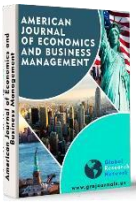

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Article

Features of Service Sector Development Under Digital Transformation Conditions

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Abstract: The article analyzes the process of digital transformation in Uzbekistan's service sector, emphasizing its role in modernizing the national economy and integrating it into the global digital space. The impact of digitalization on improving service quality and enhancing the efficiency of the service sector is examined. The author analyzes the challenges arising from the transition to a digital economy and provides recommendations for accelerating the digital transformation process in the service sector.

Keywords: National Economy, Global Integration, Digitalization, Service Sector, Digital Transformation, Service Quality, Digital Infrastructure, Digital Literacy

1. Introduction

One of the main directions of modern economic modernization is the implementation of digital technologies across various sectors of economic activity. Digital transformation has a significant impact on all spheres of the economy, including the service sector. Similar to other industries, the service sector undergoes complex economic processes that are closely linked to digitalization. The digitalization of the service sector serves as an indicator of the development level of an organization's socio-economic framework and reflects both existing weaknesses and challenges. Digitalization enables service enterprises to provide innovative services and effectively respond to changing market demands and consumer needs [1]. It is closely linked to sustainable development, as it expands opportunities and access to services, thereby fostering economic growth and improving the quality of life. Currently, the digital transformation of the service sector has led to the formation of a new electronic services market and the modernization of traditional services. The spread of the "digital consumption" phenomenon is associated with a shift from the concept of "ownership" to the concept of "on-demand access to products and services," distributed and multiple consumption, cross-industry diffusion of expectations, and the absolutization of consumer experience, which now exerts a greater influence on consumer behavior than mere satisfaction with service quality. A key factor in this process is the integration of advanced technologies such as artificial intelligence, automation, cloud computing, and big data analytics. These technologies allow service enterprises to offer higher-quality and more convenient services for customers. This not only enhances the competitiveness of service enterprises but also contributes to sustainable economic development, improves citizens' quality of life, and ensures a more effective

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fulfillment of their needs. Thus, the digital transformation of the service sector opens new horizons for innovation and growth while also presenting new challenges for the industry and the government in terms of strategy development, technological investments, and workforce training. The high economic and social significance of digital transformation in the service sector consistently attracts the attention of researchers. The issues of restructuring and optimizing business processes in the context of digital transformation have been explored in the works of CIS economists such as A.A.Sidorov, I.G.Golovtseva, M.Yu.Suchkova, E.A.Gorbashko, and N.Sh.Vatolkina [2]. The impact of digital transformation in the service sector on the quality of life is considered one of the leading trends in the studies of N.A.Voskolovich, E.V.Nezhelchenko, and others [3]. The formation of a new digital culture based on digital thinking is examined in the work of M.L.Kurbanova . Additionally, the effects of digital transformation on service sector development and infrastructure are discussed in the research of S.Usmanhodjaeva, Makhkamov, and Ismailova [4].At the same time, the challenges associated with the rapid expansion of digital transformation in the service sector require further in-depth study.

2. Materials and Methods

This study is based on official statistical data and employs methods such as logical-structural analysis, scientific observation, grouping methods, as well as statistical and comparative analysis. The global trend of digitalization has a significant impact on the economies of countries worldwide, including Uzbekistan. International practice demonstrates that the successful implementation of digital technologies in the service sector can fundamentally transform the economy, increasing its efficiency and competitiveness. In Uzbekistan, digital transformation has been actively developing in recent years. The government has made substantial efforts to stimulate this process, particularly through the introduction of new technologies in both the public and private sectors of the economy. Special attention is given to the development of digital infrastructure, training specialists in information technology, and creating favorable conditions for the growth of startups and innovative projects . These efforts include the expansion of e-government, digital banking services, online education, and telemedicine. Another important aspect is the development of digital commerce and the improvement of service quality and accessibility for the population. As part of the "Digital Uzbekistan-2030" strategy, approved by the Presidential Decree on April 2, 2021, the country has been actively pursuing digital transformation. These changes have affected various sectors, from public administration to agriculture. Over the past three years, extensive digitalization has taken place, including the expansion of broadband internet access in different regions, the introduction of digital platforms in banking for remote service access, and transformations in government services, healthcare, and housing management, all of which have facilitated everyday life for citizen [5]. The Uzbek government follows a strategy of timely and precise future planning, considering digitalization and innovation as key drivers of development across all sectors. This approach not only saves time and resources but also strengthens the country's position on the global stage. In today's world, where the international community values freedom of communication and mobility, it is essential to provide services that meet the needs of both residents and foreign visitors.

3. Results

Uzbekistan aims to adapt the best global practices and technologies to its unique conditions, which, in the long run, could significantly improve the quality of life and accelerate economic growth. Given the demands of the modern era, Uzbekistan is placing great emphasis on improving telecommunications infrastructure and digitalizing various industries [6]. This year alone, 100 software projects have been developed as part of the digital transformation of sectors such as education, banking, finance, customs, agriculture, geology, and land cadastre. More than 500 new IT companies have been established,

attracting $475 million in foreign direct investment into the sector. By the end of the year, the volume of services in the industry is expected to reach 10 trillion soums, with exports exceeding $300 million. This growth has been particularly rapid in Tashkent, Samarkand, and Andijan regions. In Surkhandarya, IT service exports have exceeded $1 million for the first time. Additionally, more than 20,000 young professionals across the country are engaged in independent programming and selling their products via international online platforms [7]. Digitalization in Uzbekistan's service sector is progressing at a faster pace than in industrial segments. This is primarily due to the ease of integrating technological solutions into organizational processes, whereas in industrial sectors, the renewal of fixed assets occurs less frequently [8]. Some production equipment currently in use was manufactured and put into operation over 30 years ago, limiting the speed of digital adoption.

As shown in Table 1, the volume of services exported through digital platforms has grown steadily from 2020 to 2023, with notable increases in Samarkand and Fergana regions.

Table 1. Information on The Volume of Gross Added Value in The Field of Information Economy and Electronic Commerce.

Indicators	2015	2016	2017	2018	2019	2020	2021	2022
Information Economy and Electronic Commerce Sector	3 876,3	4 967,7	6 377,8	7 732,1	8 491,9	10 777,0	16 939,5	27 755,0
Information and Communication Technology (ICT) Sector	3 581,7	4 575,3	5 849,0	6 876,8	7 323,0	9 095,9	11 567,6	16 131,1
ICT production	141,7	127,2	238,3	301,9	279,4	540,1	503,3	820,3
ICT Trade	140,8	228,0	281,6	236,2	293,3	252,3	367,8	580,8
ICT services	3 299,2	4 220,1	5 329,1	6 338,7	6 750,3	8 303,5	10 696,4	14 730,0
Content and Media Sector	294,6	392,4	518,7	750,1	908,9	1 089,7	1 464,6	1 929,9
E-commerce	-	-	10,1	105,2	260,0	591,4	3 907,3	9 694,0

Digitalization impacts all sectors of the service industry, ranging from transportation and logistics to healthcare and education. Research indicates that the adoption of digital technologies in service industries varies across different sectors. For instance, cloud services are utilized by approximately one-third of businesses in trade, hospitality, and information and communication sectors [9]. In healthcare and IT, cloud solutions are mainly used for email services and data storage, while their application in software hosting and development remains relatively limited. The implementation of big data collection, processing, and analysis technologies requires both time for mastering data integration and statistical processing techniques, as well as investments in the development of machine learning and neural networks. The potential of predictive analytics and simulation modeling in enhancing managerial decision-making continues to drive further research and adoption of these technologies. In financial services, there has been a shift toward online banking and mobile payments; in tourism, toward online booking and virtual tours; and in healthcare, toward telemedicine and the use of big data for diagnostics

and treatment. With the expansion of online banking, mobile payment systems, and fintech startups, banks and financial institutions have significantly increased their accessibility and convenience for clients [10]. This includes not only basic banking transactions but also more complex financial services such as investment management and insurance. Additionally, improving data security and client protection has become a priority, made possible through modern encryption and identification technologies.

Digital banking emerged globally in the 1990s with the expansion of the internet. In the 21st century, mobile applications marked the second stage of development, enabling widespread access to banking transactions and financial services. New business models are being formed based on digital platforms that facilitate the exchange of goods, services, and products through online interactions between suppliers and consumers. The proliferation of digital platforms is particularly prominent in trade, finance, higher education, telecommunications, and information technology, reducing transaction costs and fostering mutually beneficial partnerships [11]. In Uzbekistan, the number of internet banking users was 56,500 in early 2014. Over the next three years, this number grew more than 4.5 times, reaching 2.03 million by 2022, with an internet banking penetration rate of 55%. This figure surpasses the average penetration rates in developed countries, which typically range between 40-50%, see figure 1.

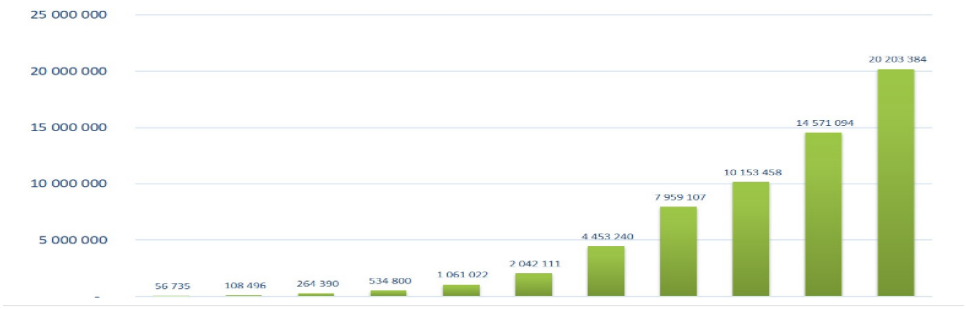

Figure 1. Number of Users of Remote Banking Services in The Republic of Uzbekistan as of January 1, 2022.

The future development of Internet banking in Uzbekistan is determined by the high dynamics of growth in Internet banking users. The growth rate of the number of users is quite high. In healthcare, digitalization has led to significant changes in treatment approaches and the management of medical services. Telemedicine has enabled patients to receive consultations from doctors remotely, which is especially important during global epidemics. Electronic medical records simplify the maintenance of patient histories and the exchange of information between medical institutions [12]. The use of big data and artificial intelligence in healthcare opens new possibilities for early diagnosis and personalized treatment. In the real estate sector, digital technologies have also brought about significant changes. Virtual tours and 3D modeling allow potential buyers and renters to explore properties from home. Automated property management systems help businesses operate more efficiently, enabling property owners and management companies to monitor the condition of properties, optimize costs, and improve customer service quality. This also includes the integration of modern technologies into the construction process and the development of new real estate projects, allowing for the creation of more comfortable and environmentally friendly residential and commercial spaces [13]. For several years, the market for plumbers, electricians, and other specialists has been developing based on a model inspired by taxi ordering services.

4. Discussion

With the development of digital platforms in the provision of household services, a shift has occurred. The widespread emergence of online platforms, which allow clients and service providers to find each other (rent an apartment, order a taxi, food, movie or plane tickets), has formed a habit among people for easy and simple access to all types of services. Therefore, demand from the population will always be present. Where there is demand, there is also supply. Digitalization of the service sector also contributes to the reduction of country-specific barriers. A significant number of companies providing services have international websites and/or applications for computers and mobile devices. There are now opportunities to make purchases from other countries with delivery to the final consumer, bypassing a number of intermediaries who resell products closer to the potential buyer [14]. Indeed, the ability to access services without being limited by the transportation accessibility of the organization and the mobility of the client expands the customer base. The introduction of digital spaces also supports continuous contact with customers: many large organizations maintain round-the-clock feedback without interruptions, and there are opportunities for delayed services that will be automatically executed within the specified time frame. It should also be noted that traditional/typical services undergo significant changes in their properties and characteristics during digital transformation. Typical services have a number of specific features such as intangibility (immateriality), perishability, and the simultaneous production and consumption, which create certain risks in consumer choice. Information asymmetry arises about the quality of services since the service provider always has more information about the conditions of production, the specifics of consumption, and the inseparability of production and consumption, which leads to risky situations for the consumer [15]. The use of information and communication technologies leads to significant changes in the main characteristics of many services. The share of material elements increases because a significant portion of information about the services and the marketing, advertising, and other data is in a documentary, machine-readable form, which can be stored on physical media (disks, flash drives, video, audio files, etc.) and is suitable for transport. Consumers can access information regardless of distance, without having direct contact with the provider, which minimizes the subjective perception of the service process. Information asymmetry also decreases due to the necessity for the service provider to consider the individual requests of each consumer and adjust their marketing strategies accordingly. Consumers now have the ability to make a wider and more informed choice, comparing service offerings from various providers through electronic systems, reading reviews, opinions from other consumers, media, and public organizations monitoring the consumer market. Time and spatial boundaries of consumer choice disappear, making services more accessible, increasing competition among suppliers, as information and communication technologies create conditions for the globalization of the market [16]. This leads to an effect of increased satisfaction with consumer choice and enhanced consumer loyalty. However, the risks of ensuring that the services meet legal, sanitary, and other norms, as well as financial security, must also be considered. The availability and quality of services using information and communication technologies can be measured using a loyalty index, calculated based on sample surveys or consumer feedback on service provider websites.

In conclusion, it can be said that the introduction of modern digital technologies helps "bring together" market participants in the service sector by expanding communication opportunities and accessibility. The time spent on receiving services is reduced, which undoubtedly contributes to an increase in the flow of clients and enhances business profitability. Digital transformation in the service sector brings both opportunities and challenges. One of the main issues is the need for infrastructure updating and modernization. Effective implementation of digital technologies requires high-speed internet and reliable data storage systems. Moreover, there is a demand for qualified specialists capable of developing, implementing, and maintaining modern

technological solutions. Innovation and the development of new business models are also at the core of digital transformation. Startups and new companies play a key role in implementing innovations as they can quickly adapt to changing market conditions and consumer needs. They contribute significantly to the development of areas such as artificial intelligence, machine learning, and automation. However, with these opportunities comes the threat of cybersecurity. The growing volume and value of digital data make systems more vulnerable to cyberattacks. Therefore, data and system protection becomes a priority task. Overall, digital transformation provides significant prospects for the development of the service sector. It improves the quality and accessibility of services, contributes to economic growth, and enhances the quality of life. However, to realize these opportunities, it is necessary to overcome several challenges related to infrastructure, education, and security.

5. Conclusion

The digital transformation of the service sector in Uzbekistan is a key factor in the development of the national economy and its integration into the global digital space. The results of the study indicate that the digital transformation of the service sector is characterized by relative heterogeneity. Alongside industries that are actively pursuing digitalization policies (finance, insurance, trade), there are sectors where digitalization efforts are more moderate (construction, hospitality, transportation, and storage). This process not only improves the quality and accessibility of services but also fosters innovation and enhances business efficiency. However, it also presents significant challenges, ranging from the adaptation of legislation to the development of infrastructure and the enhancement of digital literacy among the population. Particular attention should be paid to changes in the labor market and the need for workforce retraining. Successful digital transformation requires close collaboration between the government, businesses, and educational institutions. A harmonious combination of economic and social interests will enable Uzbekistan to fully realize the potential of digitalization while ensuring the sustainable development of its economy. The trends in the development of digitalization in the service sector will include: Demographic changes, including an increase in the number of young consumers in the market and growing mobility; A stronger role for the government, which will take a more active role in regulating the service sector; The intensification of measures to prevent crimes related to cybercrime, which will play a significant role in accelerating digitalization, among others.

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