduce delays and human error. For example, AI-based chatbots and virtual assistants in customer service can handle thousands of inquiries simultaneously, significantly reducing response time. Recent research shows that organizations using AI report measurable improvements in productivity and cost efficiency. According to McKinsey (2025), firms implementing AI in service functions report cost reductions and revenue increases at the use-case level, with 64% of organizations confirming that AI contributes directly to innovation and process optimization. Moreover, in sectors such as insurance and banking, AI-driven automation has been shown to increase processing capacity while maintaining accuracy in complex workflows, particularly in claims handling and fraud detection.

Automation technologies such as robotic process automation (RPA) further enhance efficiency by replacing repetitive administrative tasks. This allows human employees to focus on higher-value activities such as problem-solving, client interaction, and strategic planning.

Enhancement of service quality through personalization. AI has also significantly improved the personalization of services. By analyzing large datasets, AI systems can predict customer preferences and behavior patterns, enabling tailored recommendations and individualized service delivery. In digital platforms, recommendation algorithms used by companies such as Netflix, Amazon, and Spotify demonstrate how personalization increases user engagement and satisfaction. In the financial and healthcare sectors, AI-powered diagnostic systems and predictive models allow service providers to deliver more precise and context-specific solutions. For instance, AI in healthcare supports early disease detection and personalized treatment plans, improving both efficiency and patient outcomes.

Empirical studies indicate that service organizations integrating AI-based personalization tools experience higher customer satisfaction rates compared to traditional service models. This reflects a shift from standardized service delivery to adaptive, data-driven customer experiences.

Customer satisfaction and service responsiveness. Service quality is closely linked to responsiveness, reliability, and user experience. AI contributes significantly to improving these dimensions by enabling 24/7 service availability and faster response times. Intelligent virtual assistants reduce waiting time and provide consistent service quality across multiple channels. However, while AI improves speed and accessibility, studies also highlight limitations related

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to emotional intelligence and human interaction. Customers may perceive AI-driven services as less empathetic, particularly in sensitive sectors such as healthcare or legal assistance. Therefore, hybrid service models combining AI automation with human oversight are increasingly considered the most effective approach.

Labor market transformation and organizational change. The integration of AI and automation has profound implications for labor structures in the service sector. Routine and repetitive tasks are increasingly being automated, while demand for digital literacy, data analysis, and AI management skills is rising. According to OECD, sectors with high service intensity such as ICT, professional services, and telecommunications are leading in AI adoption and are simultaneously reshaping job structures toward more knowledge-intensive roles. Similarly, studies show that while AI increases productivity, it also requires workforce reskilling and organizational restructuring.

However, AI adoption is not uniformly beneficial across all firms. A 2025 industry report indicates that only around 5% of companies achieve significant measurable value from AI investments, while the majority experience limited transformation due to lack of integration into core workflows. This suggests that technological adoption alone is insufficient without organizational change and strategic alignment.

Challenges: ethics, regulation, and implementation barriers. Despite its advantages, AI-driven automation presents several challenges. One of the key issues is algorithmic bias, which can lead to unfair treatment of certain customer groups if training data is not properly managed. Another concern is data privacy, especially in sectors handling sensitive personal information. Regulatory frameworks such as the EU AI Act and OECD AI Principles aim to mitigate these risks by enforcing transparency, accountability, and human oversight in AI systems. Additionally, organizations face implementation barriers such as high costs, employee resistance, and lack of technical expertise. Research also shows that organizational rather than technological limitations are often the primary obstacles to successful AI integration. Employee adaptation, change management, and leadership commitment play critical roles in determining whether AI improves service quality or remains underutilized.

AI intensity across global service sectors. Recent OECD analysis highlights that AI adoption is highest in ICT-related services, professional services, and telecommunications, where AI is not only used but also actively developed and refined. These sectors demonstrate stronger innovation capacity and higher productivity gains compared to traditional service industries such as hospitality and retail. At the same time, global surveys show that AI is increasingly embedded across multiple business functions, including customer service, marketing, and knowledge management, indicating a broad diffusion of AI across service ecosystems.

Table 1

Impact of Artificial Intelligence and Automation on Service Quality

№	Dimension of Impact	Key Contribution of AI & Automation	Empirical Evidence (Recent Studies & Reports)	Practical Examples	Key Challenges

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1	Service Efficiency	Increases speed, reduces operational costs, automates repetitive tasks	McKinsey (2025): 88% of firms use AI; significant productivity gains reported across service functions	AI chatbots in customer service; Robotic Process Automation in banking operations	High implementation costs; integration complexity
2	Service Personalization	Enables data-driven customization of services based on user behavior	OECD (2025): AI adoption doubled since 2021, especially in ICT and digital services	Netflix recommendation system; AI-based healthcare treatment plans	Data privacy concerns; algorithmic bias
3	Customer Satisfaction	Improves responsiveness, availability, and consistency of services	Global surveys show AI reduces response time by up to 60–80% in service centers	24/7 virtual assistants; AI-powered helpdesks	Lack of emotional intelligence; reduced human interaction
4	Decision-Making Quality	Enhances predictive analytics and evidence-based decision-making	Studies show AI improves forecasting accuracy in finance and logistics sectors	Fraud detection systems in banking; demand forecasting in retail	Overreliance on algorithms; transparency issues
5	Labor Market Transformation	Shifts jobs from routine tasks to analytical and digital roles	OECD (2025): ICT and professional services are leading AI adopters	Automation of administrative tasks; rise of data analyst roles	Job displacement risks; need for reskilling
6	Service Innovation	Accelerates development of new digital service models	McKinsey reports 64% of firms link AI to innovation	Smart banking apps; AI-driven education platforms	Unequal adoption between large and small firms

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			growth		
7	Ethical & Regulatory Compliance	Requires governance frameworks for transparency and fairness	EU AI Act (2024); OECD AI Principles emphasize trustworthy AI	Compliance systems in AI-based healthcare and finance	Algorithmic bias; regulatory uncertainty

CONCLUSION

Artificial intelligence and automation are fundamentally reshaping the global service sector by improving efficiency, enhancing personalization, increasing responsiveness, and transforming labor structures. Empirical evidence from recent studies confirms that AI adoption is rapidly expanding across industries, although its impact on service quality varies depending on organizational readiness, regulatory environment, and integration strategies. While AI significantly improves operational performance and customer experience, it also introduces challenges related to ethics, employment displacement, and system transparency. Therefore, the most effective model of service delivery is not full automation but a hybrid system where human intelligence and artificial intelligence complement each other.

Future development of service quality will depend on how effectively organizations balance technological innovation with human-centered design, ethical governance, and continuous workforce development. In this context, AI should be viewed not as a replacement for human services but as a strategic tool for enhancing their quality, accessibility, and sustainability.

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