

Article

Modernization of Innovation and Investment Activities of Service Sector Enterprises in the Context of Digital and Structural Transformation of the Economy of Uzbekistan

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Abstract: The article analyzes the processes of modernization of innovation and investment activities of service sector enterprises in the Republic of Uzbekistan under conditions of digital and structural transformation. The necessity of accelerating digitalization, implementing innovative solutions, and applying new investment models to enhance enterprise competitiveness is substantiated. Particular attention is given to the factors influencing the efficiency of innovation and investment activities, as well as to the strategic directions for improving management in the service sector. Among the main lines of the analysis is the evaluation of the trends of investments into service sphere. Over the past few years the total number of investments whether local or international has increased significantly. The research focus on how the increase of capital investment in priority spheres is stimulated by state support measures such as grants, tax benefits, and initiatives or other programming in building innovation infrastructure Modernization of innovative and investment activity of enterprises of service sector under digital and structural by making investment more inclusive and accessible, transformation conditions poses one of the major challenges of our time, which includes financing in the world, both stimulating as well as finding means to facilitate investment. Activity within the sector. The sector will continue to grow with economic transformation, modernization, innovation and investment, digitalization competitiveness, innovation policy.

Keywords: Innovation, Modernization, Service Sector, Economy, Investment

Citation: Farhadovich N. D. Modernization of Innovation and Investment Activities of Service Sector Enterprises in the Context of Digital and Structural Transformation of the Economy of Uzbekistan. American Journal of Economics and Business Management 2026, 9(1), 354-359.

Received: 18th Dec 2025

Revised: 30th Dec 2025

Accepted: 12th Jan 2026

Published: 19th Jan 2026



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1. Introduction

The current state of global economy development is marked by the intensification of digitalization processes, structural transformations, and switching to innovative modes of business activity. Under these circumstances, among other sectors, enterprises in services — a leading contributor to GDP formation and sectorial employment — needs to revamping their innovation and investment activities. This direction is especially relevant for Uzbekistan because it is based on the introduction of a sustainable economic model. Dynamics of growth strategy, competitiveness, export potential, and depth of integration into the global economic space.

The process of modernizing the innovation and investment activities of service sector enterprises includes a substantial updating of organizational, technological, and

managerial mechanisms. As Once innovations become the key source of competitive advantage, investments in human capital, digital technologies, and infrastructure will play a major role in determining the long-term businesses and development sustainability. The second establishment of an innovation ecosystem in the service industry is especially important, as it allows for a collaboration of state institutions as well as the private sector, research institutions and educational organizations. It enables faster adoption of newer practices, improves service quality and better cost efficiencies. Simultaneously, the inefficient and investment activities and socio-economic policies, as well as institutional reforms geared towards transparency and competition will need to be more firmly regulated. A favorable by doing so, the business environment will attract the internal and external investments required by society for the renewal of the technologies carried out. But demand of employers has not increased as much as needed and there are still issues like lack of innovative infrastructure in enterprises, limited access to financing sources, a shortage of skilled personnel and need for corporate governance. To overcome these obstacles, it is necessary to create innovative development strategies, build joint networks, and manage technology transfer mechanisms.

Literature Review

Innovational activity and investment in the service sector influence competitiveness on the basis of the digital transformation of economy, which is confirmed by recent studies. According to S. Yu. According to Glazyev, the innovation-oriented development models are especially suitable for such a nature of economy, where the rise of service sector is phased out traditional industrial drivers [1].

As noted by the President of the Republic of Uzbekistan, Sh. Mirziyoyev, "the high rates of economic growth and the growing demand for investment resources are not aligned." Foreign investment inflows to the country remain highly insufficient. Therefore, conducting a precise analysis of how ongoing investments in the economy influence the modernization process is an urgent task [2].

As S. A. Frolova notes since renewal of service sector enterprises requires not only technological but also institutional changes, at the same time institution quality, management systems, and investment mechanisms need to be enhanced[3]. This opinion is confirmed by I. G. Gulyamova, who draws attention to the fact that the investment climate has a large influence on the spread of innovations and confidence in business[4].

In the wake of service sector structural transformation, there is a time to quickly adapt to market conditions and consumer behavior. An essential condition of the sustainable modernization of transition economies, including Uzbekistan, is a national innovation system by integrating economic entities of state, business, science, and education into a singular space of development [5]. According to, the World Bank also emphasizes that government-led innovation policy, regulatory reforms, and investment incentives can accelerate digital transformation. In addition to this, the World Bank also cautions towards building digital infrastructure and human investment. According to the OECD's research, the role of data-driven decisions and digital platforms is becoming more critical for service innovations [6-7].

A. N. Nurmatov sees the large lack of scheme investment prospects and low creative culture as key obstacles to updating service industries at level of national. Digital transformation is a leading triggering potential for innovative efficiency if it concerns finance, transport and education services (D. M. Abdullaev)[7]. Sh. Kh. According to Saidov and B. T. Sultonova innovative infrastructure such as technoparks and business incubators play a strategic role [8].

In the literature there are also many authors who discuss structural changes in the Uzbek economy. M. Kh. As Mirzakarimov argues this type of structural transformation directed more towards innovation can lead to productivity growth, as well as, service sector labor employment [9]. UNDP and Asian Development Bank reports also draw

similar conclusions and identify service sector growth as dominant with the potential for being inclusive and sustainable [10-11]. Digital transformation helps in making the management processes more efficient, whereas e-commerce in service sector creates new serviced opportunities built upon digital infrastructure, thus leading towards integration of this sector with national economic growth [12-13-14]. In addition, digital transformation can act as an enabler of innovation and investment activities [15].

2. Methodology

The study is aimed at systematically examining the processes of modernizing the innovation and investment activities of service sector enterprises in Uzbekistan. The method kneads upon a few inseparably connected logical methodologies. We used the economic and statistical analysis method as a first step to assess the absolute and relative values of type, such as the amount of investments in service sector, share of innovative enterprises, the number of implemented innovations, and employment.

Second, Using the time series analysis method, the study analysed trends for these indicators over time, growth rates and directions of change. Besides, relative indicators and indices method was used to put changes in investment efficiency, the level of innovative activity as well as employment indicators in percent. The study also used methods such as systematic analysis, logical reasoning, and scientific generalization for briefly summing up the findings. These methods enabled a comprehensive analysis of the influence of input and process creation on frank and enterprise development in services

3. Results

At the present stage, service sector enterprises are becoming one of the key drivers of national economic growth. Their share in the gross domestic product (GDP) has been steadily increasing, while innovation and investment activities have become primary factors of competitiveness. Despite certain challenges characteristic of transition economies, enterprises demonstrate adaptability by introducing new service formats, improving service quality, and optimizing business processes. International experience indicates that companies actively investing in digital technologies and organizational innovations achieve higher labor productivity and profitability (see Table 1).

Table 1. Dynamics of Innovation and Investment Activity of Service Sector Enterprises in Uzbekistan (2021–2025).

Year	Volume of Investments in the Service Sector (billion UZS)	Share of Investments in GDP (%)	Share of Innovative Enterprises (%)	Number of Implemented Innovations (units)	Employment Level in the Service Sector (%)
2021	32,500	10.8	18.2	245	47.1
2022	38,200	11.4	21.6	310	48.3
2023	45,800	12.2	25.4	389	49.8
2024	53,600	13.1	28.7	460	50.9
2025	61,900	14.0	32.5	540	52.4

(Source: Official data of the Ministry of Economy and Industry of the Republic of Uzbekistan and aggregated forecast indicators of national statistics, 2025)

The table indicates that, during the five years, investments in the sphere of services almost doubled from 32.5 trillion UZS in 2021 to 61.9 trillion UZS in 2025. The Investment

share in GDP grew from 10.8 to 14 percent testifying to the strengthening position of the services sector in the national economy. The proportion of innovative companies slowly increased from 18.2% in 2021, especially in 2023 (32.5%). The number of implemented innovations from 389 units in 2023, which is to become the most rapidly growing (even in absolute numbers) between 2023 and 2025 to as many as 540 units. That jump coincidental with the strong dialling of New solutions and the growth of programs geared towards small and medium-sized enterprises.

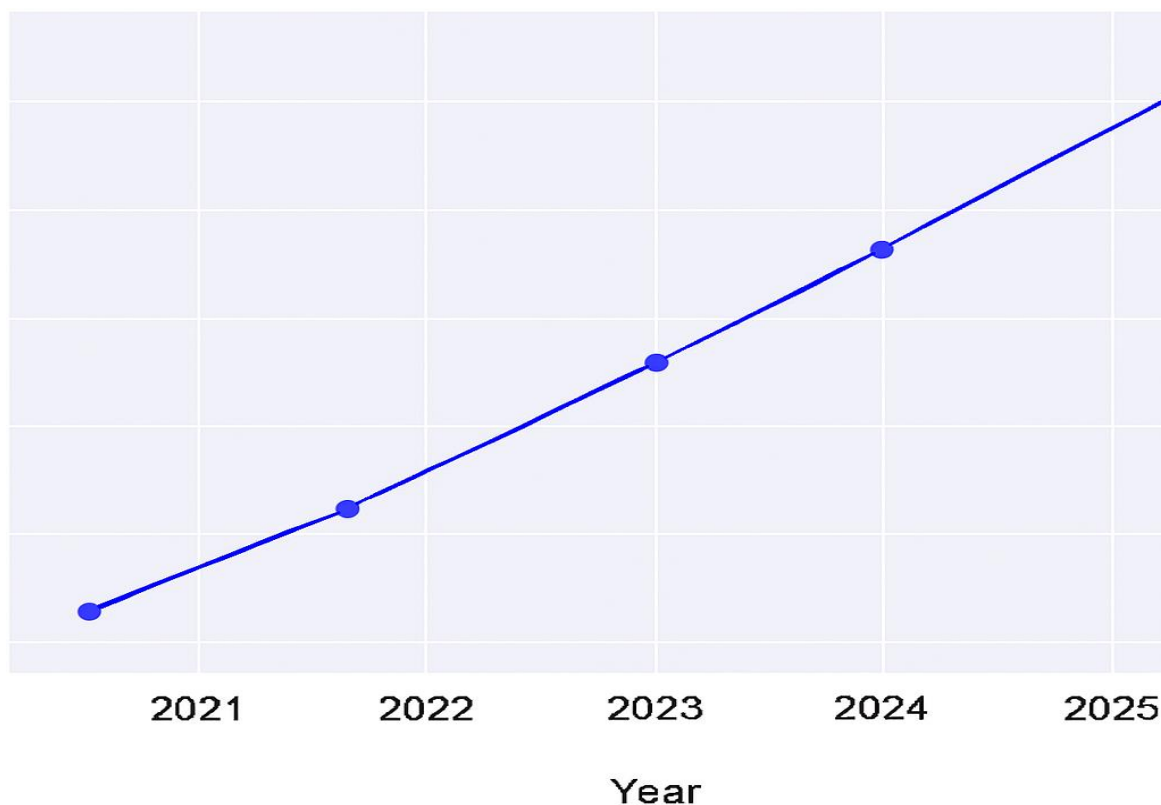


Figure 1. Investment Volume by Years.

From this figure, it can be observed that between 2021 and 2025, the volume of innovations increased steadily each year. The share of enterprises implementing innovations rose from 18.2% to 32.5%, indicating the formation of a stable innovation culture. The number of implemented innovations increased from 245 to 540, reflecting the transition of enterprises from simple adaptations to more complex technological and organizational solutions.

This includes revamping the equipment, getting rid of proper accounting processes, and automating customer service operations. In terms of the volume of capital investment structure, the maximum share of capital is invested in transport (42.0%), finance (27.4%), education (10.1%), and tourism services (6.3%). These sectors have high growth and related to the digital and structural transformation of the economy, as drivers of competition that have a high developmental potential. In particular, the banking and financial sector is introducing electronic services, remote engaged delivery system platforms.

Analysis of the investment structure shows that the largest share of capital is directed toward transport, finance, education, and tourism services. These sectors have high growth potential and are closely linked to the digital and structural transformation of the economy. In particular, the banking and financial sector is implementing electronic services, remote service delivery systems, and platform-based solutions. Educational institutions are transitioning to hybrid teaching models based on digital platforms and

interactive technologies. Tourism enterprises are investing in online services, mobile applications, and smart booking systems. At the same time, the analysis identified several challenges that hinder accelerated modernization. One of the main obstacles is limited access to long-term financing for small and medium-sized enterprises. Positive trends in lending rest on high interest rates and collateral, which are still limiting factors – especially in attracting investments to regions with infrastructure.

The other major challenge is the lack of an innovation ecosystem. Even with the rise of technoparks, incubators, and entrepreneurship support centres, their potential is not fully utilized. Collaboration with scientific institutions using ineffective mechanisms leads to weak production innovation commercialization. This issue is particularly discussed across the service sector, where innovations are less about things and more about service quality, process improvement, and business model innovation.

The assessment of human capital is also important. Addressing the extent to which the amount of workforce training in the service sector has improved in a gradual way, there is still a gap between labor market and the quality of educational programs. Modernization only works if it allows not just specialists who can implement new technologies, but also integrate such new technologies into customer-oriented management processes. Training of people, activating management skills, and developing an entrepreneurial approach, remain crucial. There are positive effects of fundamental reforms that the government introduces on innovation and investment development. Special economic zones, tax incentives, which has bolstered investors' confidence and risk-adjusted returns through public-private partnership mechanisms. However, the legal framework needs to continue to be enhanced, especially in streamlining the registration of innovative activities, enhancing intellectual property protection, and increasing transparency in state subsidy allocation; Regional disparities are also evident. Innovation activity is higher in major cities such as Tashkent, Samarkand, and Bukhara than in remote areas due to the agglomeration of infrastructure, skilled personnel, and investors. In remote territories, creative programs are predominantly conveyed through lawful improvement plans and connection with international organizations. Thus, in the overall modernization of the service system, one of the important tasks is to ensure regional balance.

4. Discussion

The structural transformation of the economy also plays a crucial role. The transition to a knowledge-based economy shifts focus from material production to intellectual and service sectors, directing investment priorities toward innovation potential and technological adaptability rather than mere physical expansion. This trend is characteristic of many countries implementing modernization reforms, and Uzbekistan is no exception.

Especially, the act of modernising innovation and investment activities gets multiplied by the effect of growth on employment. For the five-year period, the employment level in the figure of the service sector from 47.1 percent to 52.4 percent. The investments in innovation not only drive efficiency, but also innovation creates appropriate jobs associated with service delivery, logistics, and customer relations. So, innovation is more than an economic growth driver, it is a necessary social stabilization tool.

Our analysis indicates that enterprises actively investing in innovations achieve higher profitability and labor productivity. This is associated with cost optimization, the implementation of digital technologies, and increased customer satisfaction. Practical experience confirms that even minor innovations in service organization or management systems can yield significant economic benefits.

5. Conclusion

The results of this study confirm that modernizing the innovation and investment activities of service sector enterprises is one of the decisive factors in the digital and structural transformation of Uzbekistan's economy. Modernization can answer the need, but is not a matter of financial capital, but a matter of monetary reformation, reshaping and learning human capital. Strengthening innovation ecosystems establishing financial access, and upgrading management capabilities keep service sector competitiveness sustainable. The results point to the conclusion that the success of modernization relies on the interaction of three central elements: technology, institutions, and human capital. The technological component involves introducing digital solutions, automating business processes, enhancing the efficiency of management. The institutional side has to do with the environment for investment infrastructure, upgrading of the regulatory framework, and the establishment of public-private partnership mechanisms. The concept of human capital symbolises the significance of developing a talent adept at accommodating current market requirements and nurturing of novel concepts.

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