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Examining the Effect of Isenberg's Technological Entrepreneurship Ecosystem Components on Crowdfunding (Case study: Tehran Municipality Sports Organization)

Abstract

The purpose of the study was to examine the effect of the technological entrepreneurship ecosystem components of Isenberg's model on crowdfunding (case study: Tehran Municipal Sports Organization). The study method was applied descriptive-analytical type. The samples were 225 senior managers, middle managers, and investment experts, selected using a convenience sampling method. Data collection tools were two standard questionnaires including an entrepreneurial ecosystem with six components (culture, financing, support, market, human capital, and politics) and a crowdfunding questionnaire with four components (investment type, investment role, investment goals, and investment scope), measured according to a 5-point Likert scale. Pearson's correlation test and confirmatory factor analysis in SPSS and LISREL were used to analyze the collected data. The results indicated that the components of the entrepreneurial ecosystem have a significant effect on crowdfunding. Moreover, the results of the structural model showed that the technology entrepreneurship ecosystem could predict the components of the crowdfunding factor. Hence, it is suggested that a better understanding of the roles should be gained on performance, the interaction between its elements, and the mutual effect of the activities in the sport-related part of the organizations besides the evaluation of the technological entrepreneurship ecosystem.

Keywords: *Ecosystem, Technological entrepreneurship, Crowdfunding, Sports organization*

Ramak Mirmatlebi*

Ph.D. in Sports Management, Islamic Azad University, Central Tehran Branch, Tehran

r_mirmotalebi@hotmail.com

Introduction

Isenberg defines the entrepreneurial ecosystem as "a set of specific components such as leadership, culture, financial resources and capital intricately intertwined, each of which is necessary for entrepreneurial activities, without each of which sustainability of the entrepreneurship ecosystem is impossible" (Isenberg, 2011). What matters in the entrepreneurial ecosystem is the existence of beneficiaries and their cooperation that results in the creation of suitable conditions for the activity of entrepreneurs and the development of their businesses. Any provision that actually or potentially encourages and supports entrepreneurship is considered a beneficiary of the entrepreneurship ecosystem: government bodies, universities, banks, entrepreneurs, growth centers, acceleration centers, social leaders, labor representatives, and so on. This is because it is only with homogeneity, balance, and synergy that the ecosystem could cultivate successful entrepreneurs (Zaki and Rashidi, 2016). Studies have indicated that the entrepreneurial ecosystem is affected by local requirements, and Pontanen admits that the difference and distinctiveness of innovation ecosystems are probable from one country to another (or from one region to another), and thus, the need for cultural systems and there are specific institutions of each place. Mason & Brown state that each ecosystem is subject to specific conditions and situations (Mason & Brown, 2014). Thus, creating the conditions and developing the entrepreneurial ecosystem will result in the growth of opportunity-based entrepreneurship and will have a positive and significant effect on economic growth (Theodotou,2012). The entrepreneurial approach in sports could bring about a mechanism to withstand economic crises. Declining economies create catalysts for the emergence of entrepreneurship (Peredo & Chrisman, 2006), the economic benefits of entrepreneurship include job creation, product development, and an increase in regional growth, as well as entrepreneurship that often occurs more often during economic crises (Bruton et al., 2021). Entrepreneurs become more aware of opportunities and are more willing to take risks. Hence, when entrepreneurs identify opportunities, desirable results might be reached. Thus, the ecosystem creates an environment where its elements are necessary for the growth of innovative companies. What is important in the entrepreneurial ecosystem is the existence of beneficiaries and their cooperation, which brings about the creation of suitable conditions for the activity of entrepreneurs and their business development (Yarahmadi et al., 2020). Global surveys show that attention to the entrepreneurial ecosystem is growing with an increase in pressure on public and private sector leaders to stimulate economic growth by supporting successful entrepreneurial activities (Foster & Shimizu, 2013). The entrepreneurial ecosystem approach is a framework for creating the necessary platforms and a supportive environment for the creation and cultivation of entrepreneurial enterprises and productive entrepreneurship by a wide range of actors and resources. Studying the development of entrepreneurship from an ecosystem perspective is a relatively new approach (Shahkoui

and Rastgar, 2020). In the entrepreneurial ecosystem, the existence of beneficiaries and their cooperation with each other creates suitable conditions for entrepreneurial activities and the development of new businesses. Beneficiary refers to any institution that actually or potentially supports and encourages entrepreneurship. Government bodies, universities, business associations, private sector organizations, investors, banks, entrepreneurs, growth centers, accelerator centers, social leaders, research centers, labor representatives, lawyers, and so on are the beneficiaries of the entrepreneurial ecosystem. The interaction and cooperation between various beneficiaries call for formal and informal exchange of information to coordinate their activities. Studies indicate that the combination of these factors that evolve relies on socioeconomic, political, cultural, and geographical conditions (Simatupang Schwab & Lantu, 2015). Entrepreneurs and their companies are the main element and achievements of successful entrepreneurial ecosystems (Isenberg, 2011).

Thus, investing and financing these innovative plans and ideas is different in various stages and unique in each stage. Innovative plans and ideas at various stages of their life cycle are looking for financing and capital to continue their life, which is in the early stages due to some of their inherent characteristics at this stage, such as high risk, and the need for technical knowledge. For their evaluation and so on, they are of special importance, and this is while financing is usually provided at this stage through traditional financial instruments such as facilities and loans through the money market (banking network), or investment through the stock market faces a serious challenge, which is risk coverage and intelligent management of resource injection. Thus, financing is generally carried out through private and risk-taking investors and by receiving facilities from banks. On the other hand, given the lower risk-taking level of banks, their willingness to invest in projects is less. Moreover, problems such as providing guarantees have made financing in this way play a lesser role in financing innovative projects and ideas (Mollick, 2014). Indeed, the crowdfunding phenomenon is a group effort of customers who usually form a network through the Internet to invest and support the ideas of other people and organizations. Successful businesses established through crowdfunding confirm the profitability of this method of attracting capital, which is like an intermediary between an idea and an investor On the other hand, it is important to identify the actors of the crowdfunding space to get to know how crowdfunding works. Indeed, technological crowdfunding can be introduced as an internet method for providing financial capital that helps businesses and organizations to realize their ideas through grants and investments from many people. The crowdfunding platform provides the exploitation of the potential of the mass of the population, which was not paid attention to in a targeted manner before (Chen et al., 2021). Indeed, technological crowdfunding is of the innovative and new technology-based processes changing the capital market environment. Internet applications (especially web-related programs) have had drastic effects on different sectors of society, such as business education and therapy (Zhou et al., 2021). Hence, according to Meithami et al. (2016), “Dimensions and components of the technological entrepreneurship ecosystem in Iran”, based on the number of important components concluded in each of the dimensions, market, culture, talents, education, and research, respectively, are among the most important aspects of the technological entrepreneurship ecosystem in the country. In a study entitled “The uses and requirements of using crowdfunding platforms in established sports-service businesses, case study: Iranian football clubs,” Mohammad Kazemi et al. (2019) stated that established businesses can use crowdfunding based on the needs of their organization and with various goals. The results showed that financing can be one of the main purposes of using this method. In their paper entitled “Simulation of crowdfunding in the technological entrepreneurship ecosystem,” Saidi-Aghadam et al. (2019) concluded that the increase in economic regulations has many effects on sustainable entrepreneurship development and the development of crowdfunding platforms and leads to an increase in the development of sustainable entrepreneurship. The increase in investment has a good effect on strengthening innovation in growth and technology centers and reducing government intervention. The change of promotion costs increases the promotion rate of crowdfunding in periods 18 to 30 and has a very favorable effect on tax reduction. In his book titled “European Social Entrepreneurship Fund as a new form of crowdfunding,” Kaurakova (2014) stated that crowdfunding funds are investment products that intend to collect investors' capital and crowdfunding. It is created through a portfolio of financial instruments such as stocks, bonds, and other securities. Moreover, crowdfunding funds have a key role in facilitating the accumulation of personal savings, both for large capital and for retirement. Furthermore, they are important as they make institutional and personal savings available as loans to companies and entrepreneurial projects that contribute to growth and employment. In their paper entitled “Collective ownership in Sweden - government, privatization and entrepreneurship,” Gratzer et al. (2021) stated that collective ownership in investment can greatly help the growing process of start-up companies and entrepreneurs, and sufficiently support new entrepreneurial ideas financially. Hence, given the points stated on the technological entrepreneurship ecosystem in sports, the literature of this new theory, linked to sports management and entrepreneurship, has been developed and can pave the path for future studies and those interested in sports management to focus on the entrepreneurship

ecosystem. Additionally, by focusing on crowdfunding in sports, as an economic enterprise, new paths will be discovered to test the ecosystem of technological entrepreneurship in sports. This significant issue prompts us to examine the scope of crowdfunding in sports from a technological entrepreneurship ecosystem perspective.

Methodology

The study was descriptive-analytical with an applied approach conducted using the field method and a questionnaire. As the population of the study considering the geographical area of this study that is Tehran Municipal Sports Organization, the samples were all senior managers, middle managers, and investment experts, 225 of whom were selected using a convenient sampling method as the samples. The library method was used for data collection associated with the literature of the subject and the research background, and field methods were used for data collection to confirm or reject the hypotheses. Data collection tools were two standard questionnaires including entrepreneurial - (Isenberg, 2011) with six components (culture, financing, support, market, human capital, and politics) and crowdfunding questionnaire (Shabanian, 2013) with four components (type of investment, role of investment, investment goals and scope of investment) - evaluated as a 5-point Likert scale (very appropriate, appropriate, no opinion, inappropriate, and very inappropriate). Moreover, descriptive statistics (frequency, mean and standard deviation) and inferential statistics (Pearson correlation, confirmatory factor analysis) were used to analyze the collected data. It must be noted that all statistical steps were analyzed in SPSS24 and LISREL.

Results

The table1 below shows the frequency of the samples.

Table 1. The frequency of the examples

Variables		**Frequency**	**Frequency percentage**
Gender	Female	86	38.2
	Male	139	61.8
	Total	225	% 100
Education	Associate degree	21	9.3
	Bachelor's degree	33	7-14
	Master's degree	151	67.1
	PhD	20	8.9
	Total	225	% 100
Work experience	Under 5 years	27	% 12
	6 to 10 years	94	41.8
	11 to 15 years	42	18.7
	16 to 20 years	35	15.6
	Over 20 years old	27	% 12
	Total	225	% 100

As Table 1 shows, the highest frequency of the samples is associated with men with a frequency of 61.8%. Moreover, the results regarding education show that the highest frequency of education is associated with graduate level with a frequency of 67.1%. Finally, the frequency results regarding the work experience show that the highest frequency of work experience is associated with work experience of 6 to 10 years with a frequency of 41.8%.

Table 2. The mean values, standard deviation, and Cronbach's alpha coefficient of the variables

Variables	**Frequency**	**Mean**	**SD**	**Cronbach's alpha coefficient**
Entrepreneurial ecosystem	28	1.72	0.72	0.89
Crowdfunding	18	1.70	0.68	0.82

As Table 2 shows, the reliability coefficient of each of the variables is above 0.70; therefore, these factors have the necessary reliability for measurement.

Table 3. Summary of Pearson correlation analysis of the factors affecting the entrepreneurial ecosystem

Entrepreneurial ecosystem factors	Components of crowdfunding							
	Type		Role		Goals		Scope	
	r	P	r	P	r	P	r	P
politics	0.274**	0.000	0.426**	0.000	0.832**	0.000	0.481**	0.000
Financing	0.237**	0.000	0.197**	0.000	0.806**	0.000	0.656**	0.000
Culture	0.351**	0.000	0.296**	0.000	0.531**	0.000	0.738**	0.000
Support	0.423**	0.000	0.389**	0.000	0.302**	0.000	0.419**	0.000
Human capital	0.397**	0.000	0.333**	0.000	0.195**	0.000	0.280**	0.000
Markets	0.572**	0.000	0.388**	0.000	0.258**	0.000	0.348**	0.000

**p≤0.01

As is seen in table 3, the correlation matrix has been presented for the technological entrepreneurship ecosystem factors and the type of crowdfunding. Given the results in Table 3, the r correlation between crowdfunding type with politics is 0.27, financing 0.23, culture 0.35, support 0.42, human capital 0.39, and markets 0.57 and these values are significant at a 0.01 significance level. Moreover, the results indicate a positive and significant correlation between the components of the technological entrepreneurship ecosystem and the type of crowdfunding. Thus, the claim of the effect of the technological entrepreneurship ecosystem and its components on the type of crowdfunding is confirmed.

Furthermore, the r correlation between the role of crowdfunding with politics is 0.42, financing 0.19, culture 0.29, support 0.38, human capital 0.33, and markets 0.38 and these values are significant at a 0.01 significance level. Furthermore, the results indicate a positive and significant correlation between the components of the technological entrepreneurship ecosystem and the role of crowdfunding. Thus, the claim of the influence of the technological entrepreneurship ecosystem and its components on the role of crowdfunding is confirmed.

Thus, the r correlation between crowdfunding goals with politics is 0.83, financing 0.80, culture 0.53, support 0.30, human capital 0.19, and markets 0.25 and these values are significant at a 0.01 significance level. Moreover, the results indicate a positive and significant correlation between the technological entrepreneurship ecosystem and the goals of crowdfunding. Thus, the claim of the influence of the ecosystem of technological entrepreneurship and its components on the goals of crowdfunding is confirmed.

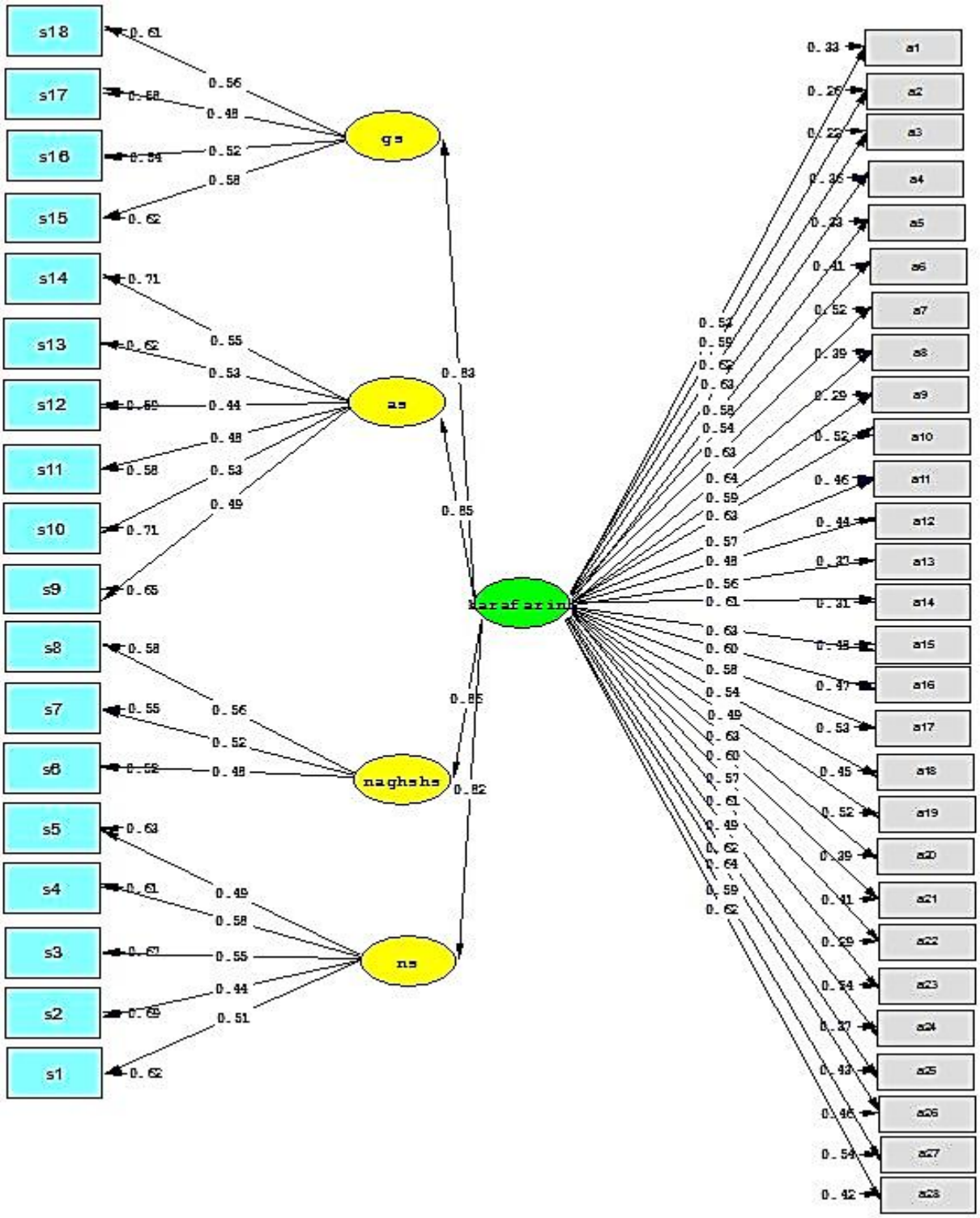
Ultimately, the r correlation between the variable of the scope of crowdfunding with politics is 0.48, financing 0.65, culture 0.73, support 0.41, human capital 0.28, and markets 0.34 and these values are significant at a 0.01 significance level. Moreover, the results indicate a positive and significant correlation between the components of the technological entrepreneurship ecosystem and the scope of crowdfunding. Thus, the claim of the effect of the technological entrepreneurship ecosystem and its components on the scope of crowdfunding is confirmed.

Table 4. The scope of the appropriateness of some fit indices in factor analysis

Fit index	Good fit	Acceptable fit	The index obtained
P-Value	P<0/05	0.05≤p≤0.1	0.0000
x^2/df	$0 \leq x^2/df \leq 2$	$2 \leq x^2/df \leq 3$	2.42
RMSEA	0≤ RMSEA≤0.05	0.05≤RMSEA≤0.1	0.066
GFI	0.95≤GFI≤1	0.8≤GFI≤0.95	0.83
AGFI	0.95≤AGFI≤1	0.8≤AGFI≤0.9	0.85
NNFI	0.95≤AGFI≤1	0.9≤AGFI≤0.95	0.92
CFI	0.95≤AGFI≤1	0.9≤AGFI≤0.95	0.95
IFI	0.95≤AGFI≤1	0.9≤AGFI≤0.95	0.95

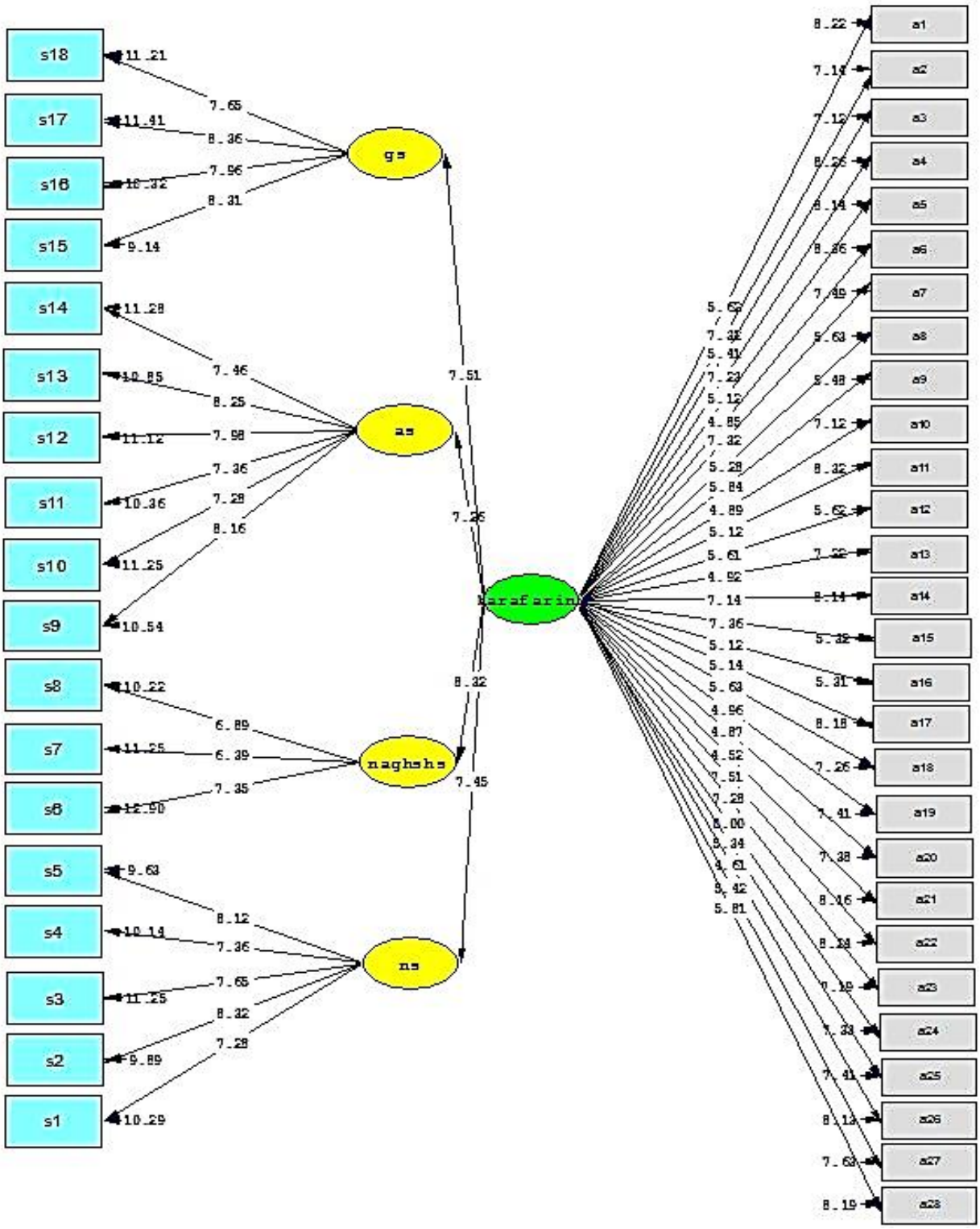
NFI	0.95≤AGFI≤1	0.9≤AGFI≤0.95	0.94

Based on Table 4, a model is made in the confirmatory factor analysis where it is assumed that the experimental data are described or calculated based on several parameters. This form of factor analysis is calculated by LISREL software. The factor analysis model will be given.



Chi-Square=8761.92, df=976, P-value=0.00000, RMSEA=0.060

Figure 1. Confirmatory factor analysis model (standard estimation)



Chi-Square=8761.92, df=976, P-value=0.00000, RMSEA=0.060

Figure 2. Confirmatory factor analysis model (significance test t)

Based on the results obtained from the structural model of the technological entrepreneurship ecosystem with crowdfunding, one can state that all items have favorable factor loadings in **Figure1&2**. It must be noted that in confirmatory factor analysis, the factor loading must be above 0.3. In other words, the questions whose factor loading is less than 0.3 are insignificant and the relevant question should be removed and not go to the analysis stage.

Table 5. The results of the confirmatory factor analysis model

Components	Standard coefficient	r^2	t-value	Results
Technological entrepreneurship ecosystem → type of crowdfunding	0.83	0.82	7.51	Confirmed
Technological entrepreneurship ecosystem → the role of crowdfunding	0.85	0.81	7.26	Confirmed
Technological entrepreneurship ecosystem → goals of the crowdfunding	0.86	0.84	8.32	Confirmed
Technological entrepreneurship ecosystem → the scope of crowdfunding	0.82	0.80	7.45	Confirmed

According to Table 5, regarding the results of the study, one can state:

The first factor: as the path coefficient between technological entrepreneurship ecosystem and crowdfunding type factor is 0.83, and the statistical value of t (significance coefficient) for these two is 7.51 and because these values are more than ± 1.86, the hypothesis is confirmed. In other words, the factor of the technological entrepreneurship ecosystem can predict the type of crowdfunding.

The second factor: as the path coefficient between technological entrepreneurship ecosystem and crowdfunding role factor is 0.85, and the statistical value of t (significance coefficient) for these two is 7.26 and because these values are more than ± 1.86, the hypothesis is confirmed. In other words, the factor of the technological entrepreneurship ecosystem can predict the role of crowdfunding.

The third factor: as the path coefficient between technological entrepreneurship ecosystem and crowdfunding goal factor is 0.86, and the statistical value of t (significance coefficient) for these two is 8.32 and because these values are more than ± 1.86, the hypothesis is confirmed. In other words, the factor of the technological entrepreneurship ecosystem can predict the goals of the crowdfunding

The fourth factor: as the path coefficient between technological entrepreneurship ecosystem and crowdfunding scope factor is 0.82, and the statistical value of t (significance coefficient) for these two is 7.45 and because these values are more than ± 1.86, the hypothesis is confirmed. In other words, the factor of the technological entrepreneurship ecosystem can predict the scope of crowdfunding.

Finally, the structural model of the study leads to the conclusion that given the appropriate fit of the confirmatory factor analysis model, the hypothesis stating the ability of the technological entrepreneurship ecosystem to predict the components of crowdfunding is proven. In other words, the hypothesis is confirmed and the null hypothesis is rejected, and the technological entrepreneurship ecosystem could predict crowdfunding.

Conclusion

The results of the factor analysis model indicated that the factor components of the technological entrepreneurship ecosystem (policy, financing, culture, support, human capital, and markets) can predict the factor factors of crowdfunding. Thus, the path coefficient between the technological entrepreneurship ecosystem factor and crowdfunding type factors is 0.83, the role of crowdfunding 0.85, the goals of crowdfunding 0.86, and the scope of capital crowdfunding 0.82. Thus, based on these results, each of the active components of the technological entrepreneurship ecosystem (policy, financing, culture, support, human capital, and markets) should be taken into account. Hence, one must state that support is the most important factor in the technology entrepreneurship ecosystem that can be considered in Iran. This basic construct includes non-governmental institutions, trade associations, and infrastructures to support start-up businesses, and past studies in this area confirm this result as well.

Human capital is the second factor of the technological entrepreneurship ecosystem, and this structure includes human resources and the activities of educational institutions too. Human capital includes both professional people whose skills are accumulated through entrepreneurship education and provides mass labor to create new companies for economic progress.

Markets are the third factor of the technological entrepreneurship ecosystem in whose subgroup the networks and customers are. Customers and networks are the two constituent elements of markets. Available local and international markets, available human capital and financing, support and consulting systems, legal frameworks, and large universities are the most important pillars of a technological entrepreneurship ecosystem.

Furthermore, culture encompasses success stories and social norms as the fourth component of the technological entrepreneurship ecosystem. According to Goldman et al. (2005), the prominent background of entrepreneurial success stories is a key element of cultural attitudes. Hence, argues that the leaders of global markets, once small entrepreneurial companies themselves, could inspire younger entrepreneurs to enter similar paths.

Politics, composed of the role of the government and the leadership of managers, are among the elements with a key role in shaping the ecosystem of technological entrepreneurship. Political and legal factors are a key part of the economic and political context where entrepreneurship occurs. Among the other important cases in foreign trade is that interaction with advanced countries and modeling and exporting products and innovations could have a key role in upgrading the ecosystem of technological entrepreneurship.

Ultimately, there is financing. Private institutions responsible for financing entrepreneurship, such as investors, philanthropists, and government sponsors. Access to financial resources for investing in entrepreneurial projects with a long-term horizon is crucial. Thus, given the point raised in this section, developing the technological entrepreneurship ecosystem will not be formed simply by formulating laws and action plans without an ecosystem perspective and the lack of development of the financial system, market, human capital, cultural promotion, and all kinds of support. Furthermore, developing these systems with the cooperation of the private sector, institutions, and other actors is possible for crowdfunding. Thus, it is suggested that a better understanding of the roles, performance, and interaction between its elements and the interaction of the activities in the sports sector of the organizations should be gained along the evaluation of the technological entrepreneurship ecosystem. Moreover, the managers of state sports organizations and private clubs must strengthen investor motivations in non-financial and financial aspects.

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Conflict of interest

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Ethics Statement

All Permissions to conducting this research has been approved

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