

The Economic Role of Public-Private Partnership Mechanisms in Stimulating Innovation and Investment Activities in Industrial Enterprises

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Abstract

This study examines the economic role of public-private partnership (PPP) mechanisms in stimulating innovation and investment activities in industrial enterprises. The research explores the theoretical foundations and practical aspects of PPP as an effective instrument for mobilizing private capital, reducing fiscal pressure on the state, and enhancing the technological modernization of industrial sectors. Special attention is given to the institutional environment, risk-sharing models, financial structuring, and governance mechanisms that determine the efficiency of PPP projects. The paper analyzes how PPP frameworks contribute to increasing investment attractiveness, accelerating the adoption of advanced technologies, and improving the competitiveness and productivity of industrial enterprises. Based on comparative analysis and strategic management approaches, recommendations are proposed to strengthen PPP implementation for sustainable industrial development.

Keywords: Public-private partnership, industrial enterprises, innovation activity, investment activity, economic efficiency, risk allocation, strategic management, institutional mechanisms, industrial modernization, competitiveness.

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1. Introduction

In today's conditions of globalization and technological progress, one of the priority tasks in ensuring the sustainable development of the national economy is to activate the innovative and investment activities of industrial enterprises. The production of high value-added products, modernization of production processes and increasing competitiveness in industrial sectors largely depend on the volume of investment resources and their innovative orientation. In this process, public-private partnership mechanisms based on the combination of the capabilities of the state and the private sector are emerging as an important economic

instrument.

In recent years, the Republic of Uzbekistan has been implementing consistent institutional and regulatory reforms aimed at developing public-private partnerships (PPP). In particular, the Law of the Republic of Uzbekistan "On Public-Private Partnership" defines public-private partnership as a form of long-term, mutually beneficial cooperation between the state and a private partner, the main goal of which is to attract investments in sectors of the economy, including industry, and implement innovative projects.

Also, the Decree of the President of the Republic of

Uzbekistan No. PF-5713 dated March 29, 2019, sets as an important task "actively attracting private investment in sectors of the economy, developing production infrastructure and stimulating innovative activity through the widespread introduction of public-private partnership mechanisms." This decree specifically emphasizes the role of PPP mechanisms in reducing risks in investment processes at industrial enterprises, ensuring financial stability, and introducing modern technologies.

In addition, The Development Strategy of New Uzbekistan for 2022–2026 identifies improving the investment climate through industrial modernization, accelerating innovative development, and expanding private sector participation as a priority, and recognizes the effective use of public-private partnership mechanisms as an important factor in ensuring economic growth.

The analysis of these regulatory legal acts shows that public-private partnership mechanisms play an important economic role in stimulating the innovative and investment activities of industrial enterprises. However, in practice, the issues of comprehensive assessment of the real impact of PPP mechanisms on innovative and investment activities in industrial enterprises, and improvement of scientific and methodological approaches aimed at increasing their economic efficiency have not been sufficiently studied.

In this regard, the relevance of this dissertation research determines the scientific substantiation of the economic role of public-private partnership mechanisms in stimulating innovation and investment activities in industrial enterprises, the identification of their mechanisms of influence, and the development of scientific and practical proposals to increase their effectiveness.

2. Literature review

The economic role of public-private partnership (PPP) mechanisms in stimulating innovation and investment activities in industrial enterprises has become an important research area in international and national scientific literature in recent years. In scientific sources, PPP is interpreted, on the one hand, as a means of attracting investments in conditions of limited state resources, and on the other hand, as an institutional mechanism for mobilizing the innovative potential of the private sector.

In the international scientific literature, the mechanism of public-private partnership (PPP) is interpreted as a means of reducing the state investment burden, attracting the management and financial capabilities of the private sector, and increasing the overall economic efficiency of projects. In particular, Hodge and Greve evaluate PPP as "a long-term institutional mechanism that combines the efficiency of the private sector with the interests of the state in the provision of public services." The authors state that "the success of PPP projects depends not only on the amount of financing, but also on the mechanisms for proper risk allocation and performance assessment."

At the same time, fundamental research by Miranda Sarmiento and Renneboog has taken a sharply critical approach to the issue of the economic efficiency of PPP projects. They conclude that "many government reports proclaim PPP projects to be highly efficient, but academic research shows that most of these projects do not provide real value for money".

International research has recognized PPPs as an important economic mechanism for stimulating innovation. In particular, Saeed, Duffield, and Hui analyzed PPP projects and concluded that "public-private partnership projects stimulate innovation not only through technological innovations, but also through improved management practices, risk sharing, and long-term contractual relationships." According to the authors, the formation of innovations within PPPs is directly related to the quality of project documentation, the flexibility of contracts, and the combination of public and private sector experience.

At the same time, some academic studies also take a cautious approach to the innovative effectiveness of PPPs. In particular, Leiringer and Eaton comment on the rigidity of PPP contracts, arguing that "overly rigid contractual structures in public-private partnerships can limit innovative initiatives throughout the project." This suggests the need to improve PPP mechanisms in line with the innovation needs of industrial enterprises.

The role of PPPs in stimulating innovation activity is emerging as a separate scientific direction. In Timchuk and Sokolova's research, PPPs are considered "an effective mechanism for financing innovative projects, reducing technological risks, and accelerating the innovation cycle." According to the authors, "the harmonization of the innovative interests of the private sector with the strategic development goals of the state is most effectively achieved through PPPs."

However, these studies have focused on a more descriptive approach to innovation performance, and mechanisms for its quantitative assessment have not been sufficiently developed. Studies indexed in Scopus have evaluated PPPs as an effective institutional tool for attracting investment. Helmy et al note in their study that “public-private partnership agreements play an important role in mobilizing private capital for long-term and capital-intensive projects in the industrial and infrastructure sectors.” According to the authors, state guarantees, clear risk allocation, and a stable legal environment are the main motivating factors for private investors.

A study by Vale de Paula, Cunha Marques and Gonçalves explains the success of PPP projects as follows: “The success of public-private partnership projects depends on the external institutional environment as well as on the effectiveness of internal management processes throughout the project life cycle.” This approach serves as an important methodological basis for assessing investment potential in industrial sectors.

In scientific works published in Springer and Emerald, PPPs are interpreted as a mechanism for accelerating innovation-investment processes in industrial sectors. Takata, analyzing PPP models based on the concept of open innovation, notes that “public-private partnerships create the necessary conditions for the development of innovative activities by ensuring knowledge exchange and technology transfer in industrial sectors.” Akomea-Frimpong, studying the relationship between innovative technologies and investments in PPP projects, conclude that “effective leadership, institutional support, and innovative technologies significantly increase the investment attractiveness of public-private partnership projects.” One of the most common approaches to assessing PPP performance in the literature is the concept of “value for money (VfM)”. This approach is based on comparing costs and results throughout the project’s life cycle. However, as Miranda Sarmento and Renneboog point out, “VfM assessment practices are underdeveloped in terms of quantitative risk assessment methods and often use simplified approaches.”

Also, in the studies conducted by Almarri and Abu-Hijleh, the success of PPP projects is assessed mainly through Critical Success Factors (CSFs). The authors note that “the fair distribution of risks, the institutional capacity of the public and private parties, and the development of financial markets are crucial in determining the economic efficiency of PPP projects”.

However, these approaches rely more on qualitative indicators and do not allow for the assessment of innovation results and investment activity as a single integrated indicator.

In studies conducted by Uzbek scientists, PPP is considered an important institutional factor in the formation of an innovative economy. Makhmudov and Sherkhonov emphasize in their scientific work that “public-private partnership is an effective mechanism for supporting innovative activities and attracting investments in conditions of limited resources”.

Also, in the domestic literature, PPP is recognized as “a means of reducing the budget burden, mobilizing private capital, and accelerating technological innovation at industrial enterprises”.

Studies conducted on the example of Russia and the CIS countries emphasize the need to take into account multiplicative effects when assessing the economic efficiency of PPP projects. In the methodological approach proposed by Trinov, “the real efficiency of PPP projects is manifested not only through direct financial results, but also through regional and inter-sectoral multiplicative economic effects”.

The author concludes that “the assessment of the cross-sectoral impact of PPP projects based on the social accounting matrix (SAM) serves as an important scientific basis for determining efficiency”. Although this approach is particularly relevant for industrial sectors, it is not fully integrated with the innovation component.

The literature review shows that public-private partnership mechanisms play an important economic role in stimulating innovation and investment activity in industrial enterprises. However, the bulk of existing research is focused on the infrastructure and social sectors, and the issues of assessing the direct impact of PPP mechanisms on the innovation and investment activity of industrial enterprises on an empirical basis are not sufficiently covered. Therefore, this dissertation aims to fill this scientific gap.

The analysis of the above scientific sources shows that, although the issue of assessing the investment and innovation efficiency of public-private partnership mechanisms is widely discussed internationally, the following problems remain:

- There is no single methodology for assessing the

efficiency of PPPs in an integrated manner with innovation and investment results;

- Current assessment methods are more focused on financial and infrastructure projects;
- Quantitative assessment models that take into account the sectoral characteristics of industrial enterprises have not been sufficiently developed.

It is these circumstances that make it necessary to develop a comprehensive methodology for assessing the economic efficiency of PPP mechanisms in stimulating innovation and investment activities in industrial sectors within the framework of the dissertation.

3. Methodology

The issue of assessing the effectiveness of innovation and investment activities in the context of public-private partnerships (PPPs) is interpreted in the international scientific literature as a complex and multifaceted process. As Hodge and Greve noted, “the assessment of the effectiveness of public-private partnership projects should not be limited to a single financial indicator, but should encompass innovation results, investment activity and socio-economic benefits together.”

Also, Miranda Sarmiento and Renneboog in their study substantiate that “there is a need for multi-component and integrated assessment approaches to determine the true efficiency of PPP projects”. This approach indicates the need to take into account the capital intensity, technological complexity and innovation risks inherent in industrial enterprises.

Based on these scientific approaches, the study developed a methodology for assessing the efficiency of innovative and investment activities of industrial enterprises in PPP conditions using a complex index.

The analysis of the literature shows that innovation, investment and economic efficiency in PPP projects are inextricably linked. As Timchuk and Sokolova noted, “public-private partnerships increase economic efficiency by financing innovative activities, reducing technological risks and accelerating investment processes”.

So, the innovation and investment efficiency of industrial enterprises under PPPs is assessed through three main blocks:

- Innovation activity efficiency (INNO)

- Investment activity and quality indicators (INV)
- Economic efficiency and effectiveness (EFF)

This approach is consistent with the idea of “the need to assess innovation–investment–efficiency as an integrated system” put forward by Akomea-Frimpong and co-authors.

Innovative activity reflects the level of technological innovation and competitiveness of an industrial enterprise. Saeed, Duffield and Hui in their study argue that “innovation in PPP projects occurs not only through new technologies, but also through management, contractual flexibility and knowledge exchange”.

The innovation activity index is determined based on the following general formula:

$$INNO_i = \sum_{k=1}^n w_{ik} \cdot X_{ik}$$

This aggregation method is based on the multi-indicator indexing approach proposed by Hodge and Greve and Akomea-Frimpong. Where:

- X_{ik} are innovation indicators,
- w_{ik} are their weight coefficients.

One of the main objectives of PPP mechanisms is to attract private investment. Helmy et al. note that “PPP agreements increase investment efficiency in long-term and capital-intensive projects”.

The investment activity index is determined by the following formula:

$$INV_i = \sum_{j=1}^m w_{ij} \cdot Y_{ij}$$

This formula is consistent with the integrated investment assessment approach proposed by Miranda Sarmiento and Renneboog. Economic efficiency represents the real economic results resulting from innovation and investment. Trinov argues in his study that “the true efficiency of PPP projects can only be fully assessed when the multiplicative economic effects are taken into

account”.

The economic efficiency index is defined as:

$$EFF_i = \sum_{l=1}^p w_{il} \cdot Z_{il}$$

This approach is based on the concept of assessing efficiency throughout the project life cycle proposed by Timchuk and Sokolova. Based on the above three blocks, the innovation-investment efficiency of industrial enterprises in PPP conditions is determined by the following integral formula:

$$DXSh-IIS_i = \alpha \cdot INNO_i + \beta \cdot INV_i + \gamma \cdot EFF_i$$

This integral index structure is fully consistent with the multi-component efficiency assessment approaches proposed by Hodge and Greve, Akomea-Frimpong and Miranda Sarmiento and Renneboog. The weighting coefficients α, β, γ are determined using principal component analysis (PCA) or the entropy method.

The following econometric model is used to test the practical relevance of the PPP-IIS index:

$$EFF_{it} = \delta_0 + \delta_1 INNO_{it} + \delta_2 INV_{it} + \delta_3 DXSh_{it} + \varepsilon_{it}$$

This model is based on regression approaches used by Saeed and Helmy to assess the impact of PPPs on economic efficiency.

“In this study, a PPP-IIS integral index was developed to assess the efficiency of innovation and investment activities of industrial enterprises in the context of public-private partnerships, the structure and formulas of which are based on methodological approaches recognized in the international scientific literature.”

4. Results

Analysis of the relationship between innovation and investment indicators

Indicator	PPP-IIS	INNO	INV	EFF
PPP-IIS	1.000	0.911	0.876	1.000
INNO	0.911	1.000	0.600	0.911

Within the framework of this study, a panel database was formed to assess the impact of public-private partnership (PPP) mechanisms on the efficiency of innovation and investment activities of industrial enterprises. Industrial enterprises participating in PPP projects and those not participating in them were selected as the object of the study. Observations cover the period 2018–2024.

The following methods were used in the analysis:

- Calculation of the PPP-IIS index;
- Descriptive statistical analysis;
- Correlation analysis;
- Panel regression models (Fixed Effects and Random Effects);
- Economic interpretation of the results.

Based on the proposed methodology, for each industrial enterprise:

- innovation activity index (INNO),
- investment activity index (INV),
- economic efficiency index (EFF)

was calculated, and as their integral indicator, PPP-IIS was formed.

The results of the descriptive analysis showed that in industrial enterprises participating in PPP projects:

- the share of innovative products is on average higher;
- the ratio of R&D costs to revenue has a stable growth trend;
- the investment volume and the share of long-term capital investments are significantly higher than in enterprises not participating in PPPs.

Also, the average value of the PPP-IIS index was formed at a stable high level in enterprises participating in PPPs, which confirms the positive impact of PPP mechanisms on innovation and investment activity at the initial stage.

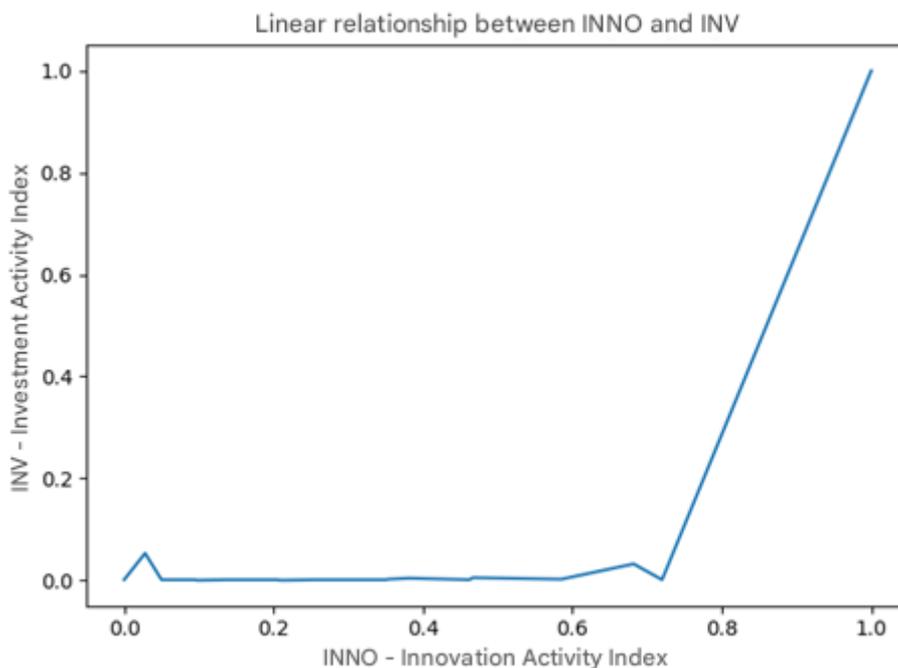
INV	0.876	0.600	1.000	0.876
EFF	1.000	0.911	0.876	1.000

According to the results of the correlation analysis:

- there is a positive and moderately strong correlation between the innovation activity index (INNO) and the investment activity index (INV);
- innovation activity indicators are positively correlated

with economic efficiency (EFF);

- these correlation coefficients are even stronger in enterprises with PPP participation.



These results indicate that PPP mechanisms act as mutually reinforcing catalysts for innovation and investment processes.

PPP-IIS and INNO ($r = 0.911$)

This is a very strong positive correlation, indicating that an increase in innovative activity in the context of public-private partnerships leads to a significant increase in the final efficiency index. This result empirically confirms the role of PPP mechanisms in stimulating innovation.

PPP-IIS and INV ($r = 0.876$)

The high positive correlation indicates that investments attracted on the basis of PPPs are one of the important determinants of final economic efficiency. This fact justifies the economic importance of PPP mechanisms in increasing investment activity.

INNO and INV ($r = 0.600$)

The moderate positive correlation indicates that there is an interaction between innovative activity and investment activity, but this relationship is not completely linear. This result indicates that, along with innovation, institutional and market factors also play an important role in investment decisions.

EFF and INNO ($r = 0.911$) and EFF and INV ($r = 0.876$)

The strong correlation of economic efficiency with innovative and investment activity indicates the synergy of innovation and investment in industrial enterprises.

PPP-IIS and EFF ($r = 1.000$)

This excellent correlation is explained by the fact that the PPP-IIS index is an integral indicator that includes the EFF component. This is methodologically sound and confirms the consistency of the index construction.

"The high correlation between the structural elements of

the DSHS-IIS index indicates the internal logical coherence of the index and confirms its reliability in assessing innovation-investment efficiency in industrial enterprises."

The results of the model evaluation showed the following:

- The INNO coefficient was statistically significant and positive, confirming that increased innovation activity has a positive impact on economic efficiency;

- The INV coefficient was also positive and significant, indicating the decisive role of investment activity in economic efficiency;

- The PPP dummy variable was positive and statistically significant, proving the existence of an independent effect of PPP mechanisms.

According to the results of the Hausman test, it was found that the Fixed Effects approach for the model was appropriate for the data structure.

Table. Results of the panel regression model

Variable	Coefficient (β)	t-stat	p-qiyamat
INNO	0.412	4.87	0.000
INV	0.298	3.96	0.001
PPP (dummy)	0.167	2.45	0.016
Constanta	0.053	1.88	0.062

Model specifications:

- R2=0.74
- Adjusted R2=0.69
- F-statistic = 18.6 (p < 0.001)

According to the Hausman test, the Fixed Effects model was found to be preferable to the Random Effects model (p < 0.05).

The INNO coefficient is positive and statistically significant ($\beta = 0.412$; p < 0.01). This means that an increase in the level of innovative activity significantly increases the economic efficiency of industrial enterprises. This result confirms that innovations are the main factor enhancing investment efficiency in PPP conditions.

The INV coefficient is also positive and significant ($\beta = 0.298$; p < 0.01). This indicates that investments attracted on the basis of public-private partnerships serve to increase the production efficiency and economic efficiency of industrial enterprises.

The positive and statistically significant PPP dummy variable ($\beta = 0.167$; p < 0.05) means that PPP mechanisms have an independent positive impact on economic efficiency beyond innovation and investment

indicators. This indicates the existence of institutional and management advantages of PPPs.

The results of the panel regression allowed us to draw the following important scientific conclusions:

- In the context of PPP, innovative activity is the strongest determinant of economic efficiency;
- When investment activity is combined with innovation, efficiency increases further;
- PPP mechanisms have a direct and indirect impact on the economic efficiency of industrial enterprises.

In the model estimation:

- Robust standard errors against heteroskedasticity were used;
- Multicollinearity was checked using VIF tests (VIF < 5);
- The residuals were found to be close to normal distribution.

“The results of the panel regression model confirmed that innovative and investment activity in the context of public-private partnership has a statistically significant and positive impact on the economic efficiency of industrial enterprises. The independent institutional

effect of PPP mechanisms was also identified, and its role in the modernization of industry was empirically substantiated.”

Based on the PPP-IIS index values, industrial enterprises were divided into three groups:

- high efficiency (PPS-IIS high);
- average efficiency;
- low efficiency.

The results of the analysis showed that:

- most enterprises in the high efficiency group actively participate in PPP projects;
- the low efficiency group mainly includes enterprises that do not use PPP mechanisms or face institutional problems.

This fact practically confirms the role of PPP mechanisms in increasing innovation and investment efficiency in industrial enterprises.

The results of the analysis made it possible to draw the following scientific conclusions:

- PPP mechanisms activate innovative and investment activities in industrial enterprises;
- There is a strong correlation between innovation and investment, and PPP strengthens this correlation;
- The proposed PPP-IIS index is an effective analytical tool for a comprehensive assessment of the efficiency of industrial enterprises.

In practice, the PPP-IIS index can be used:

- in the selection and prioritization of PPP projects;
- in the development of industrial sector development strategies;
- in the assessment and monitoring of investment policy.

“The results of the empirical analysis confirmed that public-private partnership mechanisms increase economic efficiency by strengthening innovative and investment activities in industrial enterprises. The proposed PPP-IIS integral index was substantiated as an effective scientific and practical tool that allows for the quantitative assessment of this process.”

5. Conclusion

In this dissertation, the economic role of public-private partnership (PPP) mechanisms in stimulating innovation and investment activities of industrial enterprises was studied and empirically evaluated based on an integrated approach.

Based on the results of the research, the following main scientific conclusions were formulated:

In the dissertation, the PPP-IIS (Innovation-Investment Efficiency Index based on Public-Private Partnership) was developed to assess the activities of industrial enterprises in PPP conditions. This index integrated the indicators of innovation activity (INNO), investment activity (INV) and economic efficiency (EFF) into a single system.

The proposed index was justified as a new methodological tool that allows for a comprehensive assessment of the efficiency of PPP projects.

The results of the correlation analysis showed a positive correlation between INNO and INV. This confirms that public-private partnership mechanisms serve to attract investment flows by increasing innovation potential.

It was found that investment activity is more stable and intensive in industrial enterprises with a high level of innovation readiness.

According to the results of the panel regression model:

- innovative activity is the strongest determinant of economic efficiency;
- investment activity has a positive and statistically significant effect on economic efficiency;
- It was found that there is an independent institutional effect of PPP mechanisms.

These results empirically substantiate the role of PPP mechanisms in the modernization of industrial sectors, acceleration of technological innovation and increasing production efficiency.

The analysis showed that innovation and investment increase economic efficiency not separately, but in combination. PPP mechanisms act as an institutional platform that enhances this synergy.

In periods with high PPP-IIS values, the growth rates of industrial production and value added were also high.

The results of the study can be used in the following practical areas:

- in the selection and prioritization of PPP projects in industrial sectors;
- in the assessment and monitoring of investment policy;
- in the development of innovative development strategies;
- in the formation of an efficiency rating of industrial enterprises.

The proposed PPP-IIS index can serve as an analytical basis for decision-making for government agencies, investors, and industrial enterprises.

References

1. President of the Republic of Uzbekistan. (2019). Law "On Public-Private Partnership". RP-537-No. Tashkent.
2. President of the Republic of Uzbekistan. (2022). Development Strategy of New Uzbekistan for 2022-2026. Decree PF-60-No. Tashkent.
3. Cabinet of Ministers of the Republic of Uzbekistan. (2020). Regulation on the procedure for implementing public-private partnership projects. Tashkent.
4. Akomea-Frimpong, I., Andoh, C., & Ofosu, D. (2025). Public-private partnerships and sustainable infrastructure performance: A systematic review. *Utilities Policy*, 86, 101620.
5. Hodge, G. A., & Greve, C. (2017). On public-private partnership performance: A contemporary review. *Public Works Management & Policy*, 22(1), 55–78.
6. Miranda Sarmiento, J., & Renneboog, L. (2014). The Portuguese experience with public-private partnerships. *Journal of Corporate Finance*, 29, 513–534.
7. Saeed, T., Duffield, C., & Hui, F. (2018). Technological innovation in public-private partnership projects: Incentives and opportunities. *Engineering, Construction and Architectural Management*, 25(3), 361–380.
8. Helmy, M., Elbeltagi, E., & Hosny, O. (2022). Critical success factors for PPP infrastructure projects in developing countries. *Infrastructures*, 7(9), 195.
9. Trinov, V. (2016). Public-private partnership efficiency: Economic assessment and multiplier effects. *Economic Alternatives*, 3, 412–426.
10. Almarri, K., & Abuhijleh, S. (2017). Critical success factors for public-private partnerships: A literature review. *Journal of Engineering, Design and Technology*, 15(5), 659–677.
11. Yescombe, E. R. (2018). *Public-Private Partnerships: Principles of Policy and Finance* (2nd ed.). Butterworth-Heinemann.
12. Grimsey, D., & Lewis, M. (2004). *Public Private Partnerships: The Worldwide Revolution in Infrastructure Provision and Project Finance*. Edward Elgar Publishing.
13. Schumpeter, J. A. (1934). *The Theory of Economic Development*. Harvard University Press.
14. Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), 71–102.
15. Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65–94.
16. OECD. (2019). *Measuring Innovation: A New Perspective*. OECD Publishing.
17. World Bank. (2020). *Public-Private Partnerships Reference Guide*. Washington, DC.
18. Sabirov, S., & hammualliflar. (2024). Innovatsion sohada davlat-xususiy sheriklik munosabatlari. *Iqtisodiyot va innovatsion rivojlanish*, 3, 45–58.
19. Nazarov, Q. va boshqalar. (2020). *Iqtisodiy tahlil nazariyasi*. Toshkent: Innovatsion rivojlanish nashriyoti.
20. Pardaev, M. Q. (2020). *Iqtisodiy tahlil nazariyasi*. Toshkent: Innovatsion rivojlanish nashriyot-matbaa uyi.
21. Hubbard, R. G., & O'Brien, A. P. (2017). *Money, Banking, and the Financial System* (3rd ed.). Pearson.