

Requirements and Interactions of the Sports Startup Ecosystem Iran

ABSTRACT

Purpose: The present research has analyzed the requirements and interactions of the sports start-up ecosystem in Iran.

Design/methodology/approach: The research is exploratory and qualitative in nature. In this regard, using purposive and snowball sampling methods, in-depth semi-structured interviews were conducted with 16 experts in the field of entrepreneurship and sports startups, including founders of sports startups, heads of science and technology parks and growth centers, university professors, and elites in the field of sports entrepreneurship. Then, the resulting data were analyzed using the grounded theory method and the Glaser approach.

Findings: By analyzing the research findings and identifying cultural values as the central category, the ecosystem requirements were categorized and presented around the central category in three categories: infrastructure, prerequisites, and the formation of types of capital (human, political, and social capital). Then, we determined the relationships between the components based on the presented requirements.

Originality: The research emphasizes the importance of understanding the roles and interactions of ecosystem components in start-up ecosystems, as it aids decision-makers in sports in making informed choices and identifying weak or missing components for ecosystem improvements.

Keywords: Educational and research infrastructure; Interaction and networking; Position of sports and entrepreneurship; Sports start-up ecosystem.

Paper type: case study

الزامات و تعاملات اکوسیستم استارت‌آپ‌های ورزشی در ایران

چکیده

هدف: پژوهش حاضر به تحلیل الزامات و تعاملات اکوسیستم استارت‌آپ‌های ورزشی در ایران پرداخته است.

روش: تحقیق از نوع اکتشافی و با ماهیت کیفی است. در این راستا با استفاده از روش نمونه‌گیری هدفمند و گلوله برفی، با 16 نفر از خبرگان حوزه کارآفرینی و استارت‌آپ‌های ورزشی شامل بنیان‌گذاران استارت‌آپ‌های ورزشی، رؤسای پارک‌های علم و فناوری و مراکز رشد، اساتید دانشگاه و نخبگان حوزه کارآفرینی ورزشی، مصاحبه‌های عمیق نیمه‌ساختاریافته انجام شد سپس داده‌های حاصل با استفاده از روش گرنند ثنوری و رویکرد گلیرز مورد تجزیه و تحلیل گرفتند.

یافته‌ها: با تحلیل یافته‌های پژوهش و شناسایی ارزش‌های فرهنگی به عنوان مقوله محوری، الزامات اکوسیستم حول مقوله محوری در سه دسته زیرساخت‌ها، پیش‌نیازها و شکل‌گیری انواع سرمایه (سرمایه انسانی، سیاسی و اجتماعی) دسته‌بندی و ارائه شد. سپس به تعیین روابط بین اجزاء بر اساس الزامات ارائه‌شده پرداختیم.

اصالت و ابتکار مقاله: این پژوهش بر این نکته تأکید دارد که صرف وجود منابع و یا شناخت اجزاء اکوسیستم، ضامن موفقیت و ارتقاء اکوسیستم‌های استارت‌آپی نیست بلکه باید نقش هر جزء و نحوه تعامل آن با سایر اجزاء نیز مشخص شود تا به تصمیم‌گیرندگان عرصه ورزش کمک کند، به درستی در مورد اقدامات خود برای ساخت اکوسیستم مطلوب و رشد آن تصمیم بگیرند. در واقع با شناخت نقش هر یک از اجزاء و تعیین اجزاء ضعیف و یا گمشده، الزامات تغییر و یا بهبود هر جزء در اکوسیستم نیز مشخص خواهد شد.

کلید واژه: اکوسیستم استارت‌آپ‌های ورزشی، تعامل و شبکه‌سازی، سیاست‌ها و رویه‌های آموزشی، جایگاه ورزش و کارآفرینی.

1. Introduction

Currently, sports constitute one of the greatest and rapidly expanding industries globally (Ratten and Jones, 2018), characterized by its competitive nature, rendering it one of the most international and dynamic sectors worldwide. For this reason, there has been a growing interest in the entrepreneurial spirit in sports. For this reason, there has been a growing interest in the entrepreneurial spirit in sports (Ayazi et al., 2015) so that sports organizations can maintain their competitiveness in the industry. Entrepreneurship is the creation of value by utilizing unique resources and exploring opportunities to develop and create innovative businesses and ventures (Kuratko & Hodgetts, 1992). Entrepreneurship is a catalyst for innovation and change, making it vital to the sports industry (Ball, 2005). Some research has shown that sport is inherently entrepreneurial (Ball, 2005; (Spilling, 1996)) and identifies the sports and tourism industries as prime examples of entrepreneurial organizations that make significant contributions to wealth creation and innovation (González-Serrano et al, 2021). Jones et al. (2017) point out that unlike other industries, sport has unique characteristics, which influence the development of entrepreneurial ventures (Jones et al., 2017). The sports industry has always been a leader in innovation (Elishkov et al., 2017), and one of the main factors contributing to the transformation and growth of this industry is digital sports startups, which play an important role as a main source of innovation (FERRARO & Di Francesco, 2016). From an economic perspective, startups are engines of creativity and progress for society and civilization, and by creating job opportunities and sparking investor interest, they drive more dynamic local growth (Bărbulescu et al., 2021). But since innovation is a complex and nonlinear process, startups, like other innovative organizations, are not able to produce innovation in isolation and mainly rely on external institutions to increase their capacity for innovation (Walrave et al., 2018). Ratten (2018) also believes that sports entrepreneurship occurs when a sports organization joins other sectors of society to respond to an opportunity and create added value. Sports entrepreneurship is not an isolated phenomenon, and the entrepreneurial ecosystem is a suitable platform for exploring and initiating entrepreneurial development. Therefore, it is obvious that the first step to developing and implementing entrepreneurship is to identify and analyze the entrepreneurial ecosystem (Pitts & Stotlar, 2007). The idea of an ecosystem—which originates from a biological concept—was adopted in the business and social sciences in the 1980s and has since become a vital idea for venture capital firms, especially startups (Lee et al, 2017). The term “startup ecosystem” refers to the set of stakeholder groups that make it up, such as universities, governments, other businesses, investors, independent professionals, and support organizations. The existence of these institutions is critical to the successful operation of a startup company (Motoyama & Knowlton, 2017). The growth of entrepreneurship, including sports startups, depends on considering many challenges from different perspectives and elements, which makes it clear that an ecosystem approach must be used (Spiegel et al., 2016). An efficient ecosystem ensures the flow of ideas, knowledge, talent, and resources within it (Singh & Ashraf, 2020). According to Mason and Brown (2014),

the startup ecosystem is the best means to increase the number of high-growth companies. Startup ecosystems have a significant economic impact because they increase domestic product production and create new jobs through startups or within the ecosystem (Tripathi et al, 2018). According to Isenberg (2011), ecosystems cannot be imitated, and in the development of entrepreneurship, regional and national advantages should be taken into account; imitation of successful ecosystems (such as Silicon Valley) should be avoided. In contrast, the primary challenges associated with innovation and corporate expansion are neither technological nor constrained by cash. Rather, they pertain to the interrelations and collaborative dynamics among the many components of the entrepreneurial ecosystem (Moore, 1996). The success of an innovation ecosystem depends heavily on the level of connectivity between its players (Iansiti & Levien, 2004). Communication is important and gets better as the ecosystem progresses (Stephenson, 2008). In fact, identifying the "missing elements" of support is not enough to create a healthy ecosystem; rather, the relationships between the supporting elements are of the utmost importance. Traditional methods used to assess entrepreneurial ecosystems have focused on measuring venture capital, incubators, supportive culture, or other elements in an entrepreneurial community. However, by focusing on the relationships between these elements and the evolution of an ecosystem over time, there is significant room for improvement (Motoyama and Knowlton, 2014). To successfully encourage entrepreneurship in a region, it is important to know exactly how, when, or why different actors interact with each other and how the ecosystem changes over time. This will help both the public and private sectors act in more effective ways.

2. Theoretical background

James Moore first used the term "ecosystem" in economic research in 1993, arguing that businesses develop within a network of interconnected suppliers, customers, and financiers rather than in isolation (Moore, 1993). Similarly, entrepreneurial success does not take place in a vacuum. The environment in which persons work and reside is regarded as directly linked to their actions in discovering and exploiting new business prospects (Szerb et al., 2013; Wright, 2014). González-Serrano et al. (2021) investigated sports entrepreneurship ecosystems in EU member states. The results revealed that the combination of high levels of business, infrastructure, human capital, technology, and creativity, as well as high levels of infrastructure and research, is the most important factor (González-Serrano et al., 2021). Darooghe Arefi et al. (2023) found that sports tourism, market opportunities, entrepreneurial infrastructure, and a favorable environment significantly contribute to the growth of sports entrepreneurial ecosystem in Iran (Darooghe Arefi et al., 2023). In their research, Francisco and Ferraro (2016) investigated the trends and success factors of digital start-ups in sports. The study highlights the significance of geographical, technological, and economic factors in the development of sports start-ups, with software platforms, applications, and wearables being the most common digital technologies (FERRARO & Di Francesco, 2016). Tripathi et al (2019) found that support from incubators and accelerators in Oulu, Finland, can enhance the creation of sustainable products by

providing necessary entrepreneurial skills and training (Tripathi et al., 2019). Pirjamadi et al.'s (1401) study on the growth of new sports businesses in Iran identifies various contextual factors, such as innovation, human capital, organizational aspects, structural and governmental factors, and entrepreneurship centers (pirjamadi et al., 2022). In their study, Khosravipour et al. (1400) investigated the financing of sports start-ups. The results showed that start-ups' market capacities and environmental support networks have a significant impact on their financing performance (Khosravipour et al., 2021).

Despite the abundance of works on sports entrepreneurship in the sports literature, our examination of the research in this field has not yielded a specific conceptual framework to describe the complex environment of new sports businesses. Given that the unique features of sports significantly impact sports-based entrepreneurship (Smith & Stewart, 2013), we have to design and present a comprehensive and appropriate model for these businesses. Most research assumes that the two distinct concepts of the entrepreneurial ecosystem and startup ecosystem are the same. While the startup ecosystem is a part of the entrepreneurial ecosystem, and startup businesses, as scalable, innovative businesses, have different needs and challenges, paying attention to the difference between these two concepts can enable the design of separate and practical policies for their launch and growth. Additionally, the majority of the studies examined successful ecosystems in the context of developed countries. While each region has distinctive characteristics, instead of imitating successful ecosystems, each should identify and develop its own (Isenberg, 2010). Also, research results in the field of business ecosystems show that the elements that make up the entrepreneurial environment play an important role in the successful development of startups and must interact with each other as an ecosystem, which can ultimately lead to the creation of successful startups (Tripathi et al., 2019). While most of the research only focused on identifying the components without considering their interaction and relationship.

This study examines the interactions and functions of components within an ecosystem, positing that innovation ecosystems function optimally when its members engage in frequent communication (OECD, 1997, Iansiti & Levien, 2004) and then, by identifying weak components, we provide the necessary criteria to improve them in the ecosystem. Understanding the components, along with the role of each component and its impact on other components in the country's sports startup ecosystem, provides a growth model for potential entrepreneurs and helps sports decision-makers make informed decisions about their actions to build and grow the ecosystem. The purpose of this study was to identify the pattern of relationships between the components of the sports startup ecosystem and then provide practical measures necessary to improve them in Iran. The ultimate and intended application of this research is to provide practical solutions and a desirable conceptual model to promote sports entrepreneurship activities in Iran.

3. Methodology

This research was practical and qualitative. Data collection in this research was done first by studying the theoretical foundations and documents and then semi-structured interviews. The research employs the grounded theory method for data collection. The researcher identified effective factors for the research topic through document analyses, used this preliminary list for interview questions, created an interview guide, and distributed it to experts. We conducted qualitative, in-depth, semi-structured interviews with experts in the next stage. The study involved 16 sports start-up founders, university professors, sports management doctorate graduates, and elite sports entrepreneurship experts with extensive knowledge of the sports entrepreneurship environment. Sampling in this study was purposeful and non-random snowball sampling. The interviews persisted until they reached theoretical saturation. Researchers analyzed literature and conducted interviews to determine the relationships and effectiveness of ecosystem components after identifying their components. According to Gaba and Lincoln, to check scientific validity in qualitative studies, four criteria of reliability, transferability, reliability, and verifiability are considered. In the current research, reliability, using the triangulation technique, and transferability were achieved by fully describing the environment and participants. Reliability was done by inspecting and documenting the researcher regarding the data and multiculturalism of the researcher. Finally, verifiability was done by obtaining the approval of the model from experts and participants. The researcher first immersed herself in the data by reading the transcriptions several times. Next, the researcher identified primary codes and relevant quotes. At this stage, the researcher sought to identify as many codes as possible. Additionally, the primary researcher discussed the codes developed by two research assistants after they read the transcripts. Each member did the coding individually, and then the team checked and confirmed the codes. The research team carefully followed the predetermined steps to ensure the reliability of the research and reviewed the work process.

According to the objectives of the research, coding was done in three stages, including open coding, selective coding, and theoretical coding. The researcher gained a comprehensive understanding of the data by familiarizing themselves with it and comprehending the meaning of terms within the context of the study. In the next step, the researcher started to organize the data with a meaningful and systematic method. Coding reduces large amounts of data into small chunks of meaning. The codes took the form of descriptive tags that either directly described or extracted information from the text. The next step involved forming open codes, which were similar to the core codes. They were multiple pieces of code linked together to paint a bigger picture than what was being portrayed. In the next step, the researchers reached the selected codes by aggregating the core codes into wider semantic ranges. The conclusion discusses the research question and study's purpose, focusing on interviewees' perceptions of creating a desirable ecosystem, based on their opinions and research literature.

4. Results

Table 1 presents the descriptive findings and demographic variables of the participants in this section.

Table 1. Description of the characteristics of the participants in the study.

No	Interview code	Age and gender	Education	Current field of activity	Experience of business
1	I1	F/34	PhD in sports management	researcher in the field of entrepreneurship ecosystem	No
2	I2	M/39	PhD in public administration	business start-up consultant	Yes
3	I3	M/40	PhD in business management	business start-up consultant	No
4	I4	M/40	PhD in sports management	Vice President of the Physical Education Research Institute	No
5	I5	M/28	Masters in Sports Physiology	The founder of a sports start-up	Yes
6	I6	M/34	Hardware expert	The founder of a sports start-up	Yes
7	I7	M/39	Master of Medical Engineering	Responsible for technology and commercialization of physical education research institute	No
8	I8	M/33	Master's degree in sports pathology	The founder of a sports start-up	Yes
9	I9	M/39	Bachelor of Electrical Engineering	The founder of a sports start-up	Yes
10	I10	M/45	PhD in International Entrepreneurship	Head of Entrepreneurship Center	Yes
11	I11	M/30	Master of Biomechanics	The founder of a sports start-up	Yes
12	I12	M/37	PhD in sports management	The founder of a sports start-up	Yes
13	I13	M/28	Master of Medical Engineering	The founder of a sports start-up	Yes
14	I14	F/40	Master of Software	The founder of a sports start-up	Yes
15	I15	M/46	PhD in business	Head of Incubator	Yes
16	I16	M/49	PhD in physical education management and planning	Vice President of university science and technology park	Yes

4.1. Identifying the components of the sports startup ecosystem in Iran

The study involved reviewing relevant documents, researching sports start-up ecosystems in other countries, and conducting semi-structured interviews with experts and professors. As a result, we identified nine main themes—factors related to education and research, human capital, social capital, government policies, cultural values, infrastructure and supporting factors, economic factors, market factors, and technology—as the primary components of the sports startup ecosystem, each of

which includes multiple dimensions. The figure below presents the main components of the sports startup ecosystem in Iran.

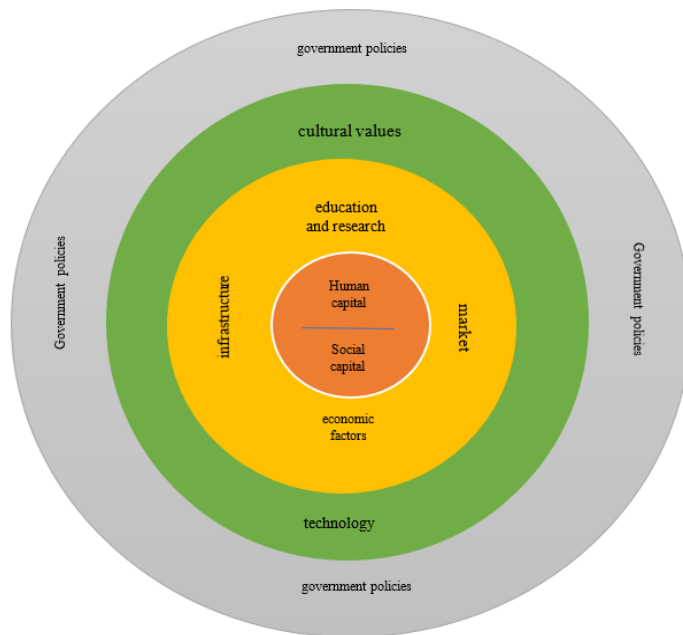


Figure 1. Main components of sports startup ecosystem in Iran.

4.2. Main concern of participants

Through the researcher's analysis of the codes related to ecosystem problems and the notes taken, it was determined that the most important concern of the participants was "the lack of priority for entrepreneurship in society and the lack of entrepreneurial mindset and thinking among officials and individuals in society," which has led to weakness in other components and weak and inadequate government support. In other words, society won't take action or provide support in this area as long as there isn't an entrepreneurial attitude and mindset. Therefore, considering the importance of entrepreneurial attitude and thinking, the category of cultural values with subcategories (the position of entrepreneurship and sports in the country, the social and cultural background of entrepreneurship, and the position of the media) was selected as the central category. Subsequently, considering the main concern of the participants and the central theme of the research, further interviews and analyses were directed towards enriching this theme.

At the highest level of reduction or brevity, the categories that emerged in the research were categorized to three general categories: infrastructure,

prerequisites, and market formation and types of capital, which integrates the concepts that emerged in the research at three levels. In fact, infrastructures create prerequisites (bases, background), and the fulfillment of prerequisites provides a suitable platform for the formation of various types of capital and market opportunities.

In the following sections, we present the requirements needed to implement each of the prerequisites, infrastructure, and the formation of human capital and political capital (two important capitals arising from data), and then we determine the relationships between the categories based on the aforementioned requirements.

4-3. The Requirements of The Sports Startup Ecosystem in Iran

❖ *Infrastructure and support requirements*

Sports startups founders seek support from accelerators, incubators, and experienced coaches for guidance in various fields. The interviewees reported that they had negative experiences with mentors. *“Our actions were influenced by a lack of a trustworthy mentor, as few individuals possess a clear vision in this field”* (Interviewee 11). *“Regrettably, there are limited mentors in the sports startup ecosystem, leaving the individual with a limited set of ideas and patents uncertain about their next course of action”* (Interviewee 12).

Table 2. Infrastructure and support requirements.

Theoretical coding	Selective coding	Open coding	Source	Frequency of repetition	Research literature	Interview	
Infrastructure and support	Physical and hard infrastructure	Providing resources or physical and civil facilities	I12, I5, I1	3	•	•	
		Establishing support centers	I1, I7, I5	3	•	•	
		Increasing synergy between startups based in growth centers and science and technology parks			•		
			Creating a talent database			•	
			Creating a dynamic environment (holding lectures, workshops, conferences, ...)	I4, I5, I7	3	•	•
	Soft and technological infrastructure	Holding specialized courses with successful entrepreneurs	I13, I7, I4, I1	4	•	•	
		Providing specialized services (training, branding, marketing, ...) by dedicated brokers in the market	I4	1		•	

Creating official and specialized databases for sports start-ups	I1	1	•	•
Support (knowledge and skills) of universities, innovation centers, growth centers, science and technology parks for sports start-ups	I8, I4, I5, I15	4	•	•
Information and media advertising for the growth of sports start-ups	I8	1	•	•
Development of information technology infrastructure	I11, I1, I5, I6	4	•	•
creating an internet system for registering ideas or the organization's needs	I4	1	•	•
Establishing the Supreme Council of Sports Innovations in Iran	I4	1		•
Establishing committees to evaluate and monitor the good activities of sports businesses	I1, I7	2	•	•
Facilitating access to sports applications	I11	1	•	•
Facilitating access to large corporations' technological services	I11	1	•	•

Education is a crucial component in the start-up ecosystem, as the creation of sports start-ups relies on knowledge, skills, and experience. The ecosystem's growth relies on fostering a robust entrepreneurial spirit, establishing top-tier universities, and training a skilled workforce.

Establishing academic entrepreneurship centers, evaluating students and professors based on innovation, and fostering creativity and innovation can significantly advance this field. The study reveals that successful business ventures necessitate more than just theoretical knowledge from schools and universities; it also necessitates practical market experience. *“Physical education graduates often lack entrepreneurial thinking and, despite theoretical knowledge of the courses, have difficulty managing subordinates effectively”* (Interviewee 9). Start-ups face difficulties in retaining skilled workers due to negative social and economic conditions. Solutions include incentives. *“Economy should support growth, retain talent”* (Interviewee 9). The table below summarizes the most significant cultural and educational measures

Table 3. Educational and research infrastructure.

Theoretical coding	Selective coding	Open coding	Source	Frequency of repetition	Research literature	Interview	
Educational and research	Educational content and procedures	Improving the quality of universities (technology-oriented)				•	
		Holding educational and promotional courses in the field of sports business	19	1	•	•	
		Providing training in information access, marketing, new technologies...	15, 115	2	•	•	
		Teaching strategic marketing courses to entrepreneurs	110, 12, 18, 15,	4	•	•	
		Changing traditional university teaching to creativity-oriented methods	18	1	•	•	
		Increasing the correlation of the content of educational programs with scientific and technological advances				•	
		Teaching communication skills in the field of entrepreneurship	11, 19, 17, 112	4			•
		Increasing awareness among sports startup managers and government officials	115, 17, 110	3			•
		evaluate professors and students based on their ability to nurture creative students, guide/produce productive and practical research	17	1	•	•	
		Teamwork and networking training	11, 112, 15, 19,	4	•	•	

❖ *Cultural and social requirements*

Table 4. Cultural and social requirements.

Theoretical coding	Selective coding	Open coding	Source	Frequency of repetition	Research literature	Interview
Cultural and social prerequisites	The position of entrepreneurship and sports in the country	Changing social attitudes and beliefs towards starting a business	I1, I10	2	•	•
		Continuous investment in training people			•	
		Cultivating the status of sports in society	I1, I10, I9, I7	4	•	•
		Changing students' mental beliefs about government jobs as the only route to future employment	I1, I9, I7, I5	4	•	•
		Encouraging students to start a business from a young age	I1, I10, I8, I6	4	•	•
		Promoting the position of entrepreneurship by the media	I1, I10	2	•	•
		Media advertising to attract investors	I6, I5	2	•	•
		Changing students' approach to optimal use of the Internet and virtual space			•	
		Promoting the participation of different strata of society and demographic diversity			•	

❖ *Requirements for the formation of political, human and social capital*

According to the respondents, government and relevant organizations' endorsement and assistance are crucial for Iran's sports start-up ecosystem. Lack of awareness and positive mentality, as well as knowledgeable officials, are main concerns for interviewees. Official vision and attitude significantly influence the creation of correct laws, financial support, human resource training, and provision of necessary facilities within the ecosystem. Thus, expanding official awareness and recognition is the first step in this field. "Our decision-makers lack knowledge, shouldn't make decisions for us. Support close to zero." (Interviewee 6). "Many organizations are operating independently with regulations lacking consistency. Ministry responsibilities require

a single center for good governance, with regulatory and legal mechanisms needing focus due to inadequate monitoring” (Interviewee 12).

Environmental requirements are listed in the table below, including political-legal requirements, economic requirements, and market requirements.

Table 5. Requirements related to political, social and human capital

Theoretical coding	Selective coding	Open coding	Source	Frequency of repetition	Research literature	Interview
Formation of political, human and social capital	Executive policies	Optimistic mindset and structured governmental assistance	I3, I11, I14, I7	4		•
		Increasing government support for advertising	I1, I4	2		•
		Management stability	I9, I11, I15	3	•	•
		A comprehensive view of start-up development policies	I3, I11, I14, I7	4		•
		Creating trust in people to support start-ups	I12, I11, I7	3		•
		Improving foreign relations with other countries	I5	1	•	•
		Establishing political stability	I4	1	•	•
		Localization policies for imported sports products and technologies	I15, I1	2	•	•
		Removal of sanctions	I13, I5, I4	3	•	•
		Establishing suitable legal and frameworks for start-ups	I6, I14, I7	3	•	•
		Developing sports diplomacy and improving domestic and international relations	I1	1	•	•
		Creating security for foreign customers	I4	1		•
		Supporting domestic production	I4	1	•	•
		Reducing the dependence and	I4, I17, I7	3	•	•

	intervention of the government and strengthening the private sector				
	Strengthening the monitoring mechanisms	I12, I10	2	•	•
	Correct and efficient legislation	I10, I2, I3, I12, I5	5	•	•
	Compilation of intellectual property system rules	I15, I1	2	•	•
	Ranking and evaluating experts in the field of technology, physical training, and sports science start-ups			•	
	Establishing a technology vice chancellor alongside a research vice chancellor in universities			•	
legal requirements	Creating incentives for the return of migrant professionals	I11, I12	2	•	•
	Establishing support units for sports start-ups in universities			•	
	Compilation of valuation standards for sports start-ups	I11	1	•	•
	Ease of obtaining permits and licenses for start-up businesses	I6, I5	2	•	•
	Creating incentives and tax exemptions for launching sports start-ups	I1, I10, I15, I3	4	•	•
	Establishing customs laws to support start-up products	I4	1	•	•
	Reducing the existence of administrative bureaucracy	I6, I5	2	•	•

	Establishing correct and principled insurance and tax laws	I10	1	•	•
	Separation of duties of sponsoring organizations to avoid parallel work	I4, I10, I12	3		•
	Informing people about government support	I15	1		•
	Clarification and access to information for entrepreneurs			•	
	Preparing national reports on the state of sports start-ups			•	
Networking and interactions	Creating a central unit to increase interaction between academic and executive units	I4	1		•
	interaction between various government institutions and the private sector	I12, I11, I7, I11, I4	5	•	•
	strengthening the interaction between industry and university	I13, I7, I4, I11, I8	5	•	•
	Investing in entrepreneurial human resource training	I10	1	•	•
Acquired knowledge and skills	Increasing the level of education, especially higher university education in management and economics.	I1	1	•	•
	Continuous acquisition of new market knowledge and marketing skills	I1, I7, I2, I4, I3, I9, I11, I14, I5, I8, I12	11	•	•
	Increasing technical and technological knowledge and skills	I1, I10, I3, I12, I6, I9, I14, I7	8	•	•

Increasing skills and experience in business management (how to attract investment, market analysis, pivot ability)	I1, I11, I2, I9, I14, I13, I16, I5, I7	9	•	•
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4-4 Determining the relationships between the components of the ecosystem of sports startups in Iran

Next, we used the researcher's notes and theoretical coding to explain the relationships between the main research categories. The figure below shows the main components of the sports startup ecosystem in Iran along with the relationships between the components. Full rectangles represent the ecosystem's main components, while dotted lines and arrows represent some sub-components and weak interactions. The labels in the arrows specify the type of relationship between the components. Solid arrows indicate relationships observed at all or nearly all time points, While dotted arrows indicate relationships that were observed only part of the time. By carefully examining this figure, it becomes clear that there is a one-way relationship between some dimensions and a two-way relationship between some dimensions. For example, there is a two-way relationship between society and culture and the entrepreneur, or there is a two-way relationship between education and culture.

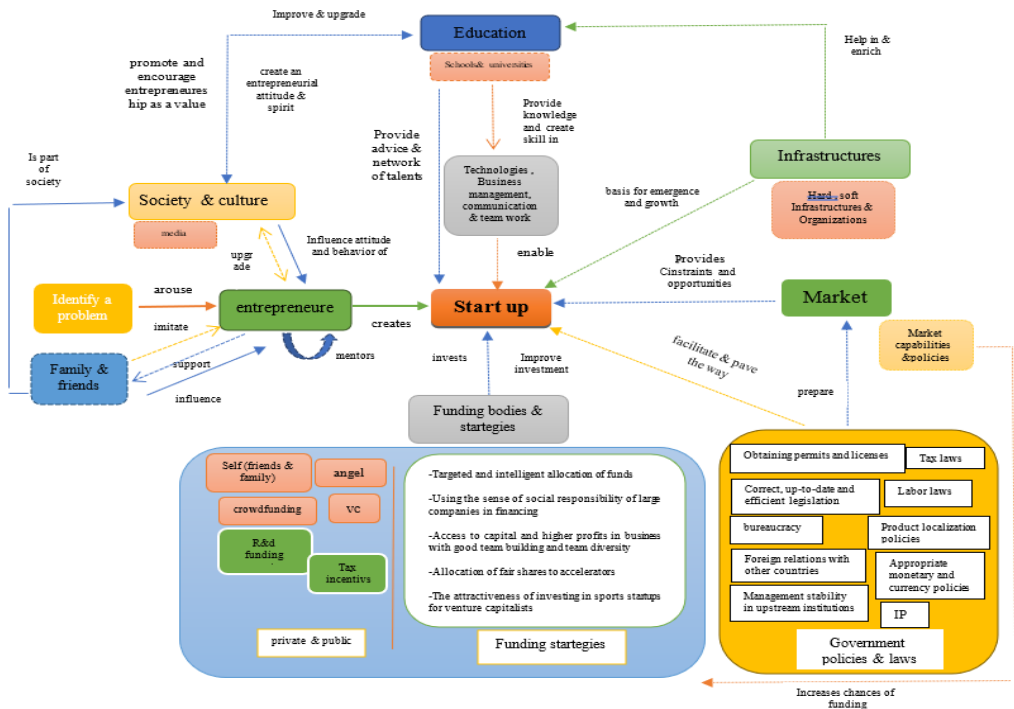


Figure 2. The pattern of sport Start-up Ecosystems in Iran (Localized model of cukier and Kon, 2018).

To determine the way of interactions between the components of the ecosystem in Figure 2; in the center, we see the start-up diagram that we are interested in creating and growing. At first, one or more entrepreneurs decide to create a start-up. This startup is significantly influenced by the society and culture in which it operates. Social beliefs and attitudes drive entrepreneurship success, while entrepreneurs improve society through innovation. Therefore, their interaction is considered two-way.

The family significantly influences entrepreneurship, with most individuals acquiring it through imitation (Kedrosky, 2013). This conclusion, however, was not supported by the majority of the research's interviewees. Most entrepreneurs did not start their businesses by copying their family members or receiving financial assistance. In one instance, an interviewee confirmed that she started a start-up by imitating a friend. Most of the interviewees of this research started their own business by identifying a problem. It seems that having experience and sports history was not ineffective in the identification process, without having a mindset of the concept of a start-up. As the work process progressed, they came to understand the concept of a start-up and applied it to their business. *"As a club coach, I faced numerous challenges and was determined to implement my ideas effectively. I had no vision about the start-up. Gradually I started and got acquainted with the word "start-up" (Interviewee 5).*

On the other hand, education is considered one of the important factors in strengthening entrepreneurship. The OECD's (Organization for Economic

Cooperation and Development) Better Life Index highlights that a satisfactory education is crucial for job search. High-quality education is a crucial success factor in both the Silicon Valley and Israeli start-up ecosystems, serving as the second pole after Silicon Valley (Kon et al., 2014). The interviewees in this research believed that schools and universities should train not only a skilled workforce but also an entrepreneurial mindset and spirit. The lack of individuals with an entrepreneurial spirit is a significant challenge faced by sports start-ups in our country.

“Educational institutions can cultivate an entrepreneurial mindset in young individuals, promoting a diverse range of interests beyond employment” (Interviewee 9). Schools and universities play a crucial role in fostering a culture of cooperation and teamwork skills. Start-up businesses require a competent team of experts with teamwork skills and culture to continue their journey. *“Start-ups need strong teamwork and communication skills to succeed; lack of cooperation and jealousy hinder success.” (Interviewee 12).*

The availability of funding for new ventures is an important factor in the startup ecosystem's efficiency. Start-up businesses require varying levels of financing, either from government sources like tax incentives and research budgets or private sources like venture investors, capital angel investors, or crowdfunding. The Global Entrepreneurship Monitor's 2017/2018 (Monitor, 2018) report highlights financing as a significant obstacle to entrepreneurship and a reason for business closure in resource-oriented economies, including Iran. Iran ranks 53rd in the entrepreneurial financing index among 54 countries, indicating a negative entrepreneurial framework in the country (Ahmadi Kafeshani et al., 2019). The study's findings indicate that the majority of the interviewees utilized personal sources for financing. *“We did not have enough funds. But a series of costs were required for advertising and marketing. In my opinion, the word startup is just a shell. There is nothing behind it especially sports startups” (Interviewee 14).* Also, some of the interviewees reported that it is not simple to access a venture capitalist (VC) budget in our country. *“Our investment was not from investors at all. Risk-takers do not accept risk” (Interviewee 14).* One of the interviewees stated *“The governorate also distributes loans to the provinces with low percentages. Many people are unaware of the requirement to visit the governor's office. Maybe the policy is to keep everyone in the dark” (Interviewee 15).*

Startups are influenced by government policies such as labor laws, tax rates, intellectual property, patent registration, and bureaucracy levels. The government can encourage or prevent entrepreneurs from starting businesses by formulating laws. The majority of the interviewees in this research believed that the laws and policies in our country discourage entrepreneurship. *“Policymaking is crucial in the startup world and involves government, parliament, legislature, entrepreneurs, and trustee institutions. Some laws discourage entrepreneurship.” (Interviewee 10).* Additionally, weakness in regulatory and legal mechanisms, parallel operation of different organizations were identified as important challenges in this field.

The market plays a crucial role in the start-up ecosystem, either providing opportunities or imposing constraints. According to the interviewees in this research, sports start-up market in our country is untapped. *“There is a lot of space for start-ups*

and sports services in our country. *“The sports start-up market in our country is very virgin”* (Interviewee 9). *“Students and faculty can address various needs together, creating successful start-ups, including in public sports in Iran”* (Interviewee 7). Interviewees discussed challenges in the sports start-up market, including monopolies, consumerism, lack of entrepreneurship, production loss, and cultural and economic issues affecting sports. *“In a society where production has declined and consumerism and brokering have thrived, science may no longer be relevant”* (Interviewee 12). However, the market factor is also effective in financing start-ups. Sports start-up owners can enhance their market capabilities, increase their chances of utilizing market opportunities, and secure financing. Research indicates that the competitiveness of the sports virtual service market, market access, supply chain, and investor interest significantly influence startup financing (Khosravipour *et al.*, 2021). Infrastructure is a critical and influential factor for start-ups, significantly influencing their emergence and growth. The study revealed that the ecosystem of sports startups is significantly influenced by soft and hard infrastructures, as well as various supporting organizations.

Incubators and accelerators significantly contribute to the growth of start-ups by offering training, guidance, and a secure environment for new entrepreneurs (Rothschild & Darr, 2005). Sponsoring organizations can enhance schools and universities' education by providing training in methodologies like lean start-up training and customer development. The research highlights the absence of sports start-up centers and skilled mentors as significant challenges in the sports start-up ecosystem.

Most conducted research includes the network agent as a component of the start-up ecosystem. Some researchers view the network factor as an underlying structure rather than an element (Motoyama & Knowlton, 2016; Qoriawan & Apriliyanti, 2022). In this research, Networking is vital for startups to connect with organizations and individuals, enabling skill acquisition crucial for early-stage success. *“A supportive environment is lacking. Think independently and generate income wisely. Utilize connections for collaboration, such as calling friends in filmmaking for video projects. Communication is vital for recruitment and market growth”* (Interviewee 12). Early-stage start-ups often lack expertise in areas like accounting, law, and international trade. Building a diverse network is crucial for success (Cukier *et al.*, 2016). The Iranian sports startup ecosystem shows weak connections between startups, entrepreneurs, sponsoring organizations, and educational institutions, affecting the overall growth and success of these startups. *“Contact with sports organizations exists, but distant. Communication only occurs after mistakes* (Interviewee 6). *“Several organizations, including the Presidential Scientific Vice President, Elite Foundation, Ministry of Science, and Ministry of Sports and Youth, are working in parallel”* (Interviewee 12).

5. Discussion and Conclusion

Start-ups and sports businesses are critical for innovation and technology development because they serve as new business activities and are essential for economic growth.

The study aimed to analyze the requirements and interactions of the sports start-up ecosystem in Iran using a qualitative approach. Considering the importance of entrepreneurial attitude and thinking, the category of cultural values with subcategories (the position of entrepreneurship and sports in the country, the social and cultural background of entrepreneurship, and the position of the media) was selected as the central category. At the highest level of reduction or brevity, the categories that emerged in the research were reduced to three general categories: infrastructure, prerequisites, and market formation and types of capital, which integrates the concepts that emerged in the research at three levels.

The sports start-up ecosystem needs to offer support and establish the necessary **infrastructure**. Appropriate hardware and software infrastructure such as access to transportation, workspace, holding conferences, and various events that focus on topics such as high-tech entrepreneurship or start-ups. It is necessary to provide a dynamic environment. A productive environment for start-ups should offer hundreds of events per year in a small geographic area. As Cukier and Kon (2018) stated, holding start-up events every day is one of the essential factors of the software start-up ecosystem and one of the signs of its maturity. Experienced coaches are crucial for sports start-ups. Weakness in this area is evident in our start-up ecosystem. Mentors can boost a start-up's value and credibility by leveraging their networks to connect entrepreneurs with opportunities. Official databases, evaluation committees, and specialized courses are recommended. The government should prioritize start-ups, collaborate with relevant stakeholders, and consider the sports industry's extent, to support the development of infrastructure both quantitatively and qualitatively.

Networking with diverse individuals and organizations is crucial for sports startups to thrive and succeed. The social network theory suggests that robust entrepreneurial ecosystem networks enable startups to access crucial resources (Theodoraki et al., 2018). Limited social and formal networks in the entrepreneurial ecosystem hinder resource access and efficient mobilization (Cunningham et al., 2019). Effective networking is one of the main keys to success, and in successful start-up ecosystems (like Israel), people are ready to help each other without asking for anything, and it is simple to reach almost anyone in their ecosystem. This result aligns with the findings of Matt *et al.* (2023) who found that network, support, and leadership are the most common requirements of entrepreneurial ecosystems. Motoyuma and Watkins (2014) highlighted that the entrepreneurial ecosystem's strength increases as connections between entrepreneurs and supporting organizations deepen.

Educational infrastructures are other necessary measures to improve the sports start-up ecosystem. Prominent start-up centers and high-tech industries can only thrive around world-class universities and research centers. (Kon et al., 2014) argue that long-term investment in education is crucial for nations to thrive in the information age. Physical education curricula should equip students with essential skills for starting technology-oriented businesses, including communication, teamwork, creative thinking, negotiation, technical and technological abilities, and business

management. Training teachers, professors, and faculty members is crucial for promoting student guidance and encouragement, as supported by Cukier and Kon (2018) and Kon et al. (2014).

Researchers emphasize the significance of **cultural values**, great entrepreneurs, high-quality research universities, and technology-oriented companies in the software startup ecosystem, recommending community acceptance and improvements in educational institutions. The initial step for start-up ecosystems in our country involves a shift in community attitudes towards entrepreneurial culture, enhanced educational institutions, and media support. Educating families about start-up potential is crucial for business development. Furthermore, promoting demographic diversity in sports start-ups can improve culture and reduce social tensions. It can also bring new ideas, enhance networking, attract investments, and create jobs for graduates. Governments should revise policies to support entrepreneurship in sports, leading to sustainable economic growth, national wealth, and the development of the sports industry.

The research findings show that weak **institutional policies** are a major obstacle to the development of the sports start-up ecosystem in Iran. Therefore, key needs in the sports start-up ecosystem include establishing, amending laws, integrating policies, and overcoming challenges like legal infrastructures, requirements, organizations, and observer institutions. According to the experts of this research, the lack of knowledge and understanding of the officials about the start-up business models or the lack of compassion and commitment is the most important challenge of the ecosystem that affects other factors too. In this regard, policies aimed at fostering an entrepreneurial mentality and thinking could be based on holding training courses for government and sports managers too. Correspondingly, improving support in the sports start-up ecosystem can be achieved through increased coordination and communication among various organizations. Creating a central unit to connect different components like executive and academic units is crucial. Non-alignment of the goals and interests of the various organizations may also contribute to the lack of coordination and weakness of Iran's sports startup ecosystem. Since there are various actors in the ecosystem of sports start-ups, each with own goals and interests, it should be possible to align these actors' goals and interests through effective communication and coordination, a process known as multipolar coordination. Multipolar coordination is one of the most important features of governance logic, as it helps to create collective identity and strengthen cooperation in an ecosystem (Colombo et al., 2019). This finding aligns with the views of (Acs et al., 2018) and Qoriawan and Apriliyanti (2022), who posited that the context and government policies significantly influence entrepreneurship. Motoyama and Knowlton (2016) and Qoriawan and Apriliyanti (2022) emphasize the significance of communication in enhancing the start-up ecosystem, fostering interaction between entrepreneurs and ecosystem components. Serrano et al. (2021) highlighted European Union (EU) regulations as a hindrance for sports entrepreneurs, suggesting a review of these rules, along with tax breaks and mentoring programs. Moreover, implementing policies that support talents and skilled engineers can prevent brain drain, thereby enhancing opportunities for business growth and creation.

It is of great importance for an entrepreneur to acquire the skills and knowledge needed both before and after launching a business. Increasing the level of university education, especially in the fields of management and economics, continuously acquiring new market knowledge and marketing skills, increasing skills in using modern technologies, increasing mastery of information and digital technology skills, business management skills and experience (how to attract investment, market analysis, ability to pivot, etc.), were considered effective skills in the success and growth of sports startups. Also, the ability to build teams and networks through efforts to form a team of professionals and specialists and the ability to manage and maintain the team, using complementary people in forming the team, using a founding board with relevant expertise, succession planning and the possibility of replacing team members, skills and teamwork culture are important factors related to human capital. According to the discussions, creating ideal conditions for the emergence and emergence of entrepreneurship and sports start-ups can be an important step towards forming the types of capital needed by start-up businesses and creating a desirable ecosystem. Creating a favorable environment and growing innovative businesses will be a way out of the unemployment problem of a large number of sports science graduates.

Since various studies emphasize the importance of interaction and communication in ecosystems, future studies can focus on how to measure this connection and interaction. They can also study the interaction and communication through quantitative methods.

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