

Explaining the Entrepreneurial Ecosystem Model of Iranian Messaging Apps (Case Study: Domestic Messaging Apps Users)

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ABSTRACT

It should be noted that messaging platforms, as a new member of the social media family, have been widely welcomed by users of the country's cyberspace. Domestic messaging applications can play a beneficial role in business development through product research and development, sales, marketing, and customer service delivery. Accordingly, the present study was conducted with the aim of elucidating the entrepreneurial ecosystem model of Iranian messaging platforms (case study: users of domestic messaging applications). The research method is fundamental in nature, as the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms were identified through document analysis and thematic analysis techniques. Furthermore, the study is applied in orientation, as it seeks to explain the relationships among the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms. The data collection instruments included scientific documents and a researcher-developed questionnaire containing closed-ended items regarding the relationships among the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms. The data analysis methods comprised content analysis and path analysis techniques. The statistical population consisted of users of Iranian messaging platforms. The population size was considered unlimited and partially inaccessible; therefore, based on simple random sampling and using the Morgan table, a sample of 380 users of Iranian messaging platforms was selected to participate in the survey regarding the relationships among the dimensions of the entrepreneurial ecosystem. Data analysis was conducted using SPSS software, version 23. The results of the study indicated that the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms include material, social, and cultural dimensions, whose relationships have been examined within the framework of supportive and reinforcing interactions.

Keywords: Model, entrepreneurial ecosystem, Iranian messaging platforms, users.

1. Introduction

The rapid expansion of digital technologies and the pervasive integration of online communication platforms have fundamentally transformed the structure of contemporary economies and entrepreneurial activities. In this context, messaging platforms, as a subset of social media and digital infrastructures, have evolved from mere communication tools into complex socio-technical systems that facilitate innovation, knowledge exchange, and value creation. These platforms not only enable real-time interaction among users but also provide fertile ground for the emergence of new business models, digital services, and entrepreneurial ventures. Consequently, understanding the entrepreneurial ecosystem surrounding such platforms has become an essential area of inquiry within management and innovation studies (Recker & Von Briel, 2019; Samuel et al., 2020).

The concept of the entrepreneurial ecosystem has gained significant traction in recent years as a holistic framework for analyzing the interconnected elements that support entrepreneurship within a specific context. Entrepreneurial ecosystems encompass a dynamic configuration of actors, institutions, networks, and resources that collectively influence the creation and growth of new ventures. Unlike traditional linear models of entrepreneurship, this perspective emphasizes interdependencies, co-evolution, and the relational nature of entrepreneurial processes (Rabelo & Bernus, 2015; Spigel, 2017). Within this framework, the role of digital platforms, particularly messaging applications, is increasingly recognized as a critical enabler of entrepreneurial activities by facilitating communication, collaboration, and market access (Elia et al., 2020; Guerrero et al., 2022).

Digital entrepreneurship ecosystems, in particular, represent an advanced stage of ecosystem evolution, where digital technologies and collective intelligence reshape entrepreneurial processes. These ecosystems are characterized by the presence of digital actors, activities, motivations, and organizational structures that operate within interconnected technological infrastructures. Messaging platforms serve as key nodes within these ecosystems by enabling user-generated content, peer-to-peer interactions, and the rapid dissemination of information, thereby accelerating innovation cycles and entrepreneurial experimentation (Elia et al., 2020; Samuel et al., 2020). Moreover, the integration of digital innovation within entrepreneurial ecosystems has been shown to significantly

enhance business performance and sustainability, especially in emerging and developing economies (Jan et al., 2025; Lee & Kim, 2025).

In recent years, the growing importance of localized and context-specific entrepreneurial ecosystems has drawn attention to the role of national and regional factors in shaping entrepreneurial dynamics. In emerging economies such as Iran, the development of indigenous digital platforms, including domestic messaging applications, has been influenced by a unique combination of institutional, cultural, and technological conditions. These platforms are not only tools for communication but also strategic assets for fostering economic resilience, digital sovereignty, and local innovation capacity (Entezari, 2022; Khaghani et al., 2026). As such, examining the entrepreneurial ecosystem of Iranian messaging platforms requires a nuanced understanding of these contextual determinants.

One of the key components of entrepreneurial ecosystems is the institutional and infrastructural environment, which includes policy frameworks, technological infrastructure, and support mechanisms. The availability of digital infrastructure, such as affordable internet access and robust network systems, plays a crucial role in enabling the functionality and scalability of messaging platforms. Additionally, supportive policies and governance structures contribute to building trust, ensuring data security, and promoting the adoption of domestic platforms among users and businesses (Guerrero et al., 2022; Salamzadeh et al., 2020). In this regard, the development of Iranian messaging platforms can be viewed as part of a broader effort to strengthen national digital ecosystems and reduce dependence on foreign technologies.

Another critical dimension of entrepreneurial ecosystems is human capital, particularly the presence of skilled, creative, and entrepreneurial individuals who drive innovation and venture creation. Universities and knowledge-based institutions play a pivotal role in nurturing such talent by providing education, research opportunities, and entrepreneurial training. The interaction between academia and industry facilitates knowledge transfer and supports the commercialization of innovative ideas, thereby contributing to the growth of the entrepreneurial ecosystem (Babaei Fishani et al., 2022; Ribeiro et al., 2018). In the context of Iranian messaging platforms, the development of human capital is essential for designing, managing, and scaling digital services that meet user needs and market demands.

Social and cultural factors also significantly influence the formation and evolution of entrepreneurial ecosystems. Social networks, both online and offline, serve as channels for information exchange, collaboration, and resource mobilization. They enable entrepreneurs to identify opportunities, access support, and build relationships with stakeholders. Moreover, cultural norms and values shape individuals' attitudes toward entrepreneurship, risk-taking, and innovation. In digital environments, user engagement and community participation further reinforce these dynamics by creating feedback loops that drive platform development and adoption (Khalafi et al., 2019; Saadabadi et al., 2021).

In addition to social dynamics, cultural aspects such as trust, identity, and perceived value play a crucial role in the success of domestic messaging platforms. Users' perceptions of national identity, data security, and cost efficiency influence their willingness to adopt and use these platforms. For instance, features such as low-cost or free internet access and the promotion of local identity can enhance user acceptance and strengthen the competitive position of domestic platforms against global alternatives (Bakhshizadeh Borj et al., 2020; Zhang & Chang, 2020). These cultural dimensions are particularly important in shaping the demand side of the entrepreneurial ecosystem.

From an economic perspective, entrepreneurial ecosystems are closely linked to competitiveness and value creation. The presence of supportive financial resources, market access, and business networks enables entrepreneurs to scale their ventures and generate economic impact. Messaging platforms, as digital marketplaces and communication hubs, facilitate transactions, marketing, and customer engagement, thereby contributing to business growth and innovation. Empirical studies have demonstrated that well-developed entrepreneurial ecosystems can significantly enhance industry competitiveness and economic performance (Bagher Sad et al., 2019; Jan et al., 2025).

Furthermore, the commercialization of digital platforms requires the alignment of organizational strategies, governance mechanisms, and market conditions. Effective commercialization strategies involve the integration of business models, revenue streams, and user engagement mechanisms. In the case of Iranian messaging platforms, factors such as governance support, trust-building, and regulatory frameworks are critical for achieving sustainable growth and market penetration (Momeni et al., 2019). These factors highlight the importance of a coordinated approach

to ecosystem development that considers both supply-side and demand-side dynamics.

The interplay between technological, social, and cultural dimensions underscores the complexity of entrepreneurial ecosystems. Rather than operating in isolation, these dimensions interact in a synergistic manner to shape the overall performance and sustainability of the ecosystem. For example, technological infrastructure enables social interactions, which in turn foster cultural acceptance and economic activity. This interconnectedness is a defining characteristic of entrepreneurial ecosystems and necessitates a comprehensive analytical approach (Hematian Khayat et al., 2022; Meysami et al., 2020).

Despite the growing body of research on entrepreneurial ecosystems, there remains a gap in understanding the specific mechanisms through which messaging platforms contribute to ecosystem development, particularly in non-Western contexts. Most existing studies have focused on general digital platforms or startup ecosystems without addressing the unique features of messaging applications as socio-technical infrastructures. Additionally, limited attention has been given to the relational dynamics among ecosystem dimensions and how they influence each other in a systemic manner (Khaghani et al., 2026; Recker & Von Briel, 2019).

Addressing this gap is particularly important for policymakers, practitioners, and researchers seeking to leverage digital platforms for economic development and innovation. By identifying the key dimensions and relationships within the entrepreneurial ecosystem of Iranian messaging platforms, it is possible to develop targeted strategies for enhancing platform performance, user engagement, and business opportunities. Such insights can also inform the design of supportive policies and institutional frameworks that foster sustainable digital entrepreneurship (Lee & Kim, 2025; Vujovic & Baloutsos, 2025).

In summary, the entrepreneurial ecosystem of messaging platforms represents a multifaceted and dynamic domain that integrates technological innovation, human capital development, social interaction, and cultural values. Understanding this ecosystem requires a holistic perspective that captures the complex interdependencies among its components. Given the strategic importance of domestic messaging platforms in Iran, there is a need for empirical research that systematically examines their entrepreneurial ecosystem and identifies the factors that drive their development and sustainability.

Therefore, the aim of this study is to explain the model of the entrepreneurial ecosystem of Iranian messaging platforms by identifying its key dimensions and analyzing the relationships among them.

2. Methods and Materials

The research method is fundamental in terms of its objective, because it seeks to explain the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms through the study of existing documents using the thematic analysis technique. In general, the present study is interpretive from a philosophical perspective and exploratory and applied in nature. This is because, after extracting the dimensions of the entrepreneurial ecosystem model of Iranian messaging platforms, the model is explained in relation to Iranian messaging platforms among customers of the Telecommunication and Information and Communication Technology organization. The statistical population of this study consists of customers of Iranian messaging platforms. The population size is unlimited and relatively inaccessible; therefore, based on simple random sampling and using the Morgan table, a sample of 380 customers of Iranian messaging platforms was selected for the survey on explaining the relationships among the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms. The data collection instrument in the present study was a researcher-made questionnaire designed in accordance with the research objective, and the field data collection method was conducted through interviews. The face validity of the questionnaire was confirmed under the supervision of professors and expert advisors, and its reliability was determined using Cronbach's alpha test, with a value of 0.88. The data analysis tools in this study included the researcher's analysis and, as required by the software, SPSS version 23 for implementing the path analysis technique.

3. Findings and Results

Based on the thematic analysis of the reviewed studies, the criteria affecting the formation of the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms are classified within Spiegel's entrepreneurial ecosystem model into three general indicators: material, social, and cultural. Accordingly, the material criteria affecting the formation of the entrepreneurial ecosystem of Iranian messaging platforms are as follows:

Development of university-based and knowledge-based systems as accelerators to strengthen awareness and develop technology-based knowledge related to Iranian messaging platforms: In other words, knowledge-based and university institutions, by shaping research and development in the area of expanding the application of Iranian messaging platforms and by promoting and institutionalizing their use in individuals' daily economic, political, and other activities, will contribute to the development of the material dimension of the entrepreneurial ecosystem of Iranian messaging platforms.

Development of technological and digital infrastructures: As stated, technology and digitalization are two main dimensions of messaging platforms. Therefore, through innovation, the creation of innovative technological ideas, and the low-cost development of the internet and network infrastructures, movement will be made toward profitability and, consequently, toward strengthening the financial-material dimension of the entrepreneurial ecosystem of Iranian messaging platforms.

The more powerful and top-down centralized the support systems in domestic messaging platforms are, the more they increase public trust in the security of these platforms for conducting economic activities. Therefore, as public trust increases, the profitability dimension of the entrepreneurial ecosystem of Iranian messaging platforms is strengthened.

When public and investor trust in Iranian messaging platforms increases, access to free markets in this space will also expand.

The social criteria affecting the formation of the entrepreneurial ecosystem of Iranian messaging platforms are as follows:

Entrepreneurial, creative, and talented human capital for managing domestic messaging platforms is one of the social criteria affecting the formation of the entrepreneurial ecosystem of Iranian messaging platforms.

Economic efficiency, meaning reduced internet usage costs for domestic messaging platforms, strengthens the use of domestic messaging platforms by multiple social networks of people. In other words, middle- and lower-middle-class groups in society are encouraged to use domestic messaging platforms more extensively to develop their businesses.

Successful examples of business development using domestic messaging platforms function as social models for developing the entrepreneurial ecosystem of Iranian messaging platforms.

Finally, the results of thematic analysis showed that the cultural criteria affecting the formation of the entrepreneurial ecosystem of Iranian messaging platforms are as follows:

Successful examples of entrepreneurship using domestic messaging platforms can be used to promote the culture of using these platforms and ultimately to develop the entrepreneurial ecosystem of Iranian messaging platforms.

Protection of values and information security in the environment of Iranian messaging platforms, which is strengthened by the ideas of innovative and creative human resources, will help promote the culture of using Iranian messaging platforms in the business environment.

Therefore, the entrepreneurial ecosystem of Iranian messaging platforms consists of three components: the social component strengthens the cultural components, and the material component strengthens the social components. Conversely, the prerequisite for providing the social components of the entrepreneurial ecosystem of Iranian messaging platforms is the cultural components, and the prerequisite for providing the material components of the entrepreneurial ecosystem is the social components. The findings regarding the criteria affecting the development of the entrepreneurial ecosystem of Iranian messaging platforms are consistent with the results of Spiegel's entrepreneurial ecosystem model.

Table 1

Systematic Review of Studies on Explaining the Criteria Affecting the Formation of the Dimensions of the Entrepreneurial Ecosystem of Iranian Messaging Platforms

Author(s)	Research Title	Extracted Text	Researcher's Analysis of the Criteria Affecting the Entrepreneurial Ecosystem of Iranian Messaging Platforms
Babaei-Fishani et al. (2022)	Presenting a technological entrepreneurial ecosystem model in the field of knowledge-based businesses active in the financial technology sector	The outcomes of transferring entrepreneurship along with technological businesses include the establishment of science and technology parks, accelerators, and the use of technical knowledge. This process also leads to the creation of technological start-ups and technological entrepreneurship. In addition, technological universities and technological value networks strengthen technology-based knowledge and ultimately contribute to the growth and development of the technological entrepreneurial ecosystem.	One of the criteria affecting the entrepreneurial ecosystem of domestic messaging platforms is the development of university-based and knowledge-based systems as accelerators to strengthen awareness and develop technology-based knowledge related to Iranian messaging platforms.
Asghar Saadabadi et al. (2021)	Social networks in the service of innovation and social entrepreneurship: A case study of Twitter	Users in the field of social entrepreneurship have mostly addressed issues such as the need to pay attention to employment in Chabahar, the organization of free events to identify ideas, opportunities, and problems related to attracting investment in entrepreneurial projects. In the field of social innovation, users have paid greater attention to issues such as the need to support people with disabilities, the construction of dental centers, the establishment of greenhouses in southern regions of the country, and women's empowerment. In addition, sentiment analysis of Persian tweets about entrepreneurship and social innovation indicates positive results in this field.	Domestic messaging platforms themselves affect social and economic development and business innovation. In a reciprocal relationship, their advantages can be used as cultural and social motivation as criteria affecting the entrepreneurial ecosystem of domestic messaging platforms.
Hemati-Khayat et al. (2022)	Dimensions and components of the technological entrepreneurial ecosystem in Iran's digital creative industries	Technological and innovative factors, firm-level factors, environmental factors, and support factors are among the factors affecting the transformation of this ecosystem, and their related indicators have been fully identified. Moreover, the role and position of the cultural taste of digital technology as a key construct in the success of this ecosystem have been examined, and its components have been identified.	Digitalization and technology are two important dimensions of Iranian messaging platforms. Therefore, another criterion affecting the entrepreneurial ecosystem of domestic messaging platforms consists of firm-level factors, environmental factors, support factors, and cultural development.
Meysami et al. (2020)	Designing a technological entrepreneurial ecosystem framework: A grounded theory approach in Iran	The concluded framework includes four interconnected factors representing environmental conditions, domains of existence, functional domains, and technological entrepreneur factors.	Another criterion affecting the entrepreneurial ecosystem of domestic messaging platforms is the employment of entrepreneurial human resources.
Bakhshizadeh Borj et al. (2020)	Brand association network of domestic messaging platforms: A case study of Soroush messaging platform	The number of associations expressed by individuals who had experience using the Soroush messaging platform and those who had no such experience was thirteen associations. Among them, only two associations, "being Iranian" and "free internet," were identified as favorable associations shared by both groups of participants.	Other criteria affecting the entrepreneurial ecosystem of domestic messaging platforms include cultural responsibility toward identity and the material dimension, including the low cost of internet use in these platforms.
Salamzadeh et al. (2020)	Investigating the effect of social network expansion on	The findings showed that the expansion of social networks, social norms, and digital technology	The criteria affecting entrepreneurship development in domestic messaging

	entrepreneurship development: Explaining the moderating role of digital technology infrastructures and social norms	infrastructures have a positive effect on entrepreneurship development in social networks. In addition, entrepreneurship development in these networks receives its greatest indirect effect from social norms, and this effect is exerted through the expansion of social networks.	platforms include cultural components and technological support and backing infrastructures.
Bagher-Sad et al. (2019)	Entrepreneurial ecosystem and competitiveness in selected industries	Based on the findings, the entrepreneurial ecosystem, with six dimensions including policy, financial resources, support, markets, human capital, and culture, has an important effect on industrial competitiveness.	The entrepreneurial ecosystem framework of domestic messaging platforms includes six main dimensions: policy, financial resources, support, markets, human capital, and culture. These dimensions simultaneously influence entrepreneurial performance and development in the context of messaging platforms.
Roshandel-Arbatani et al. (2018)	Developing a model of commercialization strategies for Iranian messaging platforms	Three macro-categories were identified: organization, governance system, and messaging platform environment. In the governance system category, the most important components include macro-level governance of the messaging platform value chain, support for domestic messaging platforms, trust-building, and appropriate legislation. Furthermore, regarding the characteristics of the messaging platform organization, key components included commercial strategies, organizational culture, business model, financial resources, human resources, and characteristics of the messaging platform.	Governance monitoring infrastructures and university organizations, as key accelerators, are two criteria affecting the development of the entrepreneurial ecosystem of domestic messaging platforms.
Khalafi et al. (2018)	Development of organizational media entrepreneurship through audience engagement on social platforms	They presented a framework for applying audience engagement mechanisms in these organizations. This framework includes seven stages: identifying customers, defining the value proposition, selecting the engagement system, selecting engagement tools, managing the engagement process path, measuring program success, and revising the program.	Criteria affecting the development of the entrepreneurial ecosystem of domestic messaging platforms include identifying entrepreneurial and creative human capital, monitoring infrastructures, and developing support and strategic systems through the assessment of the social and economic feedback of messaging platforms.
Ali-Asgari et al. (2018)	Designing and explaining a model for entrepreneurship development in Iran's cyberspace with emphasis on resistance economy policies	To explain the development of entrepreneurship in the country's cyberspace, six stages have been defined, including three transition stages as well as the stages of formation, growth, and maturity. This classification, through the mentioned stages, specifies the final model of entrepreneurship development in the country's cyberspace.	Resistance economy policies are important for explaining the entrepreneurial ecosystem model of domestic messaging platforms.
Gehrer et al. (2022)	Toward designing a digital business ecosystem maturity model for personal service companies: A pre-assessment strategy	Overall, it is clear that most personal services are designed based on the traditional business perspective. However, although information and communication technologies have long been recognized for helping many companies improve their services, recent developments in personal services still neglect the application of ICT. This has pushed such companies toward serious challenges, especially during COVID-19. Through a digitalized business ecosystem, personal service companies can recognize the benefits of ICT in order to improve information flow and enhance aspects related to interaction, collaboration, communication, and co-creation, which are essential aspects in designing digitalized business ecosystems and personal services.	One of the criteria affecting the entrepreneurial ecosystem of domestic messaging platforms is the development of communication and interorganizational interactions.
Elia et al. (2020)	Digital entrepreneurship ecosystem: How digital technologies and collective intelligence change the entrepreneurial process	A collective intelligence approach is applied to create a descriptive framework and identify the distinctive characteristics of a digital entrepreneurship ecosystem. In this framework, four key dimensions are defined and examined: digital actors, digital activities, digital motivations, and digital organization. This framework is also used to analyze nine real cases of companies and initiatives identified as digital entrepreneurship ecosystems in line with the four mentioned dimensions.	Criteria affecting the development of the entrepreneurial ecosystem of domestic messaging platforms include the presence of creative and capable entrepreneurs, achievement of economic benefits, and the use of governance infrastructure monitoring.
Samuel et al. (2020)	Digital entrepreneurship in entrepreneurial businesses	This concerns the abilities and capacities of firms and strategies in implementing digital technologies and using digital opportunities.	Support and backing systems are among the criteria affecting the development of the entrepreneurial ecosystem of domestic messaging platforms.
Song (2019)	Digital entrepreneurial ecosystem	Digital technology entrepreneurship includes all factors that create complementary products and services related to platforms. A multifaceted digital platform acts as an intermediary for the exchange of goods and services as well as an intermediary for knowledge exchange, enabling and facilitating experimentation, entrepreneurial innovation, and value creation.	Value creation, knowledge-based organizations, and cultural support are among the criteria affecting the development of the entrepreneurial ecosystem of domestic messaging platforms.

In this section, using a survey of 380 customers who use Iranian messaging platforms and the path analysis technique, the relationships among the parameters of the material, cultural, and economic dimensions of the Iranian messaging platform ecosystem are determined. Finally, based on Spiegel's entrepreneurial ecosystem model (2017), the ecosystem model of Iranian messaging platforms is explained.

Table 2 shows that, with 99% confidence, the supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms, as a material indicator and a reinforcing factor, have a positive and significant effect on training talented entrepreneurs in the field of Iranian messaging platform development and on the development of Iranian messaging platforms for economic networking as social indicators. Furthermore, the variable of training talented entrepreneurs in the field of Iranian messaging platform development, as a reinforcing social indicator, has a positive and significant effect on the variables of

promoting the culture of using Iranian messaging platforms and creating opportunities for the development of successful Iranian messaging platform models to increase economic profit through extensive advertising, as cultural indicators, at the 1% error level. Table 2 also shows that, with 99% confidence, the variable of creating opportunities for the development of successful Iranian messaging platform models, as a cultural indicator, has a supportive effect on creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development, as a social indicator. Finally, the variable of creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development, as a social indicator, has a supportive effect on developing systematic programs to improve the performance of supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms, as a material indicator.

Table 2

Path Analysis of the Effects of Iranian Messaging Platform Ecosystem Constructs

Effect of Variable	On Variable	Path Coefficient	t	Significance Level	Hypothesis
Supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms	Training talented entrepreneurs in the field of Iranian messaging platform development	0.87	21.69**	0.000	Confirmed
Supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms	Development of Iranian messaging platforms for economic networking	0.64	10.80**	0.003	Confirmed
Training talented entrepreneurs in the field of Iranian messaging platform development	Promoting the culture of using Iranian messaging platforms	0.53	14.17**	0.000	Confirmed
Training talented entrepreneurs in the field of Iranian messaging platform development	Creating opportunities for the development of successful Iranian messaging platform models to increase economic profit through extensive advertising	0.66	10.12**	0.000	Confirmed
Creating opportunities for the development of successful Iranian messaging platform models	Creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development	0.23	15.85**	0.000	Confirmed
Creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development	Developing systematic programs to improve the performance of supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms	0.42	15.16**	0.000	Confirmed

Table 3

Decomposition of Total, Direct, and Indirect Effects of the Model

Dependent Variable	Independent Variable	Direct Effects	Indirect Effects	Total Effects	R ²
Supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms	Training talented entrepreneurs in the field of Iranian messaging platform development	0.74	0.14	0.88	0.44
Supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms	Development of Iranian messaging platforms for economic networking	0.05	—	0.05	0.68
Creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development	Promoting the culture of using Iranian messaging platforms	0.54	0.20	0.74	0.59
Creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development	Creating opportunities for the development of successful Iranian messaging platform models to increase economic profit through extensive advertising	0.45	0.18	0.63	0.43

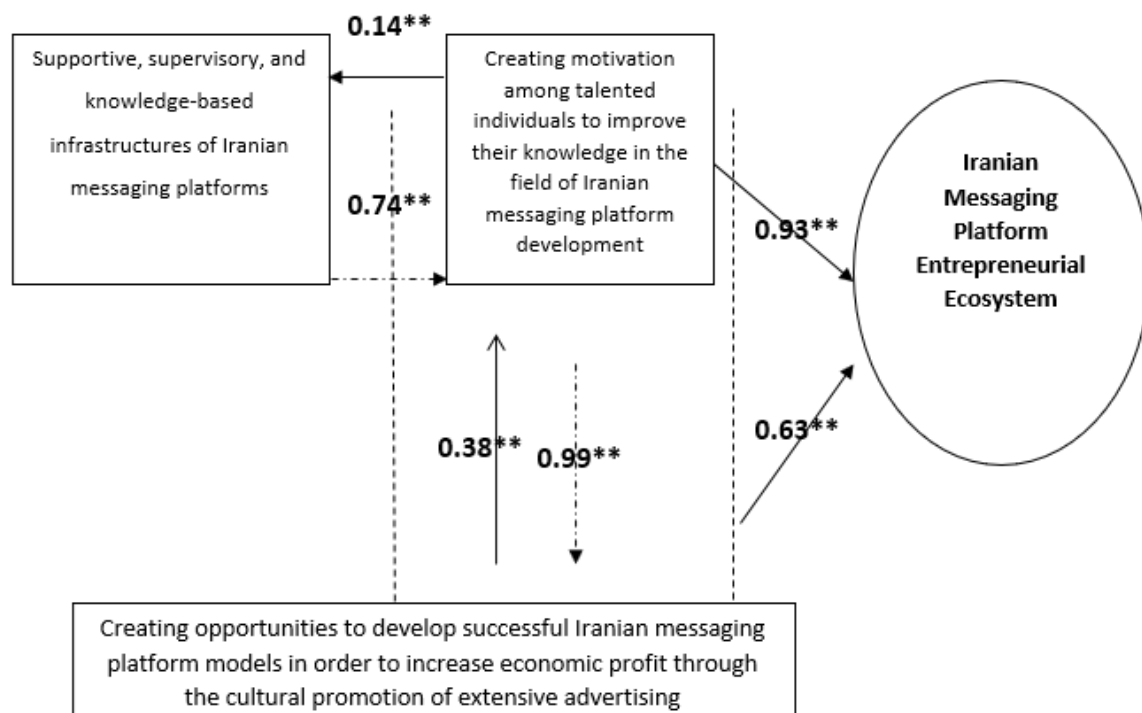
Accordingly, the path analysis model of the relationships among the dimensions of the entrepreneurial ecosystem of Iranian messaging platforms based on Spiegel's model is shown in the figure below.

Regarding Table 3, it should be noted that all indirect effects indicate supportive relationships, which are shown by solid arrows in Figure 1, and all direct effects indicate reinforcing relationships, which are shown by dashed arrows. Accordingly, Table 3 and Figure 1 show that, with 99% confidence, the supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms play a role in the entrepreneurial ecosystem model of Iranian messaging platforms only through a reinforcing effect on the variable of creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development. Moreover, the variable of creating motivation among talented individuals to improve

their knowledge in the field of Iranian messaging platform development plays a role in the entrepreneurial ecosystem model of Iranian messaging platforms through a reinforcing effect on creating opportunities for the development of successful Iranian messaging platform models to increase economic profit through the cultural promotion of extensive advertising, as well as through a supportive effect on the supportive, supervisory, and knowledge-based infrastructures of Iranian messaging platforms. In addition, the variable of creating opportunities for the development of successful Iranian messaging platform models to increase economic profit through the cultural promotion of extensive advertising plays a role in the entrepreneurial ecosystem model of Iranian messaging platforms only through a supportive effect on creating motivation among talented individuals to improve their knowledge in the field of Iranian messaging platform development.

Figure 1

Determining the Reinforcing and Supportive Relationships Among the Dimensions of the Entrepreneurial Ecosystem of Iranian Messaging Platforms in the Telecommunication and Information and Communication Technology Company of Iran



4. Discussion and Conclusion

The present study aimed to explain the model of the entrepreneurial ecosystem of Iranian messaging platforms by identifying its key dimensions and examining the

relationships among them. The findings revealed that the ecosystem is structured around three core dimensions—material, social, and cultural—which interact through reinforcing and supportive relationships. Specifically, the results demonstrated that material infrastructures, including supportive, supervisory, and knowledge-based systems,

exert a significant and positive effect on the development of social components such as the training of talented entrepreneurs and the expansion of economic networking through messaging platforms. Furthermore, social components were found to significantly influence cultural outcomes, including the promotion of platform usage and the creation of opportunities for developing successful business models through widespread advertising. These findings collectively confirm the systemic and interdependent nature of the entrepreneurial ecosystem in the context of Iranian messaging platforms.

The significant role of material infrastructures in strengthening social dimensions aligns with the theoretical foundations of entrepreneurial ecosystem research, which emphasize the importance of institutional support, digital infrastructure, and policy frameworks in enabling entrepreneurial activities. The availability of technological and knowledge-based infrastructures not only facilitates the development of innovative services but also enhances the capacity of individuals to engage in entrepreneurial activities. This finding is consistent with prior studies that highlight the critical role of digital infrastructure and institutional support in fostering entrepreneurship and innovation within digital ecosystems (Guerrero et al., 2022; Salamzadeh et al., 2020). Moreover, the strong relationship between infrastructure and human capital development supports the argument that ecosystem performance is contingent upon the alignment of structural and human elements (Spigel, 2017).

Another key finding of the study is the central role of human capital, particularly the training of talented and entrepreneurial individuals, as a mediating factor between material and cultural dimensions. The results indicate that the development of entrepreneurial skills and competencies significantly contributes to the promotion of cultural acceptance and usage of messaging platforms. This finding is in line with previous research emphasizing the importance of human capital as a driving force in entrepreneurial ecosystems, particularly in digital contexts where knowledge and innovation are key resources (Babaei Fishani et al., 2022; Ribeiro et al., 2018). The ability of skilled individuals to translate technological opportunities into viable business models underscores the necessity of investing in education and training systems that support digital entrepreneurship.

The influence of social dimensions on cultural outcomes further highlights the importance of social networks, interactions, and community engagement in shaping

entrepreneurial ecosystems. The results demonstrate that increased social engagement, facilitated by messaging platforms, contributes to the diffusion of entrepreneurial practices and the normalization of digital business activities. This finding corroborates earlier studies that emphasize the role of social networks in promoting innovation, collaboration, and opportunity recognition within entrepreneurial ecosystems (Khalafi et al., 2019; Saadabadi et al., 2021). Additionally, the role of social dynamics in fostering cultural change is consistent with the notion that entrepreneurial ecosystems are embedded within broader socio-cultural contexts that influence individual and collective behavior (Hematian Khayat et al., 2022).

The study also found that cultural factors, such as the promotion of platform usage and the development of successful business models, have a supportive effect on social dimensions, particularly in motivating individuals to enhance their knowledge and skills. This reciprocal relationship suggests that cultural acceptance and success stories can reinforce entrepreneurial behavior and contribute to the sustainability of the ecosystem. Such findings are consistent with research indicating that cultural values, norms, and identity play a significant role in shaping entrepreneurial intentions and activities, especially in digital environments (Bakhshizadeh Borj et al., 2020; Zhang & Chang, 2020). The emphasis on cultural promotion through advertising and success narratives further highlights the importance of perception management and user engagement in digital platform ecosystems.

From an economic perspective, the findings demonstrate that the development of successful messaging platform models and the expansion of economic networking contribute to increased profitability and value creation. This result aligns with prior studies that link well-developed entrepreneurial ecosystems to enhanced competitiveness and economic performance. Messaging platforms, by serving as digital marketplaces and communication hubs, enable businesses to access new markets, engage with customers, and optimize their operations, thereby driving economic growth (Bagher Sad et al., 2019; Jan et al., 2025). The role of digital innovation in improving business performance further supports the argument that integrating technological capabilities into entrepreneurial ecosystems is essential for achieving sustainable development (Lee & Kim, 2025).

The identified reinforcing and supportive relationships among ecosystem dimensions provide empirical support for the relational perspective of entrepreneurial ecosystems. According to this perspective, the effectiveness of an

ecosystem depends not only on the presence of its components but also on the quality and strength of the relationships among them. The findings of this study confirm that direct (reinforcing) and indirect (supportive) effects jointly contribute to the overall functionality of the ecosystem, highlighting the importance of systemic coordination and integration (Rabelo & Bernus, 2015; Spigel, 2017). This insight is particularly relevant for policymakers and practitioners seeking to design interventions that enhance ecosystem performance.

The results also contribute to the growing literature on digital entrepreneurship ecosystems by providing context-specific evidence from Iran. While previous studies have primarily focused on global or Western contexts, this study demonstrates that the fundamental principles of entrepreneurial ecosystems are applicable in emerging economies, albeit with context-specific variations. For instance, the emphasis on knowledge-based infrastructures, cultural promotion, and national identity reflects the unique socio-political and economic conditions of Iran. These findings are consistent with research highlighting the importance of contextual factors in shaping the structure and dynamics of entrepreneurial ecosystems (Entezari, 2022; Khaghani et al., 2026).

Moreover, the study extends existing research by focusing specifically on messaging platforms as a distinct category of digital platforms within the entrepreneurial ecosystem. Unlike other digital platforms, messaging applications combine communication, social interaction, and business functionalities, making them uniquely positioned to influence multiple dimensions of the ecosystem simultaneously. This multifaceted role is supported by previous studies on digital entrepreneurship, which emphasize the transformative impact of digital technologies on entrepreneurial processes and value creation (Elia et al., 2020; Samuel et al., 2020). The findings of this study thus highlight the strategic importance of messaging platforms in fostering digital entrepreneurship and innovation.

In addition, the findings underscore the importance of commercialization strategies and governance mechanisms in ensuring the sustainability of messaging platform ecosystems. The role of trust, regulation, and strategic management in facilitating platform adoption and growth is consistent with prior research on the commercialization of digital platforms (Momeni et al., 2019). Effective governance structures not only enhance user confidence but also create a conducive environment for entrepreneurial activities, thereby reinforcing the overall ecosystem.

Overall, the study provides a comprehensive understanding of the entrepreneurial ecosystem of Iranian messaging platforms by integrating material, social, and cultural dimensions into a unified model. The findings highlight the importance of a holistic approach to ecosystem development, where technological infrastructure, human capital, social interactions, and cultural factors are aligned to support entrepreneurship and innovation. This integrated perspective contributes to both theory and practice by offering insights into the mechanisms through which digital platforms can drive economic and social development.

The limitations of this study should be acknowledged. First, the use of a cross-sectional research design limits the ability to capture dynamic changes in the entrepreneurial ecosystem over time. Second, the reliance on self-reported data from users of Iranian messaging platforms may introduce response bias and affect the accuracy of the findings. Third, the study focuses on a specific national context, which may limit the generalizability of the results to other countries or regions with different institutional and cultural conditions.

Future research can build on the findings of this study by adopting longitudinal designs to examine the evolution of entrepreneurial ecosystems over time. Additionally, comparative studies across different countries or types of digital platforms can provide deeper insights into the role of contextual factors in shaping ecosystem dynamics. Researchers may also explore the impact of emerging technologies, such as artificial intelligence and blockchain, on the development of messaging platform ecosystems.

From a practical perspective, the findings suggest that policymakers and platform developers should prioritize the development of robust technological infrastructures, support systems, and educational programs to enhance human capital. Efforts should also be made to promote cultural acceptance and user engagement through targeted marketing strategies and the dissemination of success stories. By adopting a coordinated and holistic approach, stakeholders can strengthen the entrepreneurial ecosystem of messaging platforms and maximize their potential for economic and social impact.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were considered.

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