

# Investigating the Influencing Factors of the Entrepreneurial Ecosystem in Sports Enterprises: A Case Study Approach

Chunfang Li<sup>1\*</sup>

## Abstract

In the past decade, the study of entrepreneurial ecosystems has garnered increasing attention, with scholars examining aspects such as conceptual meanings, operational mechanisms, and entrepreneurial environments. The entrepreneurial journey, particularly within the sports industry, is fraught with unique challenges and the potential for abrupt terminations. This makes the investigation of the factors influencing the entrepreneurial ecosystem in sports enterprises especially crucial. This paper delves into the specific dynamics of the sports entrepreneurial ecosystem by utilizing case studies of prominent sports companies. It employs the entropy weight method to analyze and prioritize the influencing factors within this sector. The findings aim to provide valuable insights and recommendations for current and future participants in the sports entrepreneurial ecosystem, facilitating a deeper understanding of its unique challenges and opportunities. This research highlights the critical factors that support or hinder sports-related ventures and contributes to the broader discourse on entrepreneurship in niche markets.

**Keywords:** Entrepreneurial Ecosystem; Case Study; Sports Companies.

## Introduction

The entrepreneurial ecosystem, a concept that has captured the attention of researchers and practitioners alike, offers a comprehensive framework for understanding the dynamics that foster or inhibit business development and growth. Over the past decade, this area of study has evolved, with increasing focus on the nuances of specific industries, including the highly competitive sports sector. This introduction sets the stage for a focused exploration of the entrepreneurial ecosystem within sports enterprises, providing a backdrop for the importance of this research and outlining the objectives and methodology employed.

### The Importance of Entrepreneurial Ecosystem Research

An entrepreneurial ecosystem encompasses the social and economic environments that affect local or regional entrepreneurship. These ecosystems are characterized by elements such as access to financial capital, the presence of supportive policies, and the availability of mentoring and networking opportunities. In sports enterprises, these factors take on unique characteristics due to the industry's intense competition, rapid pace of innovation, and high public visibility. The complexities inherent in the sports industry make it a compelling case study for examining how entrepreneurial ecosystems can support or hinder business success.

### Challenges in the Sports Industry

The path to entrepreneurship in the sports industry is notably challenging. Sports enterprises must navigate a

landscape filled with regulatory issues, fluctuating market demands, and intense competition both on and off the field. Moreover, sports entrepreneurs often face the added pressure of aligning their business models with health and performance metrics, fan engagement, and media relationships. These challenges highlight the need for a robust entrepreneurial ecosystem that can provide the necessary support to sustain and grow sports-related businesses.

### Objectives of the Study

This study aims to:

Identify and analyze the key factors influencing the entrepreneurial ecosystem in the sports industry.

Utilize case studies of successful sports companies to illustrate how these factors operate in real-world scenarios.

Apply the entropy weight method to quantify the impact of each factor, providing a prioritized list of influences that are most significant in the sports context. Offer actionable insights and strategic recommendations for stakeholders within the sports entrepreneurial ecosystem, including new entrepreneurs, investors, and policy-makers.

### Methodological Approach

To achieve these objectives, the study employs a qualitative research methodology complemented by quantitative analysis. Case studies of selected sports companies provide the basis for qualitative insights, while the entropy weight method offers a quantitative measure of the relative importance of different factors within the ecosystem. This

<sup>1</sup> Research Center of Complex Network System and Innovation, Tianjin University of Finance and Economics, Tianjin, 300222, China

\*Correspondence: [tracyleeunique@126.com](mailto:tracyleeunique@126.com)

dual approach allows for a comprehensive understanding of the ecosystem's dynamics, ensuring that the conclusions drawn are both deeply informed and broadly applicable.

### Significance of the Study

By focusing on sports enterprises, this study contributes to the literature on entrepreneurial ecosystems in niche markets and addresses a significant gap in existing research. The findings are expected to benefit a wide range of stakeholders, from aspiring entrepreneurs who need guidance on navigating the sports industry landscape to veteran industry players looking to innovate and expand their operations. Furthermore, the study's recommendations could influence policy-making and investment decisions, enhancing the overall vitality and competitiveness of the sports industry.

## Related work

### Research Abroad

In 1993, It is proposed that the business ecosystem in the Harvard Business Review, which introduced the ecosystem into management activities. The entrepreneurial ecosystem (EE) emerged in the 2000s and has become increasingly dominant in entrepreneurship research. Entrepreneurial ecosystem is composed of a series of interdependent subjects and factors (Felton et al., 2021). The management mode of these subjects and factors enables them to carry out productive sports entrepreneurship in a specific region (Jaén, Moriano, & Liñán, 2013; Stam, 2015). Many studies on sports entrepreneurial ecosystem have carried out empirical research in a specific social context (Stam & Spigel, 2016). Acs et al. used quantitative methods to analyze many powerful entrepreneurial ecosystems, which led to innovative entrepreneurial activities (Acs, Autio, & Szerb, 2015). Although the specific term EE is not introduced into the literature on Silicon Valley (Chao, 2023; Kenney & Patton, 2005; Saxenian, 1995), Washington, D.C. (Feldman, 2001) and Kyoto, it studies the factors that encourage and cultivate entrepreneurship in a specific environment (Stam & Spigel, 2016). EE has been widely regarded as a complex and "evolving" dynamic system (Acs et al., 2015; Borissenko & Boschma, 2016; Dubina et al., 2017; Feld, 2020; Isenberg, 2010). Traditionally, entrepreneurship research tends to focus on entrepreneurs as individuals and their internal characteristics (Shane, 2003; Spigel & Harrison, 2018). However, the research that overemphasizes personal characteristics is slightly narrow, and the socio-economic environment in which entrepreneurship is located has received more and more attention (Eisenhardt, 1989; Qiqi & Weidong, 2024). The research on the influencing factors of EE focuses on the influence of external factors, and many studies

consider the importance of the overall environment of entrepreneurs (Drakopoulou Dodd & Anderson, 2007; Wang, Liao, & Wu, 2014).

### Domestic Research

The research on entrepreneurial ecosystem in China is relatively late, and most of it began after 2010.

#### *Definition and Connotation of Entrepreneurial Ecosystem*

Goudini et al elaborated the research feasibility of entrepreneurial ecosystem, elaborated the internal operation mode of entrepreneurial ecosystem, and emphasized the interaction between entrepreneurial environment and entrepreneurial subjects, as well as the initiative and of each subject, which are important forces for entrepreneurial development through the study of entrepreneurial theory and ecological characteristics at home and abroad (Goudini, Ashrafpoornavaee, & Farsi, 2019). Wang et al. pointed out that entrepreneurial ecosystem is composed of entrepreneurial ecological community and entrepreneurial supporting environment. sports enterprise is the key factor of entrepreneurial ecosystem, and entrepreneurial ecosystem is a dynamic balance system composed of the interaction between community elements and environment (Wang et al., 2014; Wu, 2024). It is believed that the entrepreneurial ecosystem is an organic whole composed of a variety of entrepreneurial subjects (including sports enterprises and related enterprises, governments, institutions) and their entrepreneurial environment (natural environment, social environment). They have complex interactions, and are committed to improving the overall level of entrepreneurial activities (entrepreneurial number and entrepreneurial success rate). The entrepreneurial ecosystem should be defined as taking entrepreneurs as the center, connecting institutions such as policy guidance, financial services, intermediary services, scientific research institutions, entrepreneurship education, infrastructure, etc., and cooperating with entrepreneurs to improve the quality of entrepreneurship and promote the overall development of the region through interactive symbiosis and evolution.

#### *Entrepreneurial Eco System Structure*

Spigel studied the regional science and technology entrepreneurship ecosystem, and believed that the science and technology entrepreneurship ecological community includes six groups of science and technology sports enterprises, universities and research institutions, investment and financing institutions, science and technology intermediary service institutions, affiliated sports enterprises and government agencies (Spigel, 2017). It is believed that the entrepreneurial ecosystem includes entrepreneurial participants and entrepreneurial environment, in which

entrepreneurial participants include direct participants (start-ups and mature sports enterprises in-process Entrepreneurship) and indirect participants (large e sports enterprises, governments, universities and scientific research institutions, investment institutions, intermediaries that provide support such as technology and talents). Entrepreneurial environment includes natural environment, culture, market System and other supporting elements.

#### *Operating Mechanism of Entrepreneurial Ecosystem*

Chen Su et al. summarized the operation mechanism of the maker space entrepreneurship ecosystem as five mechanisms: ecosystem metabolism mechanism, multi-level entrepreneurial network nesting mechanism, heterogeneous entrepreneurial resource integration mechanism, entrepreneurial ability dynamic improvement mechanism, user value creation mechanism. When studying the operation of entrepreneurial ecosystem, Lin Song proposed that it relies on three mechanisms as a whole: resource convergence mechanism, value exchange mechanism and balance and coordination mechanism, and believed that there is a logical progressive relationship between the three mechanisms, which respectively serve the core entrepreneurial activities, closely related external organizations and the development of the overall system; It is tried to build a dynamic model of entrepreneurial ecosystem.

#### *Construction and Cultivation of Entrepreneurial Ecosystem*

It is systematically constructed the entrepreneurial ecosystem index in the report of Beijing entrepreneurial ecosystem index, made an overall evaluation of Beijing's entrepreneurial ecosystem, and quantitatively analyzed the level of Beijing's entrepreneurial ecosystem through a mathematical model, providing a logical basis for the construction and cultivation of entrepreneurial ecosystem. Its Divided and compared the types of entrepreneurial ecosystems from the perspective of the dual role of enterprise network concentration and government participation, and divided entrepreneurial ecosystems into the following types: sports enterprise networks are highly concentrated, and the government is highly involved; The sports enterprise network is highly centralized, and the government has low participation; Low concentration of sports enterprise network and high participation of the government; Low concentration of sports enterprise networks and low participation of the government (Gaedicke et al., 2021; Mustafa & Trevor, 2022; Oh et al., 2020).

#### **Commentary**

The concept of an entrepreneurial ecosystem originated abroad, and most foreign scholars can agree with the statement of Stam (Stam, 2015; Stam & Spigel, 2016). In the empirical study of entrepreneurial ecosystems in different

regions, the exploration of its influencing factors is increasingly focused on the external environment of enterprises (Drakopoulou Dodd & Anderson, 2007; Spigel & Harrison, 2018). Domestic scholars started their research on entrepreneurial ecosystem late and have different views on its definition, but they all agree that entrepreneurial ecosystem is a dynamic system composed of a group of interacting multiple elements (Wang et al., 2014); They also deduced and explored the operating mechanism of the entrepreneurial ecosystem, and both believed that the system was dynamic (Acs et al., 2017; Kshetri, 2014). Scholars at home and abroad have reached a consensus that entrepreneurship ecosystem is a complex system with dynamic development. Scholars have their own views on its research, evaluation and measurement. From the perspective of literature research, empirical research on entrepreneurship ecosystem is different in different countries, regions and industries. It is necessary to conduct systematic research based on local actual conditions, so that the research results will have theoretical and practical reference significance. Therefore, this paper also selects the entrepreneurial ecosystem participated by sports enterprises with strong pertinence for research, and the research results have certain reference value (Oliveira et al., 2022).

## **Research Methods**

In social science research, several research strategies are most commonly used, including case study, experiment, investigation, archive analysis and history. Each of these strategies has its own advantages and disadvantages. For the influencing factors of the vulnerability of the entrepreneurial ecosystem studied in this paper, the form of the question is "how, why" type, and no control over behavioral events is required. The case study involves direct observation of events and interviews with people related to the events studied. And the focus of this study is contemporary events. In addition, this study is highly regional, so the method of this study is case study, mainly to combine local conditions, so that the results can be closer to reality and get a more comprehensive and overall view. The influencing factors of entrepreneurial ecosystem are determined and weighted by expert scoring and entropy weight method. The indicators are selected by combining literature with practice, using interviews to obtain first-hand information of cases, and obtaining other relevant information from government websites, books, newspapers and magazines. Experts choose the main companies, governments, banks and other personnel at different levels engaged in entrepreneurship related work in the entrepreneurial ecosystem, so as to obtain as

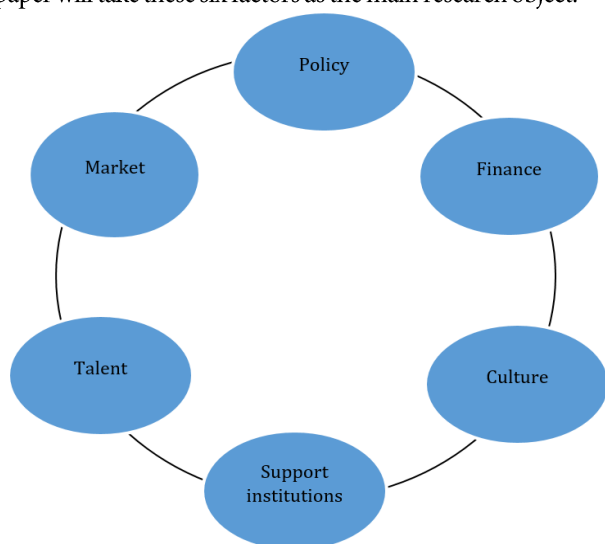
much information as possible close to the truth. Case studies and expert scoring methods are subjective to some extent. Entropy weight method using objective weighting method can reduce the impact of subjective impression and better reflect the real situation.

## Factors Influencing the Entrepreneurial Ecosystem

### Elements of Entrepreneurial Ecosystem

A system consists of an organized set of interacting and interdependent subsystems that work together as a whole to achieve a purpose. In general, an ecosystem is a purposeful cooperative network of dynamically interacting subsystems with ever-changing dependencies. The entrepreneurial ecosystem is composed of subsystems, and the subsystems are aggregated into a system. Some scholars have studied which subsystems (or elements) and the interaction between elements (Jowett & Arthur, 2019).

Isenberg identified six elements in an entrepreneurial system: enabling culture, enabling policies and leadership, availability of appropriate financing, quality human capital, risk-friendly product markets, and a range of institutional support (Isenberg, 2010) (Fig. 1). Other scholars have also proposed different factors in the entrepreneurial ecosystem, but no matter how many factors, these six factors are included. Therefore, this paper will take these six factors as the main research object.



**Figure 1:** Elements of an Entrepreneurial Ecosystem.

Source: (Isenberg, 2010)

### Influencing Factors of Entrepreneurial Ecosystem

#### Research on Influencing Factors of EE

The influencing factors are related to different countries and regions. The case of this study adopts domestic typical cases to analyze the influencing factors consistent with national

conditions. The case study method has inherent defects in representativeness and universality (Siggelkow, 2007). However, the case selection of this paper can improve the effectiveness of this study to a certain extent. The reasons are: (1) there is substantial interaction between enterprises and entrepreneurial ecosystem resources; (2) Enterprises have influence in the development of local entrepreneurial ecosystem (Jung et al., 2022; Kokko et al., 2019).

#### Data Source

There are two data sources. One is online public materials, including news, websites, government and industry reports, as well as relevant journal papers and book chapters. The second is to use interview and collect data.

#### Entrepreneurial History of Ten Cent and Interaction with EE

Ten cent is one of the most successful Internet companies in China. Its enterprise business mainly includes: social networking, games, online media, wireless, e-commerce, etc. Wechat has now become a necessary mobile social application for most Chinese people. Ma Huateng graduated from Computer Science of Shen Zhen University in 1993. He had an internship in Liming Network Systems in Shenzhen during undergraduate years. After graduating from University, Ma Huateng joined Shen Zhen Runxun Technology Service Co.,Ltd. During this period, he founded FidoNet Shenzhen Branch, named Ponysoft, which is very popular among software developers in China. In 1996, Zhang Zhidong who was high school classmate of Ma Huateng, joined Liming Network Systems, and they had a historic dialogue on jointly establishing their own company. Initially, they wanted to combine the traditional paging center business with the Internet. However, in the late 1990s, mobile phones began to replace pagers as the main means of communication, which endangered their business. With the development of mobile phones and the Internet, the instant messaging software ICQ has attracted the attention of Ma Huateng and his co-founder, who initiated the idea of developing a Chinese version of ICQ. At the end of 1998, Ma Huateng and his five co-founders officially established Ten cent in the state-owned Shenzhen Science and technology park. At the beginning of its establishment, ten cent experienced a difficult period. They faced financial difficulties in developing the Chinese version of ICQ - OICQ. One of the co-founders used his previous contacts to obtain profitable projects for the company. At the same time, another co-founder joined OICQ with a number of senior employees of other software companies in Shenzhen. With the financial support obtained from the cooperation project with Shenzhen Telecom, OICQ was successfully released (Lopez de Subijana et al., 2021).

After the release of OICQ, the number of users increased exponentially, putting great pressure on Ten cent servers.



Due to lack of funds, ten cent had to assemble its own server. A turning point in financing of Ten cent was its participation in the first High-Tech Fair held in Shenzhen in 1999. At the Fair, ten cent reached the first venture capital agreement. In 2000, OICQ was renamed QQ. Ten cent continued to attract elite employees from other companies and began to cooperate with China Unicom (Shenzhen Office) to use QQ on mobile phones running network of China Unicom. This cooperation was very successful and welcomed by customers.

China Mobile (Shenzhen Office) cooperated with Ten cent in the same way and then introduced it to other parts of China. In 2001, Ten cent began another round of financing. The cooperation with major domestic network operators is progressing smoothly, making profits for the first time, and the number of QQ users has reached 100 million. Many domestic Internet giants have taken a fancy to this market. Under the fierce market competition, ten cent launched a personal virtual image system - QQ show, which ignited the market in an instant. Ten cent also expanded its business to online games and news portals, and was listed on The Stock Exchange of Hong Kong in 2004.

#### EE Influencing Factors

According to Isenberg, entrepreneurship has six areas: policy, finance, culture, support institutions (Isenberg, 2010), human capital and market (Wang et al., 2014). Based on the analysis of entrepreneurial process of Ten cent and its interaction with EE, this paper analyzes the factors that can affect the development of entrepreneurial ecosystem based on Isenberg (Isenberg, 2010):

#### Finance

Ten cent faced the threat of capital problems when it was founded. In the second year of its establishment, ten cent got its first investment through the High-Tech Fair, then Ten cent developed rapidly.

#### Talent

In the process of development, ten cents have also absorbed elites from various industries. First, it has dug up a mainstay from Huawei and attracted high-level graduates from major universities, laying a good talent foundation for its development and business expansion.

#### Market

For the industry Ten cent is in, in 1996, Israeli developers announced ICQ and swept the world at a very fast speed. In 1998, the first Chinese version of ICQ was released by a company in Nanjing. In 1999, the development of mobile phones put early business of Ten cent at risk. In 2002, the competitor of QQ—UC appeared. In 2004, the emergence of instant messaging software Net case and MSN also brought great challenges to Ten cent.

#### Support Organization

Ten cent is known and benefited a lot through the High-Tech Fair. The formation of entrepreneurship chain at the beginning of the century is very friendly to start-ups in the industry and can accelerate their growth and development. The role of large companies in EE cannot be buried. Before Ten cent was founded, Ma Huateng interned in Liming Network Systems and joined Shenzhen Runxun Technology Service Co., Ltd, which laid a good foundation for entrepreneurship. Other co-founders also have work experience in large companies. In 2000, the cooperation with China Unicom and China Mobile successfully promoted business of Ten cent to the whole country and developed rapidly.

#### Policy

In 1992, the central government allowed the establishment of local policies and regulations in Shenzhen Special Economic Zone, which is also the support of start-up companies. In 1994, Shenzhen issued policies and systems conducive to the development of the electronic industry. Ten cent got profits rising sharply when China restricted the growth of mobile additional business in 2004.

#### Culture

Culture is the embodiment of social ideology. Entrepreneurial culture is the concept, value system and psychological consciousness formed by entrepreneurs in the process of entrepreneurial activities, which leads the thinking and behavior of entrepreneurs. The enterprise culture of Ten cent in the development process and the entrepreneurial culture in Shenzhen have contributed to the development of the company.

*Determination of the Weight of EE Influencing Factors*

After determining the indicators, it is necessary to determine the impact of these indicators on the entrepreneurial ecosystem, that is, to determine the weight of each indicator. Ecosystem is a complex open system, and its behavior depends on the external environment, the behavior of participants and their interaction. Entropy is a quantitative measure of disorder in the system. Entropy can be used to judge the dispersion degree of an index. The smaller its information entropy is, the greater the dispersion degree of the index is, the greater the impact of the index on the comprehensive evaluation (i.e. weight). The weight distribution method reduces the subjectivity of common evaluation methods and can reflect the differences between evaluation indexes, so as to improve the rationality of evaluation results. The main calculation steps of entropy weight method are as follows: 1. Suppose there are  $m$  indicators  $X_1, X_2, \dots, X_m$ , and  $X_i = \{x_1, x_2, \dots, x_n\}$ , after data standardization for each indicator is  $Y_1, Y_2, \dots, Y_m$ . If the indicator has positive indicators and negative indicators,

then:  $Y_{ij} = \frac{X_{ij} - \min(X_i)}{\max(X_i) - \min(X_i)}$  (Positive indicator)

or  $Y_{ij} = \frac{\max(X_i) - X_{ij}}{\max(X_i) - \min(X_i)}$  (Negative indicator)

2. Calculate the ratio of indicators, that is, the proportion of the j-th indicator in the i-th scheme. In fact, it is to calculate the variation of the indicator.

$p_{ij} = \frac{Y_{ij}}{\sum_{j=1}^m Y_{ij}}$ ,  $i := 1, \dots, n, j = 1, \dots, m$ . 3. Calculate the information entropy of each

index. The information entropy of a group of data is:

$$E_j = -\ln(n)^{-1} \sum_{i=1}^n p_{ij} \ln p_{ij}$$

Where  $E_j \geq 0$ , if "  $p_{ij} = 0$ ,  $E_j = 0$  is defined. Determine the weight of each index. If the

entropy of each index is calculated as  $E_1, E_2, \dots, E_m$ , the weight of each index is:

$$w_j = \frac{1 - E_j}{k - \sum E_j}, j = 1, 2, \dots, m$$

Or calculate the weight by calculating the information redundancy:

$$D_j = 1 - E_j$$

Then the index weight value is:  $w_j = \frac{D_j}{\sum_{j=1}^m D_j}$ . The main research is on the influencing

factors of entrepreneurial ecosystem, based on the previous case analysis, the six areas of Isenberg are taken as the primary indicators, and the secondary indicators are selected according to the principles of simplicity, measurability and accessibility. Experts are invited to use Likert 5 scale to score the secondary indicators (Table 1).

**Table 1 (a)**

*Results of Indicators and Scoring of Influencing Factors*

		Indicators and Scoring of Influencing Factors									
Primary Index	Secondary Index	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10
Finance	Attract local venture capital investment	5	5	5	5	4	5	5	5	5	5
	Possibility of sufficient local venture capital funds (accessibility)	5	5	4	5	5	5	4	5	5	5
	Government subsidy financing is easy to start	5	5	5	5	5	4	5	4	5	5
	There is sufficient debt capital when starting a business	4	4	5	4	4	4	4	5	4	4
	Possibility of obtaining sufficient funds through local Angel Fund	5	5	4	5	5	5	5	5	5	4
	Convenience of local financial service system	4	4	4	5	4	4	4	4	4	4
	Investment activity at the initial stage of regional start-up	5	5	5	4	5	5	5	4	5	5
Talent	local entrepreneurial education experience and number of participants	4	5	5	5	5	5	5	5	4	5
	Entrepreneurial experience	5	4	5	5	5	3	5	4	5	4
	Provide local entrepreneurship education	5	5	5	5	5	4	5	5	5	5
	Provide entrepreneurial education at Local Universities	4	4	5	4	4	5	5	5	4	4
	Implementation degree of management education suitable for entrepreneurship and enterprise growth	5	4	4	5	5	4	4	4	4	4

	Easy to hire local technicians	5	5	5	5	5	5	5	5	5	5
	Ease of access for local start-ups to the domestic market	5	5	5	5	5	5	5	5	5	5
	Ease of access for local start-ups to new markets	5	5	5	4	5	5	5	5	5	5
Market	Changes in consumer goods and services markets	4	4	4	4	4	5	5	5	4	4
	Formation of local entrepreneur network	5	5	5	5	5	5	5	5	5	5
	Convenience of survival of local start-ups	5	5	5	5	5	5	5	5	5	5
Support	Number of entrepreneurial clusters in the region	5	5	5	4	5	4	4	5	5	5
Organization	Number of local business incubators	4	5	4	4	5	5	5	4	5	5
	Convenience and possibility of contacting local entrepreneurial related organizations	4	5	4	5	4	5	5	5	5	5

**Table 1(b)**

*Results of Indicators and Scoring of Influencing Factors*

		Indicators and Scoring of Influencing Factors									
Primary Index	Secondary Index	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10
	Provide legal, accounting and technical support to local start-ups	5	5	5	5	4	4	5	5	5	4
	Number of entrepreneurial activities held in the region, such as annual entrepreneurship conferences and competitions	4	4	5	5	5	4	4	4	4	4
	Local government priority policies	5	5	5	5	5	5	5	5	5	5
	Legal system for entrepreneurs	5	4	4	4	4	4	4	4	4	5
Policy	Degree of help from government entrepreneurial support program	5	5	5	5	5	5	4	5	5	4
	Loose administrative regulations for the establishment and growth of start-ups	5	5	4	5	5	5	4	5	5	5
	Attitude towards risk	5	5	5	4	5	5	5	5	5	5
	Recognition of entrepreneurs' social status in the region	5	5	5	5	4	5	5	4	5	5
Culture	Want to change jobs and employers	4	4	4	4	4	4	4	5	4	4
	Creativity and innovation of local residents	4	4	5	5	5	5	4	5	5	5
	A good culture of personal success	5	5	5	5	4	5	5	5	4	5

The scores are from experts (Oh et al., 2020). After the initial scoring matrix is obtained, the weight of each index can be obtained by using MATLAB. The results are in Table 2 as follows:

Table 2

Weight of Each Index

Primary Index	Weight of Each Index		Total		
	Secondary Index	Weight (%)			
Finance	Attract local venture capital investment	3.127%	21.88%		
	Possibility of sufficient local venture capital funds (accessibility)	3.125%			
	Government subsidy financing is easy to start	3.125%			
	There is sufficient debt capital when starting a business	3.124%			
	Possibility of obtaining sufficient funds through local Angel Fund	3.125%			
	Convenience of local financial service system	3.127%			
	Investment activity at the initial stage of regional start-up	3.125%			
Talent	local entrepreneurial education experience and number of participants	3.125%	18.74%		
	Entrepreneurial experience	3.114%			
	Provide local entrepreneurship education	3.127%			
	Provide entrepreneurial education at Local Universities	3.122%			
	Implementation degree of management education suitable for entrepreneurship and enterprise growth	3.122%			
	Easy to hire local technicians	3.127%			
	Ease of access for local start-ups to the domestic market	3.130%			
Market	Ease of access for local start-ups to new markets	3.127%	15.64%		
	Changes in consumer goods and services markets	3.122%			
	Formation of local entrepreneur network	3.130%			
	Convenience of survival of local start-ups	3.130%			
	Number of entrepreneurial clusters in the region	3.123%			
	Number of local business incubators	3.122%			
	Convenience and possibility of contacting local entrepreneurial related organizations	3.123%			
Support Organization	Provide legal, accounting and technical support to local start-ups	3.123%	15.61%		
	Number of entrepreneurial activities held in the region, such as annual entrepreneurship conferences and competitions	3.122%			
	Local government priority policies	3.130%			
	Policy	Legal system for entrepreneurs		3.124%	12.50%
		Degree of help from government entrepreneurial support program		3.125%	
		Loose administrative regulations for the establishment and growth of start-ups		3.125%	
	Culture	Attitude towards risk		3.127%	15.63%
Recognition of entrepreneurs' social status in the region		3.125%			
Want to change jobs and employers		3.127%			
Creativity and innovation of local residents		3.123%			
A good culture of personal success		3.125%			

Source: calculation results of entropy weight method



It can be seen from the results in the table that the scores are very close, so the weight values of various indicators are relatively close, but we can still see which indicators are relatively important influencing factors. Figure 2 to Figure 7 shows the weights of Secondary index.

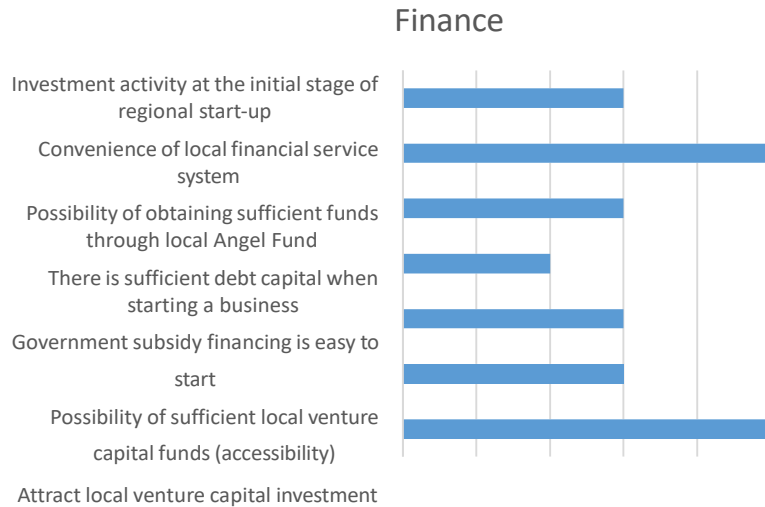


Figure 2: Weights of Secondary index of Finance.

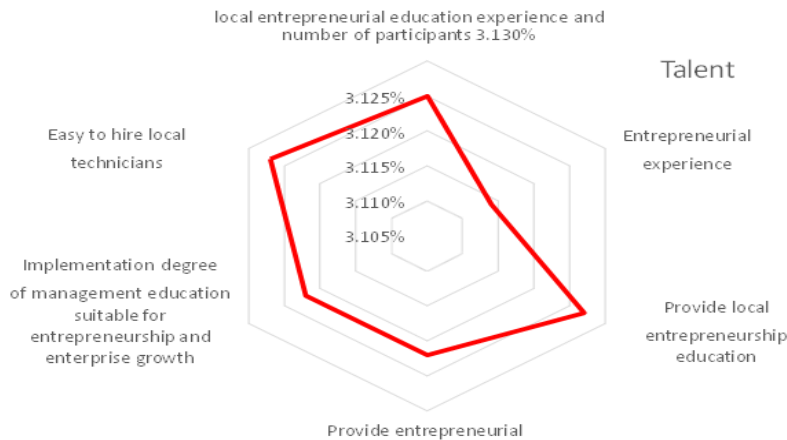


Figure 3: Weights of Secondary index of Talent.

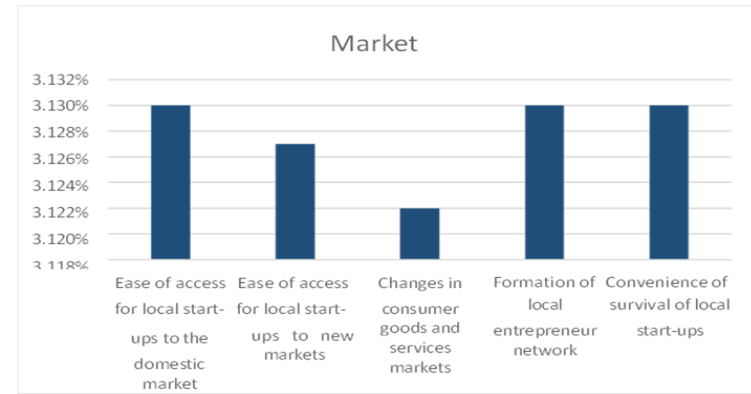


Figure 4: Weights of Secondary index of Market.

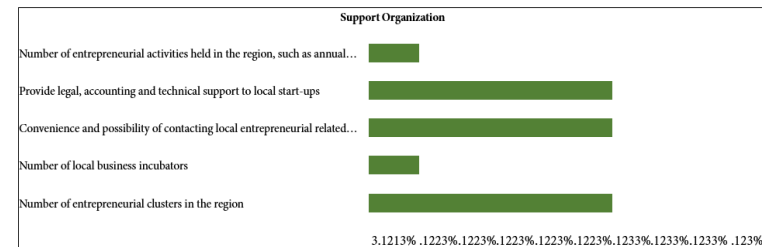


Figure 5: Weights of Secondary index of Support organization.

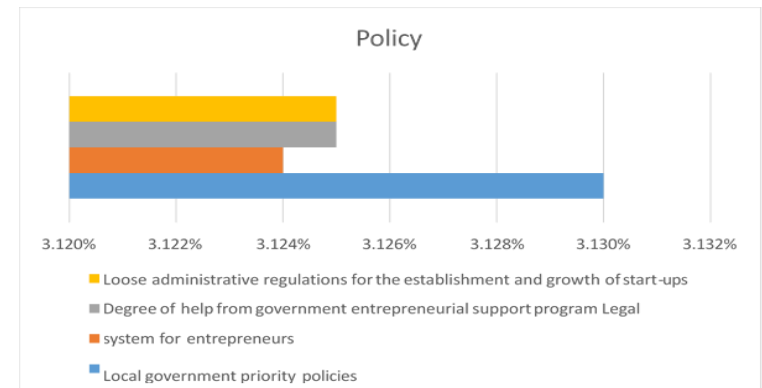


Figure 6: Weights of Secondary index of Policy.



Figure 7: Weights of Secondary index of Culture.

## Conclusion

This investigation into the entrepreneurial ecosystem within the sports industry has illuminated the unique challenges and opportunities that characterize this dynamic field. By analyzing the influence of various factors through detailed case studies and employing the entropy weight method, this study has provided a structured and quantified understanding of the elements that significantly impact sports-related ventures. The findings offer profound insights and strategic recommendations for practitioners and policymakers engaged with sports enterprises.

### Synthesis of Key Findings

The research confirmed that the entrepreneurial ecosystem in the sports industry is influenced by a unique blend of factors, including financial resources, regulatory environments, market dynamics, technological advancements, and cultural aspects specific to sports. The entropy weight method revealed that among these, market dynamics, access to capital, and innovation in sports technology hold the greatest weight

in determining the success or failure of sports enterprises. These factors are critical in a field where competition is fierce and consumer expectations evolve rapidly.

### Strategic Implications for Stakeholders

For entrepreneurs, understanding the prioritization of these factors is crucial. They must focus not only on securing adequate funding but also on leveraging market trends and technological innovations to carve out competitive advantages. For investors, the findings underscore the importance of assessing potential investments' alignment with these critical ecosystem factors. Policymakers are advised to consider how regulations can be shaped to foster a supportive environment for sports startups and growth-oriented enterprises.

### Recommendations for Future Research

While this study has provided significant insights, it also highlights areas for further research. Future studies could explore the interdependencies between the identified factors in more detail, examining how changes in one aspect of the ecosystem might influence others. Additionally, comparative studies between different geographical regions or sports sub-sectors could offer deeper insights into the variability of ecosystems and tailor strategies to specific contexts.

### Contribution to the Field

This research contributes to a nuanced understanding of how entrepreneurial ecosystems function in niche industries such as sports. It bridges the gap between general entrepreneurial theory and the specific, practical insights needed by those operating in or entering the sports market. By focusing on sports enterprises, the study not only adds to the academic literature but also serves as a practical guide for navigating the complexities of this vibrant industry.

### Final Thoughts

In conclusion, the entrepreneurial ecosystem in the sports industry requires a nuanced approach that recognizes the sector's unique demands and opportunities. This study has laid the groundwork for ongoing exploration and development within sports entrepreneurship, offering a roadmap for success that is informed by empirical evidence and tailored to the specific needs of the sports industry. As the sector continues to evolve, the insights gained here will undoubtedly prove invaluable in shaping the future landscape of sports enterprises.

## Reference

- Acs, Z. J., Autio, E., & Szerb, L. (2015). National systems of entrepreneurship: Measurement issues and policy implications. In *Global Entrepreneurship, Institutions and Incentives* (pp. 523-541). Edward Elgar Publishing. <https://doi.org/10.4337/9781784718053.00040>
- Acs, Z. J., Estrin, S., Mickiewicz, T., & Szerb, L. (2017). Institutions, entrepreneurship and growth: the role of national entrepreneurial ecosystems. Available at SSRN 2912453. <https://doi.org/10.2139/ssrn.2912453>
- Borissenko, Y., & Boschma, R. (2016). A critical review of entrepreneurial ecosystems: towards a future research agenda. *Papers in Evolutionary Geography*, 1-21. <https://ideas.repec.org/p/egu/wpaper/1630.html>
- Chao, W. (2023). Relationship between Cultural Philosophy and Work Values in Chinese Employees. *Cultura*, 20(2), 140-156. <https://culturajournal.com/submissions/index.php/ijpca/article/view/440>
- Drakopoulou Dodd, S., & Anderson, A. R. (2007). Mumpsimus and the mything of the individualistic entrepreneur. *International Small Business Journal*, 25(4), 341-360. <https://doi.org/10.1177/0266242607078561>
- Dubina, I. N., Campbell, D. F., Carayannis, E. G., Chub, A. A., Grigoroudis, E., & Kozhevina, O. V. (2017). The balanced development of the spatial innovation and entrepreneurial ecosystem based on principles of the systems compromise: A conceptual framework. *Journal of the Knowledge Economy*, 8, 438-455. <https://doi.org/10.1007/s13132-016-0426-0>
- Eisenhardt, K. M. (1989). Building Theories From Case Study Research. *Academy of Management Review*, 14(4), 532-550. <https://doi.org/10.5465/amr.1989.4308385>
- Feld, B. (2020). *Startup communities: Building an entrepreneurial ecosystem in your city*. John Wiley & Sons.
- Feldman, M. P. (2001). The entrepreneurial event revisited: firm formation in a regional context. *Industrial and Corporate Change*, 10(4), 861-891. <https://doi.org/10.1093/icc/10.4.861>
- Felton, L., Jowett, S., Begg, C., & Zhong, X. (2021). A Multistudy Examination of the Complementarity Dimension of the Coach–Athlete Relationship. *Sport, Exercise, and Performance Psychology*, 10(1), 27-42. <https://doi.org/10.1037/spy0000209>
- Gaedicke, S., Schäfer, A., Hoffmann, B., Ohlert, J., Allroggen, M., Hartmann-Tews, I., & Rulofs, B. (2021). Sexual violence and the coach–athlete relationship—a scoping review from sport sociological and sport psychological perspectives. *Frontiers in Sports and Active Living*, 3, 643707. <https://doi.org/10.3389/fspor.2021.643707>
- Goudini, R., Ashrafpoornavaee, S., & Farsi, A. (2019). The effects of self-controlled and instructor-controlled feedback on motor learning and intrinsic motivation among novice adolescent taekwondo players. *Acta Gymnica*, 49(1), 33-39. <https://doi.org/10.5507/ag.2019.002>
- Isenberg, D. J. (2010). How to start an entrepreneurial revolution. *Harvard Business Review*, 88(6), 40-50. <https://hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution>
- Jaén, I., Moriano, J. A., & Liñán, F. (2013). Personal values and entrepreneurial intention: an empirical study. In *Conceptual richness and methodological diversity in entrepreneurship research* (pp. 15-31). Edward Elgar Publishing. <https://doi.org/10.4337/9781782547310.00008>
- Jowett, S., & Arthur, C. (2019). Effective coaching: The links between coach leadership and coach-athlete relationship—From theory to research to practice. In M. H. Anshel, T. A. Petrie, & J. A. Steinfeldt (Eds.), *APA handbook of sport and exercise psychology: Sport psychology* (pp. 419-449). American Psychological Association. <https://doi.org/10.1037/0000123-022>
- Jung, W.-S., Moon, H.-W., Kim, J.-W., Park, H.-Y., Park, J.-B., Choi, S.-H., Lee, J.-D., & Nam, S.-S. (2022). Analysis of Cardiopulmonary Function, Energy Metabolism, and Exercise Intensity and Time According to the Number of Repetitions of Taekwondo Taegeuk Poomsae in Taekwondo Players. *Journal of Men's Health*, 18(4), 1-10. <https://doi.org/10.31083/jomh.2021.140>
- Kenney, M., & Patton, D. (2005). Entrepreneurial Geographies: Support Networks in Three High-Technology Industries. *Economic Geography*, 81(2), 201-228. <https://doi.org/10.1111/j.1944-8287.2005.tb00265.x>
- Kokko, S., Martin, L., Geidne, S., Van Hove, A., Lane, A., Meganck, J., Scheerder, J., Seghers, J., Villberg, J., & Kudlacek, M. (2019). Does sports club participation contribute to physical activity among children and adolescents? A comparison across six European countries. *Scandinavian Journal of Public Health*, 47(8), 851-858. <https://doi.org/10.1177/1403494818786110>
- Kshetri, N. (2014). Developing successful entrepreneurial ecosystems: Lessons from a comparison of an Asian tiger and a Baltic tiger. *Baltic Journal of Management*, 9(3), 330-356. <https://doi.org/10.1108/BJM-09-2013-0146>

- Lopez de Subijana, C., Martin, L. J., Ramos, J., & Cote, J. (2021). How coach leadership is related to the coach-athlete relationship in elite sport. *International Journal of Sports Science & Coaching*, 16(6), 1239-1246. <https://doi.org/10.1177/17479541211021523>
- Mustafa, A., & Trevor, C. (2022). Does Current Evidence Support Carotid Artery Stenting for Asymptomatic Patients? *Vascular & Endovascular Review*, 5, e07. <https://doi.org/10.15420/ver.2020.18>
- Oh, H. M., Kim, D. H., Kim, J. S., & Kim, G. Y. (2020). Developing Measurement Model and Indicators for Entrepreneurial Ecosystem: Focusing on Regional E-ecosystem Indicator via Delphi Analysis. *Asia-Pacific Journal of Business Venturing and Entrepreneurship*, 15(4), 1-15. <https://koreascience.kr/article/JAKO202026163871837.page>
- Oliveira, V. P. d., Esmeraldo, R. d. M., Oliveira, C. M. C. d., Duarte, F. B., Teixeira, A. C., & Sandes-Freitas, T. V. d. (2022). Post Transplant Lymphoproliferative Disease Isolated to Kidney Allograft. *Jornal Brasileiro de Patologia e Medicina Laboratorial*, 58, e4462022. <https://doi.org/10.1900/JBPM.L.2022.58.446>
- Qiqi, W., & Weidong, Z. (2024). Research on a Blended Teaching Model for College English Based on Ideological and Political Courses. *Cultura*, 21(1), 32-48. <https://culturajournal.com/submissions/index.php/ijpca/article/view/140>
- Saxenian, A. (1995). Book Note Regional Advantage: Culture and Competition in Silicon Valley and Route 128. *Harvard Journal of Law & Technology*, 8(2), 521-528. <https://doi.org/10.2307/j.ctvjnrsgq>
- Shane, S. A. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Edward Elgar Publishing. <https://doi.org/10.4337/9781781007990>
- Siggelkow, N. (2007). Persuasion with case studies. *Academy of Management Journal*, 50(1), 20-24. <https://doi.org/10.5465/amj.2007.24160882>
- Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, 41(1), 49-72. <https://doi.org/10.1111/etap.12167>
- Spigel, B., & Harrison, R. (2018). Toward a process theory of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 151-168. <https://doi.org/10.1002/sej.1268>
- Stam, E. (2015). Entrepreneurial ecosystems and regional policy: a sympathetic critique. *European planning studies*, 23(9), 1759-1769. <https://doi.org/10.1080/09654313.2015.1061484>
- Stam, E., & Spigel, B. (2016). *Entrepreneurial Ecosystems* (Discussion Paper Series nr: 16-13). Utrecht School of Economics. <https://econpapers.repec.org/scripts/redis.pf>
- Wang, Z., Liao, Y., & Wu, L. (2014). Research on the structure and operation mechanism of social entrepreneurship ecosystem. *Journal of Hunan University*, 28, 61-65.
- Wu, Y. (2024). Research On the Cultural Value of Public Response: Analysis of Government and Media Strategies in Public Emergencies. *Cultura*, 21(1), 232-252. <https://culturajournal.com/submissions/index.php/ijpca/article/view/411>