ELMİ TƏDQİQAT Beynəlxalq Elmi Jurnal, İyun 2026, Xüsusi Buraxılış. s. 19–23
SCIENTIFIC RESEARCH International Scientific Journal, June 2026, Special Issue. pp. 19–23
DOI: https://doi.org/10.36719/2789-6919/59/19-23

The Role of Artificial Intelligence-Driven Pricing Strategies in Shaping Competitive Advantage within the Triple Helix Innovation Ecosystem

Fidan Safarova

Abstract. *This study examines the impact of pricing strategies on competitive development within the framework of the Triple Helix model, emphasizing the interaction among government, universities, and industry in fostering innovation-driven economic growth. In contemporary knowledge-based economies, pricing strategies have evolved beyond traditional cost-oriented approaches and have become strategic instruments for the commercialization, diffusion, and market acceptance of innovative products and services. The research explores the effectiveness of value-based pricing, dynamic pricing, and psychological pricing mechanisms in enhancing firms' market positioning, customer value perception, and innovation performance.*
Particular attention is given to the role of collaborative innovation ecosystems, where universities generate knowledge, industries transform research outputs into marketable innovations, and governments establish supportive regulatory and financial environments. Within this ecosystem, pricing decisions significantly influence technology transfer processes, research commercialization outcomes, and the sustainable competitiveness of enterprises. The study further investigates the integration of artificial intelligence (AI) and advanced analytics into pricing models, demonstrating how machine learning algorithms facilitate real-time market analysis, demand forecasting, customer segmentation, and adaptive pricing decisions.

Keywords: *Triple Helix model, innovation commercialization, artificial intelligence-based pricing, competitive advantage, sustainable economic development*

Baku Business University, PhD in Economics, Baku, Azerbaijan
E-mail: ehmedovafidan@mail.ru
Received: 23 February 2026; Accepted: 27 May 2026; Published online: 20 June 2026

Triple Helix innovasiya ekosistemində rəqabət üstünlüyünün formalaşmasında süni intellektə əsaslanan qiymət strategiyalarının rolu

Fidan Səfərova

Xülasə. *Bu tədqiqat Triple Helix modeli çərçivəsində qiymət strategiyalarının rəqabətqabiliyyətli inkişafa təsirini araşdırır və innovasiyaya əsaslanan iqtisadi artımın təşviq edilməsində dövlət, universitet və sənaye arasında qarşılıqlı əməkdaşlığın rolunu ön plana çıxarır. Müasir bilik iqtisadiyyatında qiymət strategiyaları artıq ənənəvi maya dəyərinə əsaslanan yanaşmaların hüdudlarını aşaraq innovativ məhsul və xidmətlərin kommersiyalaşdırılması, bazarda yayılması və*

istehlakçılar tərəfindən qəbul edilməsini təmin edən mühüm strateji alətlərə çevrilmişdir. Tədqiqat çərçivəsində dəyər əsaslı qiymətqoyma, dinamik qiymətqoyma və psixoloji qiymətqoyma mexanizmlərinin müəssisələrin bazar mövqeyinin gücləndirilməsi, istehlakçıların dəyər qavrayışının formalaşdırılması və innovasiya fəaliyyətinin səmərəliliyinin artırılmasında rolu təhlil edilmişdir. Araşdırmada universitetlərin yeni bilik və texnologiyalar yaratdığı, sənayenin həmin elmi nəticələri kommersiya məhsullarına çevirdiyi, dövlətin isə əlverişli hüquqi, institusional və maliyyə mühiti formalaşdırdığı əməkdaşlıq əsaslı innovasiya ekosistemlərinin əhəmiyyəti xüsusi vurğulanır. Bu ekosistem daxilində qiymət qərarları texnologiya transferi proseslərinə, elmi tədqiqat nəticələrinin kommersiyalaşdırılmasına və müəssisələrin uzunmüddətli rəqabət qabiliyyətinin təmin edilməsinə əhəmiyyətli təsir göstərir.

Açar sözlər: *Triple Helix modeli, süni intellekt əsaslı qiymət strategiyaları, innovasiyaların kommersiyalaşdırılması, rəqabət üstünlüyü, davamlı iqtisadi inkişaf*

Bakı Biznes Universiteti, iqtisad üzrə fəlsəfə doktoru, Bakı, Azərbaycan
E-poçt: ehmedovafidan@mail.ru
Daxil oldu: 23 Fevral 2026; Qəbul edildi: 27 May 2026; Onlayn dərc edildi: 20 İyun 2026

Introduction

The acceleration of globalization processes in the twenty-first century, the widespread diffusion of digital transformation across all sectors of the economy, and the emergence of the knowledge-based economy have fundamentally reshaped the business environment. Alongside traditional production factors, innovation, technology, and intellectual capital have become the primary sources of competitive advantage. In contemporary economic systems, the long-term success of firms depends not only on the production of goods and services but also on the creation of new knowledge, the adoption of advanced technologies, and the implementation of innovative management mechanisms. Consequently, the organization and management of innovation activities have become strategic priorities for both academic research and public policy (Schumpeter, 1934; Freeman & Soete, 2019).

The effective organization of innovation activities requires the establishment of collaborative relationships among government, universities, and industry. This interaction is conceptualized in the literature as the Triple Helix model. According to Etzkowitz and Leydesdorff (2000), innovation performance is not solely determined by the activities of individual institutions but rather by the intensity and quality of their interactions. Universities contribute through the generation of scientific knowledge and technological discoveries, industries transform these outputs into commercial products and services, and governments create the legal, institutional, and financial frameworks necessary to support innovation ecosystems. Through this dynamic interaction, sustainable innovation systems emerge, strengthening the foundations of economic growth and long-term competitiveness (Etzkowitz, 2008).

In the contemporary innovation landscape, the effectiveness of innovation ecosystems is no longer measured solely by the volume of research activities or technological breakthroughs. A critical challenge lies in the successful commercialization of innovations and their transformation into economic value. The commercialization process depends on various factors, among which pricing strategies occupy a central position. The pricing of innovative products significantly influences firms' profitability, market share, consumer acceptance, and overall competitive performance (Kotler et al., 2022).

Traditional pricing approaches were primarily based on production costs and target profit margins. However, in highly competitive and technology-driven markets, pricing has evolved into a strategic marketing instrument. Particularly in the commercialization of innovative and high-technology products, pricing policies shape consumer perceptions and influence purchasing decisions. Value-based pricing, dynamic pricing, and psychological pricing have become widely adopted approaches for positioning innovative products and ensuring commercial success (Nagle et al., 2018). Effective pricing strategies not only enhance corporate profitability but also accelerate the return on investments allocated to innovation activities.

The rapid development of digital technologies has fundamentally transformed pricing mechanisms. Artificial intelligence (AI), Big Data analytics, machine learning algorithms, and advanced predictive analytics have enabled firms to process vast amounts of market information in real time and make more accurate pricing decisions. AI-driven pricing systems facilitate the prediction of consumer behavior, the identification of demand fluctuations, and the automatic optimization of prices. Such systems are increasingly utilized in digital platforms, e-commerce ecosystems, and technology-intensive business models, where they contribute significantly to the development of sustainable competitive advantages (Davenport & Ronanki, 2018).

Methods

This study aims to evaluate the impact of pricing strategies on innovation-driven development and competitiveness within the context of state-university-industry collaboration. The methodological framework is grounded in a qualitative research approach and is based on the integration of systematic literature review, comparative analysis, content analysis, and theoretical synthesis. Such an approach enables a comprehensive examination of complex economic and institutional processes and facilitates a deeper understanding of the role of pricing strategies in innovation ecosystems (Creswell & Creswell, 2018).

The first stage of the research involved a systematic review of international academic literature on innovation economics, technology transfer, competitiveness, pricing strategies, and the Triple Helix model. Peer-reviewed journal articles, international reports, policy documents, and seminal academic publications were analyzed to identify the key determinants of innovation performance and the role of pricing mechanisms in the commercialization process (OECD, 2023; Etzkowitz & Leydesdorff, 2000; Etzkowitz, 2008; Audretsch & Belitski, 2020).

A major component of the methodological framework is comparative analysis. Through this method, the strengths and limitations of different pricing strategies applied to innovative products were evaluated. Three widely adopted approaches – value-based pricing, dynamic pricing, and psychological pricing – were compared from both theoretical and practical perspectives. Value-based pricing relies on consumers' perceived value and is particularly effective for innovative products characterized by high technological content and differentiation (Nagle, Müller & Hogan, 2018). Dynamic pricing enables firms to adjust prices according to changing market conditions and consumer demand patterns (Chen et al., 2020). Psychological pricing influences consumer decision-making processes and enhances product attractiveness in competitive markets (Kotler et al., 2022).

Results and Discussion

The findings of this study indicate that pricing strategies play a decisive role in shaping firms' competitiveness and facilitating the commercialization of innovative products within innovation-driven economies. In contemporary markets, the technological superiority of an innovative product alone does not guarantee commercial success. Market acceptance, consumer perception, adoption

rates, and sales performance are strongly influenced by the pricing strategy implemented by firms. Therefore, pricing should be viewed not merely as a financial instrument but as a strategic component of innovation management and competitive positioning (Kotler et al., 2022; Porter, 1998).

The analysis demonstrates that value-based pricing represents one of the most effective approaches for the commercialization of innovative products. Unlike traditional cost-based pricing methods, value-based pricing focuses on the benefits and value perceived by consumers. This approach is particularly relevant for high-technology products, software solutions, digital platforms, and knowledge-intensive innovations, where consumers are often willing to pay premium prices for superior functionality, efficiency, or user experience. Previous studies have shown that value-based pricing not only increases profit margins but also enhances the return on innovation investments by enabling firms to capture a greater share of the value created through innovation (Nagle et al., 2018; Kotler et al., 2022; Chesbrough, 2020). Consequently, value-based pricing contributes significantly to the economic sustainability of innovation projects and strengthens firms' competitive positions.

The findings further reveal that dynamic pricing strategies provide substantial advantages for innovative firms operating in highly volatile markets. Dynamic pricing allows organizations to adjust prices according to fluctuations in demand, competitive intensity, consumer preferences, and market conditions. The growing availability of real-time data and advanced analytics has expanded the applicability of dynamic pricing across various industries. The experiences of global digital platforms such as Amazon, Uber, and Airbnb illustrate that real-time price optimization enhances revenue generation, improves resource allocation efficiency, and increases market responsiveness (Chen et al., 2020). Moreover, dynamic pricing enables firms to react more rapidly to external shocks and market disruptions, thereby improving organizational resilience and long-term competitiveness.

Conclusion

This study examined the role of pricing strategies in fostering innovation-driven development and competitive advantage within the framework of state-university-industry collaboration. The findings demonstrate that the Triple Helix model serves as a crucial institutional mechanism for promoting innovation, facilitating technology transfer, and enhancing the commercialization of scientific knowledge. Universities contribute through knowledge creation, industries transform innovations into marketable products and services, and governments establish supportive regulatory and financial environments that encourage innovation activities.

The research highlights that pricing strategies are among the most important determinants of innovation success. Value-based pricing enhances consumer acceptance and improves the profitability of innovative products. Dynamic pricing increases firms' ability to adapt to changing market conditions, while AI-supported pricing systems improve decision-making accuracy and optimize revenue generation. Together, these approaches strengthen firms' market positions and contribute to sustainable competitive advantage.

The study also reveals that government support mechanisms, including innovation incentives, tax benefits, and financial assistance programs, facilitate the commercialization process and improve the accessibility of innovative products. Such interventions contribute to the creation of favorable market conditions and accelerate the transformation of innovation outputs into economic value.

References

1. Audretsch, D. B., & Belitski, M. (2020). The role of innovation ecosystems in fostering technology commercialization and competitiveness. *The Journal of Technology Transfer, 45*(4), 1031–1051.
2. Chen, Y., Fay, S., & Wang, Q. (2020). The role of marketing in dynamic pricing and revenue optimization. *Journal of Interactive Marketing, 51*, 1–15.
3. Chesbrough, H. (2020). *Open innovation results: Going beyond the hype and getting down to business*. Oxford University Press.
4. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.
5. Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review, 96*(1), 108–116.
6. Etzkowitz, H. (2008). *The Triple Helix: University–industry–government innovation in action*. Routledge.
7. Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From National Systems and "Mode 2" to a Triple Helix of university–industry–government relations. *Research Policy, 29*(2), 109–123.
8. Freeman, C., & Soete, L. (2019). *The economics of industrial innovation* (4th ed.). Routledge.
9. Kotler, P., Keller, K. L., & Chernev, A. (2022). *Marketing management* (16th Global ed.). Pearson Education.
10. Nagle, T. T., Müller, G., & Hogan, J. E. (2018). *The strategy and tactics of pricing: A guide to growing more profitably* (6th ed.). Routledge.
11. OECD. (2023). *OECD science, technology and innovation outlook 2023: Enabling transitions in times of disruption*. OECD Publishing.
12. Porter, M. E. (1998). *Competitive advantage: Creating and sustaining superior performance*. Free Press.
13. Schumpeter, J. A. (1934). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*. Harvard University Press.