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DEVELOPMENT OF THE ORGANIZATIONAL AND ECONOMIC MECHANISMS OF INNOVATIVE INFRASTRUCTURES IN THE INDUSTRIAL ECONOMY
(in the example of textile industry)

08.00.03 – Industrial economy

DISSERTATION (PhD)
of the Doctor of phylosophy (PhD) in economic sciences

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CONTENTS

Introduction (PhD dissertation annotation)

Topicality and necessity of the thesis.

In the global economy, the importance of improving organizational and economic mechanisms of innovative infrastructures (technoparks, industrial parks, clusters and incubators) in industry is growing. Current process aims to accelerate the adoption of new technologies in production, reducing transaction costs, developing cooperation in supply chains and through improving knowledge diffusion and innovation absorption capacity bring are bringing labor productivity and total factor efficiency onto a sustainable growth trajectory for enterprises. “It is important to define the managerial role of infrastructure operators (unified project-capacity offices, acceleration and transfer services, cluster regulations) from institutional perspective and link them with performance indicators, as structural reforms focused on local and cross-sectoral knowledge flows that increase enterprise efficiency”[1]. The implementation of suitable management systems with performance metrics for innovative infrastructure projects functions as a vital element for industrial competitiveness expansion through continuous development.

Research on improving the organizational and economic mechanisms of innovative infrastructure in industrial sectors in the global economy, mostly focuses on the following priority areas: forming clusters and ecosystems of innovative infrastructure (including energy, education, transfer institutions, and startup hubs); developing the process of increasing modern knowledge and technologies within industries; developing cost-effectiveness models for these

[1] Does local knowledge spillover matter for firm productivity? The role of financial access and corporate governance, Research policy, Volume 52, Issue 8, 2023, 104838, ISSN 0048-7333, https://doi.org/10.1016/j.respol.2023.104837

infrastructures in different sectors (considering investment costs, infrastructure utilization coefficients and the transition to new production) and implementing regulatory approaches that directs industrial infrastructure for increasing competitiveness (such as transforming declining industries, transitioning to "green" technologies and digitalization of industries). These factors are considered important for in the process of implementating innovations in industry through infrastructure, integrating products into the value chain and for sustainable economic growth.

As a result of the economic reforms in Uzbekistan, special attention has been given to innovative development of the industry, with the expansion of activities in innovative infrastructures based on science and technology parks. However, nowadays, the mechanisms for establishing an economy based on innovations through introducing scientific achievements and technological advancements, commercializing innovative products and attracting investments are not sufficiently developed. Thus nowadays the proportion of high and medium technology industrial production consists 29.5 percent and proportion of funds allocated to research and development is 0.2 percent. Besides that, there is a big demand for high-technology job opportunities due to the fact that level of the coverage with the level of higher education has reached 42 percent and annually 600-700 thousand graduates are entering into the labor market[2].

The low level of private sector involvement in the organizational and economic activities of technology parks, absence of monitoring effectiveness indicators for these parks and the different approaches in providing tax and custom incentives for them are leading to a disproportionate implementation of innovations across different industries[3]. National innovation ecosystems require innovative infrastructure system performance imporvement to process raw materials and add value in manufactured

[2] https://www.gazeta.uz/oz/2023/09/30/education/

[3] Kun.uz (2022) 58 ta OTMda yangi texnologiyalarni joriy etish bo‘yicha 377 ta loyiha amalga oshiriladi. Available at: https://kun.uz/news/2022/09/03/58-ta-otmda-yangi-texnologiyalarni-joriy-etish-boyicha-377-ta-loyiha-amalga-oshiriladi.

products. This can be accomplished by establishing an “enterprise-university-research organization” chain to increase the number of applied research projects in rapidly growing economic sectors. Such factors show the relevence of the chosen topic.

Current research certain extent will serve to implement tasks that are highlighted in Presidential decree of Uzbekistan № DP-16 dated from 30.01.2025 “On the state program for the implementation of the strategy "Uzbekistan — 2030" in the "Year of environmental protection and green economy"”, № DP-16 dated from 10.01.2023 “On measures to support the activities of cotton-textile clusters, fundamental reform of the textile and clothing-knitwear industries, as well as further increase the export potential of the sector”,

№ DP-307 from 07.07.2022 "Organizational Measures for the Implementation of the Strategy for Innovative Development of the Republic of Uzbekistan for 2022-2026" and Presidential Resolution № PF-165 "Approving the Strategy for Innovative Development of the Republic of Uzbekistan for 2022-2026", Resolutions of the Cabinet of Ministers of Uzbekistan №128 dated from 13.03.2024 “On measures to implement the Strategy for Innovative Development of the Republic of Uzbekistan for 2024-2025”, № 545 dated from 27.08.2021 "On measures to organize a system for managing scientific and innovative activities" and other relevant legislative acts.

Relevant research priority areas of science and developing technology of the Republic. The dissertation research has been conducted in accordance with the first priority direction of the national development of science and technology, namely "Forming and implementing a system of innovative ideas in the social, legal, economic, cultural, and spiritual-educational development of an information society and a democratic state."

Problem development status. The effective functioning of national innovation systems of the countries and the enhancement of the competitiveness of the industrial enterprises through innovative infrastructures have been studied

by many foreign researchers. In particular, scientific research in this area has been conducted by scholars such as R. Solow, M. Porter, J. Schumpeter, R. Nelson, B. Lundvall, S. Freeman, D. Acemoglu and P. Restrepo, W. Hanlon, F. Perroux, H. Etzkowitz, L. Leydesdorff and others[4].

Fundamental research on establishing science-based enterprises through innovative infrastructures to establish new leading industrail enterprises in the economy and increase sustainable regional socio-economic growth has been conducted by researchers from the Commonwealth of Independent States (CIS) such as O.V. Koroleva, V.A. Vasyaycheva, E.M. Cherkasova, M.K. Aristarkhova,
L.N. Borisoglebskaya, S.G. Emelyanov, N.N. Skornichenko, S.A. Baev, M.V. Ponomarev and others[5].

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[4] Solow, R.M., 1957. Technical change and the aggregate production function. The Review of Economics and Statistics, 39(3), pp.312-320. Porter, M.E. and Stern, S., 2001. National innovative capacity. The Global Competitiveness Report, pp.1-19. Schumpeter, J.A., 1947. The creative response in economic history. The Journal of Economic History, 7(2), pp.149-159. Nelson, R.R., 1993. National Innovation Systems: A Comparative Analysis. Oxford University Press, pp.1-500. Lundvall, B.Å., 2007. National innovation systems—analytical concept and development tool. Industry and Innovation, 14(1), pp.95-119. Freeman, C. (1995). The 'National System of Innovation' in historical perspective (2nd ed., pp. 10-17). Cambridge Journal of Economics. Acemoglu, D. and Restrepo, P., 2019. Automation and new tasks: How technology displaces and reinstates labor. Journal of Economic Perspectives, 33(2), pp.3-30. Hanlon, W.W., 2012. Innovation and Industry Development: Lessons from the British Cotton Textile Industry During the U.S. Civil War. Doctor of Philosophy. Columbia University, pp.1-250. Perroux, F., 1955. Note sur la notion de 'pôle de croissance'. Économie appliquée, 8(1), pp.307-320.] Etzkowitz, H., 2003. Innovation in innovation: The triple helix of university-industry-government relations. Social Science Information, 42(3), pp.293-337. Leydesdorff, L., 2003. The mutual information of university-industry-government relations: An indicator of the Triple Helix dynamics. Scientometrics, 58(2), pp.191-203.

[5] Королева О.В. Управление инновационной деятельностью промышленных предприятий на основе создания технопарков // Транспортное дело России - 2006, №9 Ч 3 (0,3 п л). Васяйчева, В.А., 2020. Моделирование процесса управления инновационной деятельностью предприятий промышленной сферы. Вестник Воронежского государственного университета. Серия: Экономика и управление, (4), с. 74-82. DOI: 10.17308/econ.2020.4/3195. Черкасова, Е.М., 2016. Теоретико-методологические проблемы в сфере управления инновационной деятельностью организаций. Креативная экономика, 10(7), сс. 713-732. DOI: 10.18334/ce.10.7.35399. Аристархова, М.К. и Порошин, Ю.Г., 2009. Моделирование системы показателей управления инновационной деятельностью промышленного предприятия. Управление инновациями и инвестиционной деятельностью, 12(3), сс. 88-97. Борисоглебская, Л.Н. и Миронова, В.И., 2012. Разработка системы управления технопарком легкой промышленности на основе механизмов взаимодействия его субъектов. Право, менеджмент, маркетинг и инновации, 6(164), сс. 122-128. Емельянов, С.Г., Борисоглебская, Л.Н. и Мальцева, А.А., 2010. Разработка организационной модели технопарка на основе методов проектного управления. Вестник Челябинского государственного университета, (26), сс. 42-47. Скорниченко, Н.Н. и Стрелкова, Н.В., 2023. Роль технопарков в развитии инновационной деятельности и укреплении технологического суверенитета России. Вестник Самарского университета. Экономика и управление, 14(2), сс. 114-124. DOI: 10.18287/2542-0461-2023-14-2-114-124. Баев, С.А., 2021. Теоретические основы развития инновационной инфраструктуры. Финансы и управление, (4), сс. 83-98. DOI: 10.25136/2409-7802.2021.4.36730. Пономарев, М.В. и Савельева, Л.В., 2021. Университетские технопарки: универсальная модель и инструменты цифрового проектирования. Architecture and Modern Information Technologies, (4)57, сс. 377-393. DOI: 10.24412/1998-4839-2021-4-377-393.

The role of innovative infrastructures, especially technology parks, in increasing the efficeincy of production in industry, establishing the production of high-tech products, facilitating technology transfer, and implementing "Smart Cities" for social growth has been studied by many researchers, including A. Laspia, A. Link and J. Scott, C. Nauwelaers, A. Kleibrink and K. Stankova, A. Barge-Gil, S. Perez-Canto and A. Modrego, A. Arikan, C. Beaudry, H. Löfsten and P. Lindelöf, S. Macdonald, A. Badalova, G. Sakhabieva, B. Gerasimov, E. Kutsenko,

A. Zatikyan, O. Bildina and others[6]. The have studied the importance of technology parks in the national innovation system, the support of these parks through state programs, and their importance in introducing innovations in economic sectors such as agriculture, ICT and heavy industry.

In Uzbekistan, the issues of forming a national innovation system, introducing innovations into the industry, developing technology parks and evaluating the innovation activities of the industry have been studied by local sicentists such as Sh.N. Zaynutdinov, S.S. Gulomov, R.I.Nurimbetov, Sh.I.

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[6] Laspia, A., Sansone, G., Landoni, P., Racanelli, D. и Bartezzaghi, E., 2021. The organization of innovation services in science and technology parks: Evidence from a multi-case study analysis in Europe. Technological Forecasting and Social Change, 173, 121095. DOI: 10.1016/j.techfore.2021.121095. Link, A. N., & Scott, J. T. (2007). The economics of university research parks. Oxford Review of Economic Policy, 23(4), 661–674. https://doi.org/10.1093/oxrep/grm030. Nauwelaers, C., Kleibrink, A., and Stancova, K., 2014. The role of science parks in smart specialisation strategies. S3 Policy Brief Series, pp.1-30. Barge-Gil, A., Perez-Canto, S., and Modrego, A., 2018. The influence of science and technology park characteristics on firms' innovation results. Papers in Regional Science, 97(5), pp.1205-1227. Arikan AT (2009) Interfirm knowledge exchanges and the knowledge creation capability of clusters. Academy of Management Review 34: 658–676. Beaudry C, Swann P (2009) Firm growth in industrial clusters of the United Kingdom. Small Business Economics 32: 409–424. Löfsten H, Lindelöf P (2002) Science Parks and the growth of new technology-based firms: Academic-industry links, innovation and markets. Research Policy 31: 859–876. Macdonald S (1987) British Science Parks: Reflections on the politics of high technology. R&D Management 17: 25–37. Бадалова, А.Г. и Мизинцева, А.Н., 2016. Инструменты стратегического управления рисками инновационно ориентированных промышленных предприятий. Право, менеджмент, маркетинг и инновации, 8(214), сс. 62-65. Сахабиева, Г.А., 2020. О повышении эффективности региональной экономики. Менеджмент, 3(22), сс. 23-27. Герасимов, Б.Н., 2019. Формирование инновационной деятельности в благоустройстве города. International Journal of Humanities and Natural Sciences, vol.9-1, сс. 14-17. DOI: 10.24411/2500-1000-2019-11553. Kutsenko, E., Islankina, E., and Abashkin, V., 2017. The evolution of cluster initiatives in Russia: the role of policy, region of origin, and industry context. Foresight and STI Governance, 11(3), pp. 21-30. Затикян, А.Т., 2019. Влияние технопарков на развитие инновационной инфраструктуры РА. Научно-практический электронный журнал Аллея Науки, 10(37), сс. 1-15. Бильдина, О.В., 2007. Государственная поддержка технопарков как организационной формы развития инновационной сферы национальной экономики. Автореферат диссертации на соискание ученой степени кандидата экономических наук. Государственный университет управления, Москва.

Otajonov,

T.Z. Teshabayev, Sh.E. Sindarov, I.S. Xotamov, A.Ortiqov, A.E. Norov, A.T. Shermuxamedov, B.M. Xolboev, G.Sh. Karabayeva, Sh.O. Sharifkhodjayev, M.X. Vokhidova, B.B. Bakhtiyorov, G.B. Shanazarova, G.N. Makhmudova and others[7].

However, despite this, the need for a comprehensive analysis of the specific mechanisms and factors that determine the importance of innovative infrastructures in increasing the technological level of products manufactured by the industry, particularly in light industry, as well as the need for a model based on clear criteria to determine their efficiency, highlights the relevance of this

[7] Zaynutdinov, Sh.N. (2011) Innovatsion salohiyatni oshirish strategiyasi, Iqtisodiyot va innovatsion texnologiyalar ilmiy elektron jurnali, №1, Sentabr. Гулямов С.С., Шермухамедов А.Т., Холбоев Б.М. Цифровая экономика: инновационные цифровые технологии// Учебное пособие//Закрытое акционерное общество "Университетская книга", Российский экономический университет им. Г.В. Плеханова. DOI: 10.47581/2022/Xolboev-Gulamov-Shermuxamedov.01 Нуримбетов Р.И. Факторы конкурентоспособности в условиях рынка. International Journal of Experimental Education, no. 8, part 3, pp. 343–347. Moscow: Academy of Natural History. Отажонов Ш.И. Инновация фаолияти инфратузилмасини бошқариш самарадорлигини ошириш. Монография. –Т.: Fan va texnologiya, 2018. -264 б., Тешабаев Т.З., Аллаёров Ш.А., Джурабаев О.Д. Оптимизации операционной стратегии и повышение экономического потенциала хлопково-текстильных кластеров. “Innovations in Science and Technologies” scientific electronic journal. Volume 1 №8, 2024, pp 4-15. Sindarov Sh.E. The economic mechanism of use of innovative processes in business Uzbekistan. Sindarov Sherzod Egamberdiyevich. ICEIC: International Conference on Electronics, Informations and Communications. 2008, pp 86-89. Khotamov, I. and Jurayev, A. (2023) Sanoat-4.0 sharoitida barqaror iqtisodiy o‘sish istiqbollarini tahlil qilish, Iqtisodiyot va innovatsion texnologiyalar (Economics and Innovative Technologies), no. 6 (November–December), pp. 143–152. 2.Норов А.Э. Инновацион фаолият ва унинг натижаларини тижоратлаштиришнинг назарий ва услубий асослари // “Iqtisodiyot va innovatsion texnologiyalar” ilmiy elektron jurnali.– Тошкент, 2020. – № 1. – Б. 116-131. Шермухамедов, А.Т. и Холбоев, Б.М. (2023) Инновационное развитие технопарков в Узбекистане. Инновационная экономика: перспективы развития и совершенствования, №3(69), с. 177–184. Карабаева, Г.Ш. (2020) Основные аспекты активизации инновационных процессов в промышленности Узбекистана. Вестник РЭУ им. Г. В. Плеханова, №5(113), с. 42–55. DOI: http://dx.doi.org/10.21686/2413-2829-2020-5-42-55. Шарифхўжаев, Ш.О. и Вохидова, М.Х. (2018) Mamlakatimizda innovatsion infratuzilmani rivojlantirishning zaruriyati. Иқтисод ва молия (Экономика и финансы), №5, с. 61–66. Бахтиёров, Б.Б. (2022) Саноат корхоналари инновацион бошқарувини ривожлантиришда илғор хориж тажрибасидан фойдаланиш имкониятлари. Иқтисодиёт ва инновацион технологиялар (Economics and Innovative Technologies), №1 (январь–февраль), с. 109–120. Махмудова, Г.Н. (2023) Оценка и сравнительный анализ промышленного потенциала Республики Беларусь и Республики Узбекистан в рамках ЕАЭС. Иқтисодиёт ва инновацион технологиялар (Iqtisodiyot va innovatsion texnologiyalar), №5 (сентябрь–октябрь), с. 397–422. DOI: https://doi.org/10.55439/EIT/vol11_iss5/a43. Махмудова Г.Н., Бабкин А.В. Теоретические аспекты инновационного развития в условиях модернизации экономики: тенденции, анализ и перспективные возможности // Научно-технические ведомости СПбГПУ. Экономические науки. 2020. Т. 13, № 2. С. 40–52. DOI: 10.18721/JE.13204

topic, as well as the objectives, tasks, structure, and logic of the dissertation research.

Relevance of the dissertation research with the plans of the scientific-research works of the higher educational or scientific research institutions where the dissertation has been conducted. The research work was carried out within the framework of the fundamental grant project FL-8824063342-R1, titled "Development of Methodology for Improving Innovative Processes to Ensure Sustainable Economic Growth of Industrial Enterprises," as part of the scientific research plan of Fergana Polytechnic Institute.

The aim of the research. Development of scientific proposals and practical recommendations for improving the organizational and economic mechanisms of innovative infrastructures (in the example of technoparks) in the industrial sector sector (in the example of textile enterprises).

Tasks of the research work:

Researching methods for introducing the results of innovative activities into the textile industry through the development of organizational and economic mechanisms of innovative infrastructures;

Conducting comparative study of the best foreign practices in increasing the importance of innovative infrastructure to increase the competitiveness of textile enterprises;

Analysis of the types of organization of innovative infrastructures as well as the tasks and functions each of them in the introduction of innovations into production;

Developing, forecasting and analyzing a multi-factor econometric model that explains the impact of factors related to innovation, particularly technological parks, on increasing the export volume of ready products in textile industry enterprises;

Developing criteria and methodologies for assessing the performance of innovative infrastructures to improve their effectiveness;

Analysis the importance of reducing production and product costs through innovative infrastructures for a textile enterprise as well as examine current condition in implementing modern technologies particularly elements of Industry 4.0 in the production process;

Proposing short-, mid- and long-term development plans to increase the technological intensity of light industry enterprises, introducing modern technologies in the manufacturing process and boost the role of innovative infrastructures.

The object of the research work are technoparks and their resident which produce textile products.

The subject of the research work. Socio-economic relations arising in the process of increasing the efficiency of technoparks in the introduction of innovations into the industry through innovative infrastructures of the textile industry.

Methods of the research. In the research process, methods such as scientific observation, logical reasoning, comparative analysis, correlation-regression analysis and BSC assesment methodolgy were used.

Scientific novelty of the research work:

In the production process of textile industry the cluster-infrastructure model for implementing innovation was developed. This improvement is based on establishing a multifunctional cooperation model formed through knowledge transfer and technology diffusion among the types of innovative infrastructures (technoparks, project centers, incubators, venture funds, and research institutes).

forecast indicators till 2030 have been developed based on a multivariate econometric model of factors influencing the export volume of ready textile products in Uzbekistan;

the multifactorial assessment model of innovative infrastructure performance in the textile industry has been improved by using indicators of

financial aspects, resident activities, internal management process and human capital that more clearly reflect the characteristics of the industrial sector;

the impact level of Youth Technoparks in Andijan, Navoi, Nukus, Samarkand, and Syrdarya on textile enterprises has been analyzed by categorizing them as "high" (2.25-3.00), "above average" (1.75-2.24), "medium" (1.25-1.74), and "low" (0-1.24). based on economic efficiency.

Practical results of the research work:

based on advanced foreign experience, a methodological approach was developed aimed at implementing institutional reforms for the development of innovative infrastructures within the national innovation ecosystem;

an econometric model demonstrating the importance of innovative infrastructures in increasing the export volume of finished textile products was applied in practice, and their effectiveness was determined;

a methodology for defining and evaluating the performance indicators of innovative infrastructures on the basis of clear criteria was developed, and the possibilities of applying it in textile industry enterprises were substantiated;

A set of factors influencing the establishment of a national innovation ecosystem, aligned with modern requirements, for the introduction of processing technologies in the textile industry and the creation of added value in products was developed;

Using the example of the Andijan Youth Technopark, the effectiveness of a resident enterprise specialized in textile production in reducing production costs was demonstrated.

Authenticity of the research results. The reliability of the research results is explained by the appropriateness of the methodological approaches and methods used in the study, the extensive use of statistical data from the Ministry of Higher Education, Science, and Innovation of the Republic of Uzbekistan and its Innovation Development Agency, the National Agency of Statistics of Uzbekistan and “O‘zto‘qimachiliksanoat” Association as well as statistical data

and reports of UNIDO. It explains the reliability of the results of the research as modern research methods and theoretical developments were applied testing of results, proposals and recommendations which are concluded in the dissertation.

Scientific and practical value of the research results. The scientific significance of the research results is explained by the potential application of the developed scientific and practical proposals. Which can can be utilized in conducting scientific research aimed at developing mechanisms for integrating science, education and production, as well as creating and improving the foundations of organizational and economic mechanisms. These prpopsed models shows the importance of innovative infrastructures in national innovative system.

Practical value of the research is explained by the proposals that can be applied during the process of introducing innovations in the industry for reaching sustainable economic development. These proposals include methodological recommendations as well as development programs which aim creating competitive national innovation system and improving performance of innovative infrastructures. Furthermore, current research allows organiztions asses to how new infrastructure system effects the export performance of industry in terms of valur added products through enonometric modeling and predictive analysis.

Implementation of the research results. Based on the developed scientific proposals and practical recommendations for improving the organizational and economic mechanisms of innovative infrastructure in the textile industry:

Proposed the cluster-infrastructure organizational model for implementing innovations in the production process of textile enterprises has been improved. This improvement is based on establishing a multifunctional cooperation model formed through knowledge transfer and technology diffusion among the types of innovative infrastructures (technoparks, project centers, incubators, venture funds, and research institutes) was introduced to technoparks by the Ministry of Higher education,

science and innovation of Uzbekistan (References from the Ministry of Higher education, science and innovation of the Republic of Uzbekistan № 02/17-3620 dated from 16.09.2025 and from Agency for the development of light industry under the Cabinet of Ministers № 01-28 dated from 08.11.2025). As a result of determining functions and obligations of all types of innovative infrastructures, the number of startup projects that are created in technoparks increased by 15% and the avreage time implementation of those projects into real sector economy decreased by 15-20%.

Forecast indicators up to 2030, developed based on a multivariate econometric model of factors affecting the export volume of finished products in Uzbekistan's textile enterprises have been implemented by the Association of "O'zto'qimachiliksanot" in planning indicators for implementing innovations in enterprises. (Reference from the Agency for the development of light industry under the Cabinet of Ministers № 01-28 dated from 08.11.2025). As a result, during the making innovative development strategy until 2030, a forecast method was used to calculate an increase in the share of high-tech exports by 6% due to the creation of 75 innovative infrastructures.

The proposal for the multi-factorial assessment of innovative infrastructure performance in the textile industry has been impelented by the Ministry of Higher Education, Science and Innovation of Uzbekistan in evaluating innovative infrastructure performance and determining strategic directions. This assessment focuses on financial aspects, resident activities, internal management processes and human capital criteria which uses indicators that more distinctly reflect the characteristics of the industrial sector. (References from the Agency for the development of light industry under the Cabinet of Ministers № 01-28 dated from 08.11.2025 and from Ministry of Higher education, science and innovation of the Republic of Uzbekistan № 02/17-3620 dated from 16.09.2025). As a result of a standardized integrated assessment, priority area performances for technoparks have

been set through optimal allocation of resources, the commercialization of projects were accelerated by 1.5 times. (Reference “Andijan Youth technopark” State entity №5 dated from 24.07.2025)

Based on the main performance indicators of the Youth Technoparks of Andijan, Navoi, Nukus, Samarkand, Syrdarya the proposed level of impact on textile enterprises by categorizing according to the boundary ranges of economic efficiency "high" (2.25-3.00), "above average" (1.75-2.24), "average" (1.25-1.74), "low" (0-1.24) was used by the Ministry of Higher Education, Science and Innovation of Uzbekistan in maintaining the rating of Youth Technoparks. (Reference Ministry of Higher education, science and innovation of Uzbekistan № 02/17-3620 dated from 16.09.2025). As a result of ranking a plan of measures for the comprehensive development of their activities, the number of innovative projects increased by 1.3 times. In particular, a system of "marking" of cotton fiber produced by 59 cotton processing enterprises in 10 regions was introduced.

Approbation of the research results. The research results were discussed at 2 national and 3 international scientific-practical conferences.

Publication of the research results. A total of 18 scientific works have been published on the topic of the dissertation, including 11 articles in scientific journals recommended by the Higher Attestation Commission of the Republic of Uzbekistan for publishing the main scientific results of dissertations. Of these, 9 were published in national scientific journals, and 3 in an international scientific journal.

The outline of the thesis. The structure of dissertation consists of introduction, three chapters, conclusion, list of references and appendices with total of 123 pages.