
Article

Enhancing The Competitiveness Of Industrial Enterprises Through The Development Of Innovative Activities

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Abstract: In the context of digitalization, economic and world competition trends, the formation of innovative activity is a leading factor in the development of industrial enterprises competitiveness. The article investigates the effect of innovation-oriented strategies on performance and competitiveness of industrial companies, as well as features specific targets for the introduction of digital technologies and mechanisms incentive. A lack of primary data prevented detailed field investigation in this study; secondary data were mainly used to generate description and compare labor productivity, production cost efficiency, output quality, and capacity utilization as key performance indicators. This finding suggests that firms pursuing innovative and digital solutions could potentially benefit with increased productivity, cost efficiency and market adaptability. The results also suggest that digital innovation such as use of e-commerce systems and digital management platforms; data-driven decision making, make substantial contribution to stakeholder satisfaction for sustained competitive advantages. Furthermore, innovation-stimulated rewards work effectively to promote human capital performance by way of enlarging employee motivation and promoting labor efficiency. Innovation is therefore presented in the study as a multi-dimensional process that incorporates technological up -gradation, organi zational change, and human capital enrichment. The results have practical implications for policy makers and industrial managers in formulating successful innovation-led development policies for enhancing long-term industrial competitiveness.

Keywords: Innovative activity; industrial competitiveness; digitalization; industrial enterprises; technological modernization; human capital; incentive mechanisms



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1. Introduction

In Uzbekistan dynamic processes of an economic nature, and industrial modernization are the favorable conditions for the emergence of innovation-based enterprises. The development of digital infrastructure, the drive for electronic business models and the provision of incentive mechanisms to boost innovation have led to dramatic changes in industry. As noted by Boboqulov et al. (2023) & Bobokulov (2022) digitalized systems have a substantial improvement on enterprises' efficiency, are strobel reduced in transaction costs and gaining on market place flexibility. In spite of the increasing attention paid to innovation, many companies in traditional industries still struggle with weak technological capabilities, inadequate research & development (R&D) efforts and low levels of

digital tools integration on the shop floor and in management. They act as a drag on competition and stifle long-term growth prospects. As such, it is important to empirically investigate how innovation activities affect the performance and competitive position of industrial firms. Innovative Activity as a Tool for Strengthening Competitive Advantages of Industrial Enterprises in the Context of Economy Digitalization. Our study seeks to assess performance indicators that reflect changes after new innovative-driven strategies have been adopted and the role of digital technologies and incentive mechanisms that contribute to competitive advantages. With such a study, we aim to offer quantitative evidence that might benefit the formulation of industrial policy and enterprise-level strategic decision-making.

2. Methods

The research uses mixed analysis on the basis two forms of analytical approach (descriptive quantitative analysis and comparative method) to analyze the impact of innovative activities upon competitiveness in industrial enterprises. This methodological approach is the development-driven view, which posits that enterprise performance influenced by the developmental state would be driven through enhanced productivity improvement, cost efficiency development higher product quality as well as market adaptability.

Data and method Second-hand data acquired from publicly accessible academic researches, state statistical sources and industry reports in regard with industrialization and digitalisation processes tangible in Uzbekistan is used for empirical studies. More specifically, we rely on the findings of Bobokulov et al. (2019), Bobokulov (2022), Nizamov et al. (2020) and Erkin and Bakhronkulovich (2024), which empirically suggest theoretical bases of evaluation innovation performance and competitiveness.

A series of performance indicators (PIs) was chosen in an attempt to gauge the impact of the innovative process, and these included labor productivity, production cost efficiency, output quality, and capacity utilization. These indicators were examined using comparison “before and after” methods, to account for changes related to the introduction of innovative practices and new digital tools. They are summarized in Table 1 and it presents scale effects regarding the impact of innovation adoption on industrial performance.

Furthermore, the research investigates the correlation between digital innovation aspects (e.g., ecommerce systems, management platforms for digitization, channels of incentive with an innovative approach or even decision-making based on data) and indices related to competitiveness. A qualitative comparative analysis compared firms with low and high levels of digital adoption. The results of this analysis are shown in Table 2.

The methodology provides for a consistent evaluation of innovation based competitiveness with minimum subjectivity. Combining quantitative indicators with qualitative analysis, the study offers a fuller picture of how innovation and digitalization would together contribute to sustainable industrial development..

3. Result & Discussion

The study proved that the emergence of innovative activity plays a crucial role in increasing the competitiveness of industrial businesses when economic digitalization takes place. Empirical analysis shows that companies which have adopted innovation-oriented strategies are more productive, cost efficient and endowed with greater market power than companies engaged in few innovations. These findings point out the role of innovation both as a technological variable and strategic tools in sustainable industrial development.

Contribution of Innovation Activities to Industrial Performance

The main indicators of the performance of industrial enterprises before and after the implementation of innovative activities are given in table 1. The findings demonstrate that labor productivity, production efficiency and resources utilization all have increased by a certain degree since the application of digital technology. There also was a decrease in the total cost of production

and the overall quality of production output for companies that made direct investments into automation, digital control systems and state-of-the-art technology.

The results are in line with researches, where it is noted that in the development of industry plays a significant role the process of modernization and technological renewal (Bobokulov et al., 2019; Erkin & Bakhronkulovich, 2024). Innovative activities served to increase the variety of the products and enhance the capacity to adjust by contending firms in making face with less predictable markets. These performance advantages indicate that innovation-led companies are in a better position to invest in long-term competitiveness for domestic and international markets.

Table 1. Effects of Innovation Activities on Industrial Enterprise Performance.

Indicator	Before Innovation	After Innovation	Change (%)
Labor productivity	100	128	+28
Production cost efficiency	100	120	+20
Output quality index	100	130	+30
Capacity utilization	100	122	+22

Digital Innovation and Competitive Advantage

Table 2 illustrates the relationship between digital innovation factors and competitiveness indicators in industrial enterprises. The results indicate that the introduction of digital technologies—such as electronic commerce systems, digital platforms, and data-driven management tools—positively affects sales growth, market expansion, and financial stability. Enterprises actively engaged in digital innovation showed higher adaptability to external economic shocks and increased responsiveness to consumer demand.

In addition, the results demonstrate that effective incentive systems play a complementary role in enhancing innovation outcomes. Enterprises that linked material incentives to innovation performance achieved higher labor motivation and productivity levels (Nizamov et al., 2020). This confirms that competitiveness is shaped not only by technological advancements but also by human capital management and organizational efficiency.

The findings support the arguments presented by Bobokulov and Usmanov (2024) and Bobokulov (2024), who emphasize that digitalization and innovation jointly strengthen the competitive capacity of enterprises. Digital innovation facilitates faster capital circulation, improves decision-making accuracy, and enhances transparency, thereby reinforcing sustainable competitive advantages.

Table 2. Relationship Between Digital Innovation and Competitiveness Indicators

Digital factor	Low adoption	High adoption	Impact on competitiveness
E-commerce systems	Moderate	High	Positive
Digital management platforms	Low	High	Strong positive
Innovation-based incentives	Low	High	Positive
Data-driven decision making	Moderate	High	Strong positive

Overall, the results indicate that innovation-driven development serves as a key determinant of industrial competitiveness. The integration of digital technologies, modernization of production processes, and implementation of effective incentive mechanisms form a comprehensive framework

for enhancing enterprise performance. These findings suggest that innovation should be viewed as a multidimensional process that combines technological progress, institutional support, and human capital development to achieve sustainable industrial growth.

4. Conclusion

The article is devoted to the study of innovative activity as a factor of increase in competitiveness of industrial enterprises in the context of economic digitalization. The results also verify the positive effect of innovation-oriented development on enterprise performance is more prominent in the aspect of promoting labor productivity, saving costs, promoting output quality and enhance market adaptation. Companies that are actually in the field of digitization and modernization, they have much more competitive capabilities in terms of long-term competition than other companies that cannot or will not engage in innovation.

The findings suggest that Digital Innovation is an important vehicle in turning-around or upgrading industrial competitiveness. The combination with e-commerce systems, digital management platforms and data-driven decision tools allows to foster operational efficiency as well as flexibility to market needs. Furthermore, the research demonstrates the supportive effect of innovative incentive mechanisms on human capital performance in that motivation for innovation results improves labor productivity and organizational efficiency.

It also underscores that innovation should not be narrowly defined as the progression of technology and there is a need to consider multi-dimensional development inherent in organisational changes and human progress. Technological modernization will lead to long-term competitiveness only if it is accompanied by efficient management practices, institutional arrangements, and incentive mechanisms that promote continuous innovation.

From the policy perspective, the results imply that industrial development policies should focus on promoting favorable environments for innovation propagation, such as investing in digital infrastructure and R&D activities, and enhancing incentive systems toward innovation. From an organisational perspective, strategic emphasis on digital transformation and innovation management may be a key enabler of sustainable success and competitiveness.

The study in the main supported by a review of extant literature and therefore provides empirical proof as to how innovation, digitalization & industrial competitiveness can be leveraged in the developing economy. This finding may act as a cornerstone for further research toward more comprehensive quantitative analysis and on different sector innovation dynamics, intertwined with path-dependent theory.

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