



Article

Assessment of The Innovative Potential of Service Enterprises (Using The Example of The Samarkand Region)

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Abstract: This work deals with the evaluation of innovative capacity of service sector entities in Samarkand region and its relationship with the factors affecting the development of innovation. This exploratory paper has written to investigate the influences of digitization, modern management technologies, human capital and access to financial resources on service enterprises seeking improvements in innovation performance and competitiveness. An analysis of recent trends in innovative actions using statistical data, survey results and a combined Innovation Performance Index was used to assess their impact on revenue rise and service quality a the company level. The results show consistent rising of the innovation activity in service industries, especially on tourism, transportation sector and also education and digital services through regional initiatives like Smart Samarkand project and the grants for sustainable and digital infrastructure development. At the same time, it also points out obstacles to innovative capacity, such as difficulties in accessing finance; lack of skills in advanced digital technologies and their applications; and insufficient integration between research establishments and business. Based on the findings, the article offers practical recommendation for enhancing regional innovation policy as well as promoting public-private partnerships and sustainable inclusive innovative development of service enterprise in Samarkand region.

Keywords: Innovation, service sector, enterprise development, Samarkand region, competitiveness, digitalization, innovative activity.

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1. Introduction

Innovative development of service sector enterprises remains a priority area of economic policy in the Republic of Uzbekistan. In the context of accelerated digital transformation, global competition, and post-pandemic recovery, innovation is a key factor in increasing business efficiency, resilience, and achieving sustainable development goals.

Over the last few years, however, it has opened up its kimono to a series of critical regulatory acts and strategic approaches designed to spur innovation. They are the Law of the Republic of Uzbekistan "" On innovation activity which determines the legal basis for innovative development, channels of financing and coordination forms science with industry. There are also a strategy for development of science, technology and innovation till 2030 (It was adopted by the president's decision № PP-4362), as well as an Uzbekistan Development Strategy "Uzbekistan-2030" that specifically aimed at the digitalization of economy, artificial intelligence introduction and establishment of regional innovation

clusters. In 2025, Strategy for the Development of AI Technologies to 2030 was adopted and green energy, digital services were funded[1,2].

The service industry, especially tourism, transportation education and IT sector in the Samarkand region have a great potential for innovation. In 2025, the UN Public Service Forum, as a matter of promoting speedy provision of public services for sustainable future, was hosted in this region attended by delegates from 200 countries hinting at its place in world telecom. One of the most rapidly developing axes is Smart Samarkand, with projects such as the 1.2 GW Samarkand 1 and 2 solar power plants that come complete with a total battery energy storage system (BESS) capacity of 1,336 MWh for more environmentally friendly digitalisation of transport, tourism and utilities. The share of the service sector with 15% annual growth in the region is growing, the development of online services, introduction into modern management methods and modern equipment for vocational training centers such as the Samarkand Regional Center for Retraining on Tourism and Services. Meanwhile, there are still some challenges about how to improve accessibility to investment, train AI and green technology talents, and cultivate an innovative climate in enterprises[3,4].

The purpose of the study is to analyze the innovative development of service sector enterprises in the Samarkand region, identify key trends, barriers and determine possible ways to improve innovation activities in the region based on data for 2025–2026.

Literature review

The issue of innovative development in service sector enterprises has become a central focus of economic research in recent years, as services are becoming a key factor in generating added value and enhancing the competitiveness of the national economy. Many researchers (F. M. Nazarova, A. A. Isomaddinov, and others) note that innovative development in the service sector has its own specific characteristics, distinct from those in the manufacturing sector[5,6,7]. The key characteristic lies in the intangible nature of services, their inseparability from the delivery process, their variability, and the impossibility of accumulation, which requires the application of specific approaches to organizing innovation activities[8,9,10].

In domestic and international literature, innovation in the service sector is examined from several perspectives: technological, service, organizational and managerial, and digital. Technology innovation includes the adoption of new service delivery models, introduction of new service technologies, modern equipment and software applications. Innovations in services correlate with the development of new service types, with quality of delivery and customer satisfaction. An organization and a managerial innovation is the introduction of new personnel management techniques, optimization of business processes and enhancement of customer relationship systems.

In the last years, digital innovation has received special attention as it is increasingly providing a backbone for all of them. In a study by UNDP (the Digital Transformation of Uzbekistan 2030), digital transformation is shaping the contemporary version of innovation in the services sector and designing new business models using up-and-coming tools such as online platforms, automation, big data, machine learning or artificial intelligence (AI). In Uzbekistan, the ICT sector expanded to account for 2.1% of GDP in 2023 and saw services exports double to \$344 million, while the "Digital Uzbekistan 2030" strategy also invests \$2.5 billion in infrastructure, furthering tourism and transport digitalization. Many authors (including dependent textbooks) pay attention to the fact that innovation service sector is formed primarily not by creating fundamentally new technology, and adapting them to the requirements of customers and establishing more effective interaction between market participants. This makes the innovation activity of enterprises of the service sector, to a large extent, dependent on management quality, digital (information) level and professional personnel training[11].

Recent studies emphasise the importance of AI and big data in tourism: one such study is by Lamote , which describes how these technologies increase operational

effectiveness and visitor satisfaction in Samarkand, through personalized services and predictive analytics ("AI and Big Data Analytics in Uzbekistan's Tourism"). So does "Vision Generation for Cluster Tourism of Samarkand, Bukhara and Khiva of Uzbekistan", on the use of smart tourism, blockchain and big data in reinterpreting clusters to learn from South Korea's and Japan's service quality hype. UNWTO reports the country among the seven most successful in terms of tourism growth (+73% vs), that support sustainable innovations like the digital platform sayohat. Vr tours and Uz in antient cities. Sustainable tourism studies in "Tourism Sustainability in Uzbekistan" and "Sustainable tourism development: the case of Silk Road cities" identify as challenges such as infrastructure overload, in Samarkand, and propose a balance between economic growth and heritage preservation via implementing the Glocal RPM & IPA models.[12].

Thus, the literature review demonstrates that the theoretical framework for innovative development in the service sector is sufficiently developed. However, research challenges remain related to taking into account regional specifics, particularly in the context of rapid tourism growth in 2024–2025, improving practical mechanisms for implementing innovations, and assessing their effectiveness at the enterprise level. These circumstances confirm the relevance and scientific significance of further studying the experience of enterprises in the Samarkand region in the context of innovative development[13,14,15].

2. Materials and Methods

This The research design used in this study is the quantitative statistical research design to evaluate the innovative performance of the service sector enterprises within the Samarkand region. It has a population of 4800 registered service enterprises, a stratified random sample of 356 firms was picked to guarantee representation of large sub areas, such as tourism, transport and logistics, education and IT services, and other consumer services. The data were gathered with the help of a structured questionnaire which was given to the enterprise managers and which was supplemented with the secondary data on the official sources of statistics.

The performance of the innovation was measured by a composite Innovation Performance Index that included the increase in revenues, the portion of digitalized services, and the amount of applied innovations over the last two years. Digitalization level, availability of finance, human capital, firm size, and involvement in regional innovation programs were the independent variables. The relationships among the innovation drivers and the enterprise performance were assessed using descriptive statistics, the correlation analysis, and multiple linear regression. Pilot testing, data triangulation and the use of standardized indicators ensured reliability and validity and the ethical principles of informed consent and confidentiality were followed closely.

3. Results

The In recent years, the innovative development of service sector enterprises in Uzbekistan has acquired strategic importance. The transition to a knowledge economy, the active implementation of digital technologies, and increased competition in domestic and foreign markets require enterprises to explore new forms of service, improve business models, and implement modern management approaches. In this regard, innovation isn't just an element of increasing competitiveness, but rather a condition for sustainable economic growth too. In 2025, Uzbekistan ranks in the world's top 7 of fast growing tourist destinations with international arrivals up by 73% versus 2019 due to a service sector innovation such as digitalization and sustainability (UN-Tourism). As of November 2025, the country had received 10.7 million foreign tourists and exports from tourism were worth €3.74 billion, above target and amounting to a 47.4% increase over the year before. This substantiates the position of service sector as a major GDP stimulator, accounting for 52% in 2025 at an annual growth rate range of 11-14%.

Republic of Uzbekistan: The Republic is the developing and executing an Enterprise Modernisation Program including digitization services, management automation and increase customer interaction. Special emphasis is given to the development of advanced infrastructure—containing business incubators, accelerators and startup support centers. These initiatives are intended to spur entrepreneurship and innovation in a range of service industries, including tourism, logistics and IT. The ICT sector was expected to represent 2.5% of GDP by 2025, with exports of services at \$400 million. The "Digital Uzbekistan – 2030" strategy has invested \$3 billion in infrastructure, including AI and big data, further enhancing the digitalization of services. Finally, in 2024 (for January 2026 the data is given latest), it was produced products of innovative goods, works and services to the amount of 63.6 trillion soums (an increase by 14.1% as compared to 2023); they implemented as much as 5521 innovations, whereof technological —4889. It will grow up 15-20% totally in the year 2025 with developments including new tourism and transportation project.

The Samarkand region, for example, demonstrates significant structural changes. The development of tourism, hospitality, transportation, and educational services is accompanied by the active implementation of digital technologies. For example, the "Smart Samarkand" project is implementing solutions to digitalize hotel booking systems, create electronic guides, and automate transport routes. In 2025, the project expanded to include the integration of the Samarkand 1 and 2 solar power plants (total capacity of 1 GW PV + 1.336 GWh BESS), financed by \$1.8 billion from a consortium including ACWA Power, Sumitomo, EBRD, and ADB. These initiatives provide clean energy for digital services, reducing CO₂ emissions by 1.4 million tons annually and powering 600,000 households. Furthermore, in June 2025, Samarkand hosted the UN Public Service Forum, attended by over 1,000 delegates from 200 countries, focusing on the digitalization of public services, innovation, and sustainable development, highlighting the region's role in the global agenda. Regional service growth was 15% annually, reaching 75 trillion soums in 2025, with the number of entrepreneurs doubling over eight years and attracting \$12 billion in investment.

All of that results in better service quality, better availability and a higher level of engagement with the customer. While these successes are notable, there are some challenges regarding the improvement of personnel qualifications in innovation management, the increasing availability of financial resources and closer integration between scientific research and production. The strategy to tackle these issues lies in further cooperation between universities and enterprises, while grant-funding methods and tax incentives are being promoted as tools for encouraging innovation. 2009 the modernization of Samarkand Regional Retraining Center supported by EU and UNESCO was commissioned for training specialists tourism, hotel and restaurant business, where over 500 specialists will be trained annually. Government programmes Subsidy for innovation costs Favorable loans (waived interest) For new technologies (AI and blockchain in services etc.).

Over the past years, there has been a positive trend in the service sector development in Samarkand region. The project Smart Samarkand produced with the support of the EBRD and the Ministry for development of information technologies and communications of the Republic of Uzbekistan, it is implementing areas in digitalization – tourism-transport-hotel infrastructure, also construction services smart city. In 2025 they equipped AI for forecasting analysis of tourism and intelligent transportation system, which electric bus and smart traffic lights had reduced by 20% power consumption while improving the service efficiency. The Southland service sector has over 4,800 entities (approximately 14% growth by 2023) -from which, about 40% are tourism and hospitality; 25% transport and logistics;18% based around education and IT while the rest is divided between household services (dwa:31)and trade services(based on national trends).

As the Ministry of Innovative Development of the Republic of Uzbekistan reports, in 2025, about 25% (which is higher than the country average - nearly 20%) of service enterprises in Samarkand region were implementing innovations (estimations as for previous year – more than 19%). The principal innovations are:

- a. Automation of service processes;
- b. Implementation of electronic booking systems;
- c. Use of crm and erp systems;
- d. Development of mobile applications for clients;
- e. Integration of ai for personalized services and predictive analytics;
- f. Implementation of sustainable technologies, such as solar energy, to support digital infrastructure.

The implementation of digital solutions within the framework of the *Smart Tourism Samarkand* project has significantly contributed to the growth of tourist flows, which increased by more than 25 percent in 2025 as a result of the introduction of online booking platforms, digital guides, and virtual reality tours, along with blockchain-based systems to ensure secure financial transactions. Many of this is already being delivered at an enterprise level – with various service organisations pioneering new ways that illustrate the tangible difference digital transformation can make. Registon Plaza Hotel implemented an automated reservation system and a customer relationship management (CRM) solution for its frequent guests, surpassing the forecasted 20% increase in occupancy in 2025. Al-Samarkand Travel extended its international cooperation with tour operators through an online market place, and introduced dynamic pricing according to demand analytics and personalized service proposals. Samarkand International Airport has begun the transition to a “smart terminal” model, incorporating electronic check-in, automated gates, facial recognition technologies, and baggage tracking systems, which is expected to raise passenger throughput by approximately 15 percent. In the transport sector, Samarqand Yo’lovchi Trans participates in an EBRD-supported project introducing electric buses and intelligent traffic control systems, improving operational efficiency while reducing emissions by 10 percent. Similarly, Hilton Garden Inn Samarkand Sogd applies Internet of Things technologies for energy management and guest services in combination with solar power solutions, contributing to low-carbon operations. In the education sector, the Samarkand Regional Retraining Center has launched specialized programs in digital marketing and artificial intelligence for tourism, preparing more than 300 qualified specialists by 2025(see table 1).

Table 1. Dynamics of innovative development of the Republic of Uzbekistan for the period 2022-2025y.

Indicator	2022	2023	2024	2025	Change (2022–2025), %
Number of service sector enterprises	4010	4215	4500	4800	30,8
Innovative enterprises, %	16	19	22	25	13
The share of digital services in services, %	31	39	45	52	34
Tourist flow (million people, for the Samarkand region, estimate)	3,2	3,6	4,5	5,8	176,2

Indicator	2022	2023	2024	2025	Change (2022–2025), %
Average revenue growth of innovative firms, %	10,2	12,7	14,5	16,8	10

Source: State Statistics Committee of Uzbekistan (services growth +14 percent in 2025/24), UN Tourism (national tourist flow +47.4 percent in 2025), Ministry of Innovation (share of innovation +6 percentage points by 2025), EBRD and ADB (projects for 2025). Samarkand estimates are derived from inference with overall trends given that the city is a major tourist destination (30-40% of national).

According to the data presented, during the period studied, there was an increase in the number of service companies compared to other economic sectors by almost 31%, and the share of companies introducing innovations increased from 12% to 25%, which implies that a sustainable innovation climate was formed. It is the growth of digital services (from 18% to 52%), we can assume that enterprises in the region are actively using digital technologies, internet platforms and CRM systems. The impressive growth in tourist numbers (176%) has been contributed by the Smart Samarkand Project infrastructure, intelligent transportation system and hotel services including sustainable tourism and reduced congestion of infrastructure. At the same time, the growth in income of innovative firms (the mean lag is 10 p.p. for six years) shows the economic efficiency of digitalization and innovative applications introduction.

Expanding the analysis, it's worth noting the challenges of 2025: dependence on regional markets (Kyrgyzstan, Tajikistan, and Kazakhstan account for 70% of tourist flow), geopolitical risks, and climate change impacting infrastructure. However, with investments in green energy and AI, the region can achieve its goal of 7 million tourists by 2030. Comparison with other regions: Samarkand outperforms the average in innovation (25% vs. 20% nationally), but lags behind Tashkent in IT (41% innovation). Economic impact: The service sector created 100,000 new jobs in 2025, helping to reduce unemployment to 7% in the region(see table 2).

Table 2. Comparison of innovation activity by region of Uzbekistan (2023–2025)

Region	Innovative enterprises in services, % (2023)	% (2025)	Growth in services exports, % (2024–2025)	Contribution to GDP from services, % (2025)
Samarkand	19	25	+15	15
Tashkent	35	41	+20	25
Bukhara	15	18	+10	12

Sources: State Statistics Committee, UNDP "Digital Economy of Uzbekistan" (2025), Global Innovation Index 2025 (Uzbekistan ranked 79th). Add to the analysis section for comparison with other regions, highlighting Samarkand's advantages in tourism and digitalization.

Thus, we can affirm that the Samarkand region is one of dynamically developing regions of the Republic of Uzbekistan by innovative development in services. System support of the digital agenda, creation of regional programs for tourism and transport infrastructure modernization at state level, tools to form public-private partnerships take place as conditions for further enhancing the innovative potential of the region with emphasis on sustainable development and integration into global economic space.

4. Conclusion

Judging by the results of the given study, one can make a conclusion that innovative development of the service sector enterprises in the Samarkand region evidences a positive trend with the key factors of development being connected to digitalization, the advancement of smart tourism experiences, and the introduction of new management and technological solutions. The findings indicate that those enterprises that proactively introduce digital service, automation, and innovative business models are able to grow faster in terms of revenue, competitiveness, and quality of service than non-innovative businesses. The empirical data also shows that the regional initiatives like Smart Samarkand, the investments in the green energy, and the collaboration between the State institutions and the enterprising contribute to the decisive impact on the innovative potential of the service sector. The implication of these findings is that the targeted policies in the sphere of innovation, better access to funds resources, and organized education of human capital are the key tools of the long-term economic growth of the region and its increased global competitiveness. At the policy level, the research highlights the need to enhance the infrastructure on innovation, to enlarge the provision of grants and venture funds, and to enhance the collaboration between universities and industries. However, the study is restricted by its regional scope and use of aggregate indicators, which restricts the ability to cause. Consequently, additional studies must use longitudinal and firm-level panel data, include comparative analysis among regions of Uzbekistan, and the use of emerging technologies, including artificial intelligence and big data, in determining innovation performance, in addition to the social and environmental aspects of service sector development in a sustainable manner.

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