

Article type:
Original Research

Article history:
Received 11 September 2024
Revised 15 November 2024
Accepted 20 November 2024
Published online 01 December 2024

Nasrin. Darougheh¹, Mohammadreza. Mardani^{2*}, Zeinolabedin. Amini³, Maryam. Majidi⁴

1 Department of Management, Saveh Branch, Islamic Azad University, Saveh, Iran

2 Department of Human Resource Management, Faculty of Management and Strategic Planning, Imam Hossein University, Tehran, Iran

Corresponding author email address:
mardanimr@yahoo.com

How to cite this article:
Darougheh, N., Mardani, M., Amini, Z. & Majidi, M. (2024). Identification of the Components of Policy Models for the Creation and Development of Knowledge-Based Companies and Presentation of an Optimal Framework. *Future of Work and Digital Management Journal*, 2(4), 1-11.
<https://doi.org/10.61838/fwdmj.145>



© 2024 the authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

Identification of the Components of Policy Models for the Creation and Development of Knowledge-Based Companies and Presentation of an Optimal Framework

ABSTRACT

This study aimed to identify and conceptualize the critical components of policy models that effectively support the creation and development of knowledge-based companies in Iran, and to present a coherent and context-adaptive framework. The research was conducted using a qualitative exploratory-analytical design within years 2023 to 2025 to capture the complexity of policy formation in the knowledge-based sector. The study population comprised experts in knowledge-based enterprises, including university faculty members specializing in technology management and innovation policy, and professionals actively involved in managing or supporting knowledge-based companies. Fifteen participants were selected through purposive sampling based on their expertise and experience, and interviews continued until data saturation was reached. Semi-structured interviews were conducted using a guide designed according to the Strauss and Corbin paradigm model, ensuring coverage of causal conditions, context, intervening factors, strategies, and outcomes. Each interview lasted 60–90 minutes, was recorded with consent, and transcribed verbatim. Data were analyzed using the grounded theory approach, employing open, axial, and selective coding with the assistance of MaxQDA software to organize and refine categories. Analysis revealed six major categories shaping the policy model: causal conditions (legal and regulatory stability, supportive governance duties), contextual conditions (capacity building, infrastructure, cultural and private-sector collaboration), intervening conditions (economic volatility, international sanctions, and political uncertainties), a core category of support and oversight, and three main strategy clusters—commercialization, facilitation, and leadership and guidance. These collectively lead to key economic outcomes such as sustainable revenue generation, job creation, and market competitiveness, and social outcomes including global presence and future-oriented knowledge integration. The proposed model offers an integrated, evidence-based framework for policymakers to strengthen Iran's knowledge-based economy by enhancing legal stability, ecosystem readiness, adaptive support mechanisms, and commercialization pathways.

Keywords: Knowledge-based companies; policy model; grounded theory; entrepreneurial ecosystem; commercialization; innovation policy

Introduction

Knowledge-based companies (KBCs) have emerged as strategic drivers of innovation, economic diversification, and sustainable competitiveness in knowledge economies. These organizations generate value primarily through intellectual capital and the application of specialized knowledge to create innovative products and services [1]. Governments and research institutions increasingly recognize the potential of KBCs to contribute to national economic resilience, technological self-reliance, and high-quality employment opportunities. In the Iranian context, the establishment and growth of KBCs has

been prioritized as a central pillar for economic transformation beyond oil dependency and for integrating local innovations into global markets [2]. However, despite ambitious policy efforts, the development trajectory of these enterprises is uneven, particularly due to fragmented support structures, legal and regulatory ambiguities, and limited integration with entrepreneurial ecosystems [3, 4].

A knowledge-driven economy requires robust and adaptive policies that align with the dynamic realities of technology-intensive businesses [5]. Policies must address the complexity of innovation processes, from early-stage research and knowledge generation to commercialization and international market entry. Scholars emphasize that knowledge-based leadership and advanced knowledge management practices significantly influence organizational performance, but these require coherent institutional support [3, 6]. In the absence of consistent policy guidance, companies face difficulties navigating regulatory requirements, obtaining tailored financing, and protecting intellectual property [7]. Moreover, the volatile economic environment, including currency fluctuations and high financing costs, compounds these challenges and discourages long-term investment in research-driven enterprises [8].

International literature shows that linking technology adoption and corporate entrepreneurship to external knowledge networks can strengthen innovation capacity and market positioning [9]. For instance, digital platforms and open innovation networks have enabled small and medium-sized KBCs to access expertise and resources beyond their internal boundaries [5]. In Iran, however, the full potential of digital transformation for entrepreneurial success is underutilized, partly due to limited policy integration and insufficient support for digital business ecosystems [10]. Scholars have argued that adopting digital entrepreneurship frameworks could help KBCs overcome market isolation and increase resilience under conditions of international sanctions and global competition [11].

Another critical dimension in strengthening KBCs involves the development of entrepreneurial ecosystems that link universities, research institutions, investors, and regulatory bodies [12]. Universities, in particular, play a pivotal role in fostering knowledge-oriented entrepreneurship by serving as sources of talent, research, and spin-off ventures [13]. Yet, the translation of academic knowledge into viable business ventures remains challenging due to weak support mechanisms, insufficient entrepreneurship education, and a lack of adaptive financing models [13, 14]. Research suggests that robust knowledge transfer processes, mentorship, and innovation-oriented curricula are necessary to build the employability skills and entrepreneurial orientation required in KBCs [4, 15].

In addition to human capital development, effective governance is a crucial enabler. Stable, transparent, and adaptive regulatory frameworks help reduce uncertainty for entrepreneurs and investors [7]. Flexible taxation and customs regimes can lower entry barriers for advanced technologies and raw materials, while intellectual property protection incentivizes innovation [2, 16]. In Iran, however, entrepreneurs often report inconsistencies in the application of supportive policies and a lack of coordination among governmental agencies [3]. Some programs exist to facilitate access to knowledge networks and funding, but they are fragmented and insufficiently integrated with private sector mechanisms [17]. This has implications for entrepreneurial persistence, as knowledge workers facing career plateauing or policy uncertainty are more likely to disengage or exit innovative ventures [17].

The rapid pace of global technological development intensifies the urgency of designing responsive policy models. As Chen et al. [5] demonstrate, digital business ecosystems require integrated frameworks that combine the knowledge-based view of the firm with ecosystem-level collaboration. Without adaptive support, knowledge-intensive firms risk lagging behind

international competitors and missing opportunities for cross-border innovation alliances [18]. Recent Iranian studies show that KBCs can play an instrumental role in international entrepreneurship by leveraging localized innovation to enter global markets, provided that government and ecosystem actors facilitate partnerships and reduce transactional barriers [10, 18].

Economic volatility and external shocks further highlight the vulnerability of KBCs to policy gaps [8]. The inability to hedge against exchange rate fluctuations and inflation can undermine research continuity and commercial scaling. Entrepreneurs require policy frameworks that not only support innovation but also build resilience against macroeconomic and political risks [11]. In this regard, flexible funding models, crisis-oriented support measures, and stronger international collaborations can help mitigate external constraints. Moreover, the political environment and global positioning of Iran influence the extent to which KBCs can engage in technology transfer, secure strategic partnerships, and integrate into global value chains [9].

Given these multidimensional challenges, scholars argue for systemic policy approaches that go beyond piecemeal initiatives [4, 6]. A grounded theory approach is particularly useful for unpacking the complex relationships among regulatory, economic, cultural, and organizational factors shaping KBC development [11, 16]. By directly engaging experts and practitioners, such research can identify not only the structural barriers but also context-specific enablers for knowledge-driven entrepreneurship. Several Iranian studies have successfully applied grounded theory to develop strategic models for digital entrepreneurship, sports-based knowledge enterprises, and regional development of KBCs [2, 11, 16]. These frameworks offer valuable methodological precedents for designing a comprehensive policy model.

Another key aspect emerging from the literature is the integration of internal organizational dynamics with ecosystem-level conditions [3, 9]. Internal knowledge management systems, when supported by external policy incentives, can significantly enhance product innovation and market adaptability. Bahari and Taheri Rouzbahani [4] demonstrate that electronic human resources management and knowledge creation practices strengthen organizational agility in KBCs, but their effectiveness depends on enabling macro policies. Similarly, Mousavi Shamsabad et al. [6] emphasize that knowledge management functions improve efficiency across supply chains but require coherent strategies and resource allocation. Thus, policy frameworks should align organizational knowledge-based leadership with national innovation goals.

Furthermore, the role of entrepreneurship education is consistently highlighted as a bridge between knowledge production and commercial application [13, 15]. Strengthening employability capabilities, fostering an entrepreneurial mindset, and equipping talent with commercialization skills can help KBCs overcome early-stage survival challenges and accelerate growth [14]. Policies that integrate educational initiatives, incubation, and mentorship within university and regional ecosystems can improve the innovation pipeline and reduce the gap between research and market success [12].

Despite these advances, there remains a significant gap in designing a unified, context-sensitive model that captures the interplay of causal, contextual, and intervening conditions impacting KBC development in Iran. Prior research has either focused narrowly on organizational enablers [3, 4] or addressed isolated policy instruments [2, 10], leaving an unmet need for an integrative paradigm. A grounded theory approach that systematically builds on expert insights and synthesizes existing conceptual frameworks is critical to overcoming this fragmentation [11]. Such an approach can generate actionable strategies for commercialization, facilitation, and leadership while accounting for the economic and political complexities of Iran's innovation ecosystem [5, 9].

In light of these issues, this study seeks to identify and conceptualize the components of policy models that effectively support the creation and development of knowledge-based companies in Iran.

Methodology

This study employed a qualitative research design with an exploratory–analytical approach within years 2023 to 2025 to identify and conceptualize the components of policy models for establishing and developing knowledge-based companies of Pardis. The research population consisted of recognized experts in the field of knowledge-based enterprises, including innovation policy, and entrepreneurship, as well as professionals actively engaged in the management or development of knowledge-based companies. Participants were selected using purposive sampling, focusing on those with at least five years of practical or academic experience in designing, implementing, or evaluating policies and strategies for knowledge-based enterprises. In addition, managers and employees working in knowledge-based companies were included to incorporate first-hand perspectives regarding practical challenges and policy effectiveness. Sampling continued until data saturation was achieved, meaning that additional interviews did not produce new or distinctive insights. Ultimately, fifteen experts participated in the study, ensuring diversity of viewpoints and sufficient depth of data for theory building.

Data were collected using semi-structured interviews tailored to the study's aim of exploring policy elements affecting the creation and growth of knowledge-based companies. The interview protocol was designed following the paradigm model structure of the Strauss and Corbin grounded theory approach, ensuring coverage of causal conditions, context, intervening conditions, strategies, and outcomes. Each interview began with broad, open-ended questions to allow participants to freely express their perceptions, followed by targeted probes for deeper understanding. Key topics included the sufficiency and appropriateness of existing policies in political, legal, economic, scientific, technological, social, and cultural dimensions; the overall status of current policy frameworks; influential factors affecting policy formulation and implementation; adequacy of governmental directives and support; existing barriers and challenges in policy execution; and recommendations for improving the policy environment. Sample guiding questions included: "Do you think the current policies for knowledge-based companies are adequate and desirable across political, legal, economic, scientific, technological, social, and cultural dimensions?" and "What barriers exist to creating and developing knowledge-based companies, and what solutions would you propose to overcome them?" Interviews were conducted face-to-face or virtually, depending on participants' availability, and each session lasted approximately 60–90 minutes. All interviews were recorded with participants' consent and transcribed verbatim to ensure accuracy in capturing nuances and meanings.

The collected qualitative data were analyzed using the grounded theory approach, specifically the systematic coding method introduced by Strauss and Corbin. The analysis process was facilitated by MaxQDA software to organize, code, and categorize the data systematically. The process began with open coding, during which transcripts were examined line by line and initial codes were generated to capture relevant concepts. These preliminary codes were then refined and grouped into more abstract categories during axial coding, where relationships between categories and subcategories were explored based on the paradigm model (causal conditions, context, strategies, and consequences). Finally, selective coding was applied to integrate the categories into a coherent theoretical model representing the policy components and their interconnections. Throughout the analysis, an inductive thematic approach was employed to allow patterns to emerge naturally from the data while remaining grounded in participants' experiences. The constant comparative method ensured that new data were continuously compared with existing categories to refine the emerging framework and maintain theoretical sensitivity. Memo writing and iterative reflections supported the conceptual development process, leading to a robust and contextually grounded model of policy creation and development for knowledge-based companies.

Findings and Results

The qualitative analysis of the interviews led to the emergence of a comprehensive policy model for the creation and development of knowledge-based companies. Through open, axial, and selective coding, the participants' insights were categorized into six overarching themes, each encompassing several subcategories and key concepts. These themes reflect the complexity of policy formation and reveal how various structural, contextual, and external conditions influence the effectiveness of initiatives aimed at fostering knowledge-based enterprises.

Table 1

Emerged categories, subcategories, and key concepts related to the policy model for creating and developing knowledge-based companies

Overarching Category	Subcategory	Key Concepts
Causal Conditions	Laws and Regulations	Updating supportive laws; Stability of legal frameworks; Flexibility in regulations concerning the activities of knowledge-based companies; Provision of commercial consulting and training services (financial, insurance, legal, etc.)
	Governance Duties	Ensuring fairness and moderation in support; Integration in macro-level policies; Consistency in governmental support procedures; Considering customs exemptions (e.g., for technology, raw materials); Access to transportation infrastructure (airports, highways, etc.)
Contextual Conditions	Capacity Building	Development of web-based communications; Cultural awareness and promotion; Collaboration with experienced and specialized workforce; Enhancing government employees' knowledge; Improving infrastructure; Strengthening financial management in knowledge-based companies; Cooperation among knowledge-based entities for synergy; Revising incentive-based payment systems; Basic concept training; Promoting collaboration with the private sector
Intervening Conditions	Economic Conditions	Exchange rate volatility; Inflation and high banking loan interest rates
	Political Conditions	International sanctions; Sustainable interaction with other countries
Core Category	Support and Oversight	Creating connections with private companies; Enabling access to international markets; Facilitating access to scientific resources from reputable research centers; Promoting research related to knowledge-based companies; Systematic encouragement of private sector investment
Strategies	Commercialization	Support for effective product promotion; Assistance with product commercialization; Opportunities to participate in exhibitions; Export incentives for knowledge-based products
	Facilitation	Easing business processes and resolving operational challenges; Providing appropriate financial facilities and support during crises; Supporting knowledge and innovation processes
	Guidance and Leadership	Acting as supportive mentors; Clarifying business priorities; Avoiding interference in internal company operations; Supporting patent registration
Outcomes	Economic	Sustainable income generation; Economic prosperity; Expansion of employment opportunities
	Social	Increased presence in international markets; Enhanced future-oriented analysis of societal issues; Greater interest from other countries in cooperation

Causal Conditions: The study identified causal conditions as the foundational forces driving the need for an improved policy model to support knowledge-based companies. Participants emphasized that the existing legal and regulatory frameworks often lack clarity, stability, and adaptability to the dynamic nature of technology-driven businesses. The rapid evolution of science and innovation requires timely updating of supportive regulations to reduce bureaucratic barriers and align with emerging technological needs. Inconsistent enforcement and fragmented policymaking across different government bodies were highlighted as major hindrances to business confidence and long-term planning. Additionally, experts pointed to the necessity of specialized support mechanisms—such as providing commercial consulting and training in finance, taxation, insurance, and legal matters—to prepare companies for competitive markets. Access to customs exemptions for technology imports, raw materials, and other essentials was also considered critical for lowering costs and accelerating product development. A key theme across interviews was the demand for fairness and moderation in state interventions, ensuring that policies encourage rather than burden entrepreneurial initiatives.

Contextual Conditions: The analysis revealed that contextual conditions create the operational environment in which knowledge-based companies either thrive or struggle. A major area of concern was insufficient capacity building, including a lack of government employee expertise in handling innovation-oriented programs and inadequate digital infrastructure to

support modern business interactions. Experts stressed the importance of fostering a culture of innovation and entrepreneurship across institutions, particularly within universities and research centers, to encourage risk-taking and creative problem-solving. Strengthening collaboration among knowledge-based companies to promote synergy and shared learning was seen as essential for overcoming fragmentation in the ecosystem. Additionally, enhancing partnerships with the private sector could improve market access and financial stability. Revisiting incentive-driven payment and funding mechanisms was recommended to motivate key stakeholders and sustain innovation. Collectively, these contextual elements form the supportive groundwork necessary for successful policy execution.

Intervening Conditions: Findings also pointed to intervening conditions—uncontrollable external forces that shape the success or failure of policy implementation. Economic volatility emerged as a major challenge, particularly the instability of exchange rates and persistent inflation, which increase production costs and make financial forecasting highly uncertain. Participants also cited the burden of high banking interest rates as a barrier to obtaining affordable credit for scaling and innovation. On the political side, international sanctions and restrictions on global trade have limited access to advanced technologies and foreign markets, forcing companies to operate in isolation. At the same time, some experts suggested that establishing stable and constructive diplomatic and economic relationships with other nations could open pathways for international partnerships and knowledge exchange. These intervening factors, while not directly controllable, must be accounted for in designing resilient policy frameworks.

Core Category (Support and Oversight): At the heart of the emerging model lies the core category of support and oversight, which integrates and coordinates the various influences identified in the analysis. This category reflects the need for a balanced and coherent system in which government and associated agencies act as facilitators and protectors rather than as restrictive regulators. The participants consistently described an ecosystem where effective oversight prevents misuse of resources and ensures alignment with national development goals, while robust support mechanisms empower companies to innovate and expand. This involves establishing connections with private and international markets, facilitating access to credible scientific research and data, and systematically encouraging private investment through transparent incentives and reduced risks. Support and oversight function as the central mechanism linking contextual readiness and external challenges to actionable strategies.

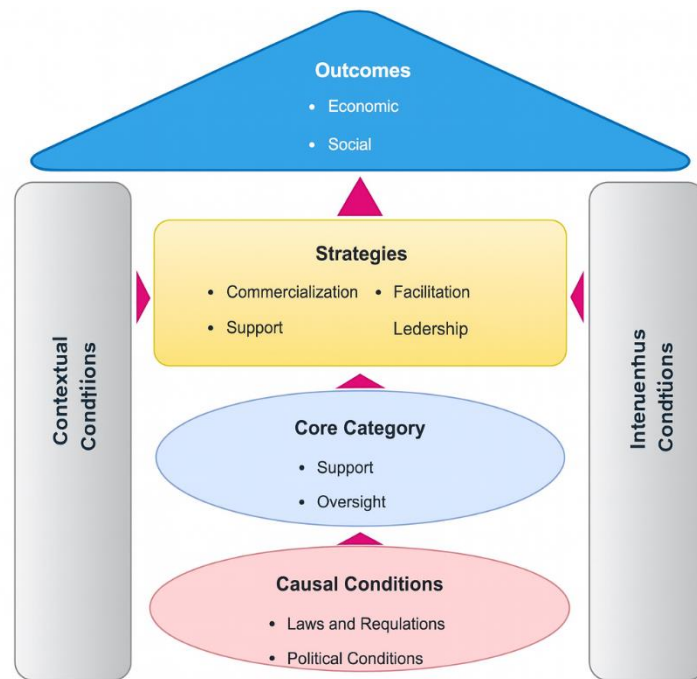
Strategies: The study extracted a set of strategies that form the operational backbone of the policy model, enabling knowledge-based companies to move from concept to commercialization. These strategies include commercialization support, such as assistance in promoting innovative products, enabling participation in exhibitions, and creating targeted export incentives to compete globally. Facilitation emerged as another critical theme, involving simplification of business processes, removal of unnecessary administrative barriers, and provision of tailored financial assistance, particularly in times of crisis or uncertainty. Guidance and leadership were also emphasized, suggesting that government should shift from micromanagement to a mentoring role—clarifying business priorities, supporting patent registration, and empowering companies to make autonomous decisions. Together, these strategies operationalize the supportive and oversight framework into actionable programs.

Outcomes: Finally, the analysis revealed the expected outcomes of implementing an effective and coherent policy framework for knowledge-based enterprises. On the economic side, participants anticipated sustainable revenue generation, stronger business continuity, and increased job creation through the expansion of innovation-driven industries. These

benefits would enhance national economic resilience and competitiveness in global markets. Socially, the model points to greater international presence of domestic technology and expertise, encouraging collaboration and knowledge exchange with other countries. It also supports forward-looking societal change by strengthening future-oriented research and increasing the public's engagement with technological and scientific progress. In the long run, these outcomes are expected to reinforce national self-reliance while fostering an innovation-based culture across industries.

Figure 1

Conceptual Model of The Study



Discussion and Conclusion

The present study aimed to construct a grounded policy model for the creation and development of knowledge-based companies (KBCs) in Iran. The final model consisted of six major components—causal conditions, contextual conditions, intervening conditions, a core category of support and oversight, strategies (commercialization, facilitation, and leadership), and expected economic and social outcomes. These findings illuminate the structural and dynamic factors that influence KBC growth and shed light on how policy interventions can better align with the realities of knowledge-driven entrepreneurship in an economy characterized by institutional complexity and external uncertainty.

One of the clearest findings was the centrality of legal and regulatory stability within the causal conditions. Participants consistently highlighted that fluctuating and fragmented legal frameworks create uncertainty and risk, discouraging both domestic and foreign investors. This result resonates with previous research showing that coherent and adaptive policy frameworks are prerequisites for innovation-driven competitiveness [2, 7]. Bruno [7] emphasizes that knowledge-based systems require compliance mechanisms that not only verify adherence to technical standards but also create predictable environments for business scaling. Similarly, Rezazadeh et al. [2] found that KBC development in less privileged regions of Iran was hindered by regulatory inconsistencies and insufficiently updated support laws. Our findings reinforce these perspectives by demonstrating how entrepreneurs perceive outdated or inflexible regulations as direct barriers to innovation.

and market entry. Updating laws and creating regulatory flexibility for fast-changing technological contexts were among the top recommendations voiced by experts.

A second important theme was the governance role in support and oversight, the identified core category of the model. While participants valued supportive government actions, they expressed a need for fairness and consistency in state interventions. They called for integrated macro-level policies that avoid duplications and conflicting mandates between different agencies. This is consistent with Ahmadi and Saffari [3], who argue that knowledge-based leadership at the policy level must be aligned with coherent governance mechanisms to foster customer knowledge management and innovation quality. Bahari and Taheri Rouzbahani [4] similarly note that human capital and knowledge creation in KBCs thrive when embedded within integrated and transparent policy systems. Our data confirm that inconsistent support erodes entrepreneurial trust and creates administrative bottlenecks that discourage long-term innovation planning.

The study also underscores the importance of contextual conditions, particularly capacity building, digital infrastructure, and cultural support for entrepreneurship. Participants pointed to gaps in the competencies of government personnel and a lack of systematic entrepreneurship education. These findings align with the research of Mehrshad and Naderi [13], who showed that the entrepreneurial ecosystem in Kermanshah requires strengthened educational interventions and talent development. Pooramini and Ebrahimpour [15] further emphasize that employability skills and entrepreneurial readiness are vital for the sustainability of technology-based enterprises. Without proactive efforts to build innovation culture and capabilities, policies may fail to translate into meaningful firm-level outcomes. The evidence also corroborates Mir et al. [12], who advocate for university-driven entrepreneurship ecosystems where capacity development and mentorship bridge the gap between knowledge creation and commercialization.

Another major dimension of our findings relates to economic and political intervening conditions, which are largely outside direct organizational control but profoundly shape the feasibility of entrepreneurial growth. Participants highlighted the destabilizing effects of currency volatility, inflation, and high-cost financing. Similar issues are reported by Tayebi et al. [8], who explain how macroeconomic instability undermines entrepreneurial orientation and job creation. Political constraints, including international sanctions and restricted access to global markets, were also recurrently identified. These external challenges support the calls by Didehkani et al. [11] and Talebi Zari and Saifollah [10] for digital entrepreneurship models and e-commerce frameworks that circumvent traditional barriers and leverage local capacities to access alternative markets. Our study expands this insight by showing how policy flexibility and adaptive crisis support are crucial for navigating such macro-level uncertainties.

The strategies derived from the grounded theory analysis—commercialization, facilitation, and leadership—illustrate practical directions for policymaking. Participants stressed that without targeted commercialization support, including marketing, exhibition participation, and export incentives, many innovative products remain trapped at the prototype stage. This closely mirrors findings by Zarei et al. [18], who revealed that KBCs can successfully enter international entrepreneurship only when aided by structured support mechanisms for product scaling and cross-border collaboration. Facilitation strategies, such as simplifying administrative procedures and providing responsive financial aid during crises, were seen as essential for resilience. This aligns with the work of Bahari [4] and Mousavi Shamsabad [6], who show that removing procedural complexities enhances the performance and sustainability of knowledge-intensive enterprises. Finally, participants viewed leadership and guidance as crucial but distinct from control. Instead of intrusive interference, they favored policy mentorship,

clear strategic priorities, and strong intellectual property protection. These insights echo Ahmadi [3], who links knowledge-based leadership with innovation quality when decision-makers act as facilitators rather than controllers.

A critical contribution of this study is the integrated perspective it offers. Previous works often examine one layer of the ecosystem, such as digital entrepreneurship [11], knowledge management [6], or internationalization [18]. Our model bridges these fragmented approaches by mapping how causal, contextual, and intervening conditions converge into strategies that can generate measurable economic and social benefits. The expected outcomes identified—sustainable income generation, economic prosperity, job creation, and stronger global presence—reflect widely recognized success indicators in knowledge-driven economies [5, 9]. Chen et al. [5] argue that integrating the knowledge-based view of the firm with ecosystem-level collaboration leads to entrepreneurial growth in digital environments; our model applies similar reasoning to the Iranian context by emphasizing ecosystem coherence alongside firm-level capacity.

These findings also contribute to the growing recognition that policy adaptability is as important as policy presence. Static support measures cannot keep pace with fast-changing technological and market conditions. As noted by Talebi Zari [10] and Bruno [7], dynamic policy frameworks are essential to sustain innovation cycles. Our research confirms that entrepreneurs value not just the existence of supportive programs but their responsiveness and relevance. Furthermore, the focus on fairness and consistency in support addresses concerns raised by Oriarewo et al. [17] regarding employee disengagement and turnover when knowledge workers face plateauing due to unpredictable institutional contexts.

Finally, by applying a grounded theory methodology, this research provides context-specific depth often missing in top-down policy prescriptions. Several Iranian studies have leveraged grounded theory to design frameworks for specialized sectors like sports entrepreneurship [16] or regional KBC development [2]. Our work advances this tradition by producing a holistic policy model that integrates institutional, economic, and organizational dynamics into a single conceptual structure. Such an approach enhances the practical utility of the model for decision-makers seeking to strengthen Iran's knowledge-based economy under both domestic and global pressures.

This study has several limitations that should be acknowledged. First, the qualitative design and reliance on semi-structured interviews, while appropriate for theory generation, limit the generalizability of the findings to all knowledge-based companies across Iran or beyond. Although we achieved theoretical saturation with fifteen experts, expanding the participant pool to include a broader range of policy actors, investors, and private-sector stakeholders could yield additional perspectives. Second, the rapidly changing macroeconomic and political conditions in Iran mean that some of the contextual and intervening factors identified may evolve quickly, potentially affecting the stability of the proposed model over time. Third, while we used rigorous coding techniques and qualitative analysis software to ensure validity, interpretation bias inherent in qualitative methods remains a possible constraint.

Future studies could build on this model by employing mixed-methods approaches that quantitatively validate the identified categories and their relationships. Large-scale surveys of KBCs across diverse provinces could provide empirical testing of the model's predictive power and its adaptability to different regional contexts. Comparative studies between Iran and other emerging economies facing similar political and economic constraints would also be valuable, helping to refine policy strategies that balance local specificity with global competitiveness. Additionally, further research might examine the dynamic interaction between digital transformation initiatives and entrepreneurial ecosystem policies, exploring how digital infrastructure and platform economies reshape KBC support systems.

Practitioners and policymakers can use the findings to redesign support frameworks for knowledge-based companies in a more coherent and adaptive way. Strengthening the legal and regulatory environment through predictable updates and consistent enforcement is a critical first step. Integrating entrepreneurship education, capacity building, and mentorship into national innovation strategies can help bridge the gap between research and commercialization. Crisis-responsive financial mechanisms and incentives for international collaboration will also enhance resilience in the face of economic and political uncertainties. Finally, adopting a facilitative rather than controlling governance role can build trust, encourage innovation, and stimulate sustainable economic and social outcomes in the knowledge-based sector.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

- [1] K. MacSween and Z. Trifonova, "What is a Knowledge Intensive Company (KIC)? EIS benefits and criteria," *SeedLegals*, vol. 19, no. 1, pp. 1-13, 2023.
- [2] N. Rezazadeh, M. Bazrafshan, Yaghoubi, Nourmohammad, Keykha, and Hadadi, "Presenting a Model for the Drivers of Knowledge-Based Company Development in Underprivileged Regions (Case Study: Sistan and Baluchestan, Hormozgan, Kerman, and South Khorasan Provinces)," *Iranian Social Development Studies*, vol. 13, no. 2, pp. 279-294, 2021. [Online]. Available: <https://www.sid.ir/fa/journal/ViewPaper.aspx?id=580438>.
- [3] R. Ahmadi and H. Saffari, "The Effect of Knowledge-Based Leadership on Company Performance According to the Mediating Role of Customer Knowledge Management and Innovation Quality," *Dynamic Management and Business Analysis*, vol. 2, no. 4, pp. 13-20, 2024, doi: 10.22034/dmbaj.2024.2022216.1009.

- [4] B. Bahari and M. Taheri Rouzbahani, "Designing an electronic human resources management model based on knowledge creation in knowledge-based companies," (in en), *Journal of value creating in Business Management*, vol. 3, no. 1, pp. 106-121, 2023, doi: 10.22034/jvcbm.2023.392785.1082.
- [5] A. Chen, Y. Lin, M. Mariani, Y. Shou, and Y. Zhang, "Entrepreneurial growth in digital business ecosystems: an integrated framework blending the knowledge-based view of the firm and business ecosystems," *The Journal of Technology Transfer*, pp. 1-26, 2023, doi: 10.1007/s10961-023-10027-9.
- [6] S. J. Mousavi Shamsabad, H. A. Bahramzadeh, and M. Samanian, "Functions of Knowledge Management Dimensions in the Efficiency of the Wheat Supply Chain of the State Trading Company of Iran," *Business Management Explorations*, vol. 13, no. 25, pp. 261-296, 2022.
- [7] Z. H. J. C. d. S. Bruno, "A knowledge-based system for electric motors compliance verification in a multinational-level company," *Expert Systems*, 2022, doi: 10.1111/exsy.12979.
- [8] A. Tayebi, M. Karimi Zand, and S. A. Heydari, "The impact of internal marketing on entrepreneurial orientation based on knowledge-based production and job creation in the political community of Iran (Case study: Startup businesses in Tehran)," *Political Sociology of Iran*, vol. 20, pp. 1613-1633, 2022.
- [9] C. Cao, M. Chen, X. Tang, and H. Liu, "Linking information technology use with corporate entrepreneurship: The mediation role of openness to external knowledge," *Information Systems Journal*, vol. 35, no. 1, pp. 71-96, 2025, doi: 10.1111/isj.12529.
- [10] M. Talebi Zari and Saifollah, "Developing a Strategic E-Commerce Model to Improve the Business Environment in Knowledge-Based Companies (Case Study: Knowledge-Based Companies in Mazandaran Province)," *Entrepreneurship Knowledge*, vol. 1, no. 3, 2022. [Online]. Available: https://journals.srbiau.ac.ir/article_20056.html.
- [11] H. Didehkani, R. Alizadeh, M. S. Sharifzadeh, and R. Samiei, "A Digital Entrepreneurship Model in Knowledge-Based Companies with a Grounded Theory Approach," *Growth of Technology Quarterly*, vol. 19, no. 75, pp. 1-13, 2023, doi: 10.61186/jstpi.21038.19.75.1.
- [12] N. Mir, A. Rahimikia, F. Rezaei, and M. Daraei, "Ecosystem Entrepreneurship Model for University with a Knowledge-Oriented Approach," *International Journal of Knowledge Processing Studies (KPS)*, vol. 4, no. 1, pp. 107-119, 2024. [Online]. Available: https://kps.artahub.ir/article_176696_d8b32bb733cf8a35bb0d9694ae362a5f.pdf.
- [13] M. Mehrshad and N. Naderi, "Proposing a model to develop the entrepreneurial ecosystem of knowledge-based companies with an emphasis on entrepreneurship education (Case Study: Knowledge-based companies in Kermanshah Province)," *Industrial Innovations: Needs and Solutions*, vol. 2, no. 1, pp. 88-102, 2024, doi: 10.61186/jii.2.1.88.
- [14] I. Jalilian, M. R. Kabaranzadghadim, N. Shadnoush, and J. Adalatian Shahryari, "Developing an entrepreneurial ecosystem model focusing on the employability capabilities of knowledge-based businesses," *Business Management*, 2023.
- [15] Z. Pooramini and H. Ebrahimpour, "A Conceptual Model of Employability Skill for Technology and Knowledge-Based Enterprise," (in Fa), *journal of Entrepreneurship Development*, vol. 16, no. 3, pp. 47-65, 2023. [Online]. Available: <https://www.magiran.com/paper/2660548>.
- [16] H. Pirjamadi, K. Habib, Gholamali, and B. Shabani, "Developing a Strategic Model for Entrepreneurial Knowledge-Based Sports Companies in Iran: A Grounded Theory," *Sports Management and Movement Behavior Research Quarterly*, 2022. [Online]. Available: https://msb.journals.umz.ac.ir/article_3782.html?lang=en.
- [17] O. G. Oriarewo, C. K. Agbim, and M. Owoicho, "Entrepreneurial Success, Knowledge Workers Plateauing and Turnover: The Impact of Relatedness," *International Journal of Scientific and Research Publications*, vol. 3, no. 6, pp. 1-7, 2023. [Online]. Available: https://www.researchgate.net/publication/358166995_Entrepreneurial_Success_Knowledge_Workers_Plateauing_and_Turnover_The_Impact_of_Relatedness.
- [18] M. Zarei, N. Karimi, and S. Ahmadi, "Explaining the Model of Knowledge-Based Companies' Role in International Entrepreneurship: A Qualitative-Quantitative Approach in Tehran Province," *Quarterly Journal of Modern Management Research*, vol. 9, no. 2, pp. 103-125, 2022.