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The Impact of Entrepreneurship Ecosystem on the Success of Startups

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ABSTRACT

An entrepreneurial ecosystem or entrepreneurship ecosystems are peculiar systems of interdependent actors and relations directly or indirectly supporting the creation and growth of new ventures. Many researchers have highlighted the importance of the entrepreneurship ecosystem in improving entrepreneurial activities; therefore, the aim of this study is to contribute to the body of knowledge that the entrepreneurship ecosystem is correlated with the perception of founders and the success of startups, companies or ventures that are focused on a single product or service that the founders want to bring to market. In this regard, data were collected through a survey of 200 founders or CEOs of small and medium-sized companies and startups in Tehran who have been running their companies for at least five years. The analysis of the initial data was conducted using Partial Least Squares (PLS) technique. Based on the empirical data results, five out of six ecosystem factors significantly influence entrepreneurs' perception and the success of startups. Additionally, founders' perceptions also have a positive impact on startup success. Overall, the results of this study indicate that in an entrepreneurial ecosystem with features such as market access, government support policies for entrepreneurs, basic and university education in entrepreneurship, entrepreneurial support systems, and a suitable business environment, entrepreneurial success and perception increase.

Introduction

In recent decades, entrepreneurship has become a driving force for the economic and social development of every country. Establishing an effective entrepreneurship ecosystem is considered a regional economic development strategy that focuses on creating supportive environments to promote sustainable startups. In addition, entrepreneurs understand the importance of their business success and an entrepreneurship ecosystem as an essential part of understanding the development of economic advancement policies. The more policymakers understand what startups consider essential, the greater the potential for national strategies to better coordinate with the activities of prominent entrepreneurs, which is the main motivation behind the blossoming of entrepreneurship.

Researchers and experts alike pay attention to the quantity and quality of entrepreneurial activities in a society. For example, researchers involved in global entrepreneurship monitoring have documented the prevalence of various forms of entrepreneurial activities in countries and regions (Reynolds et al., 2005; Stam et al., 2011). Furthermore, economic development policymakers seek to identify policy "levers" that encourage higher levels of entrepreneurial activities that lead to economic growth and job creation (Audretsch and Link, 2012). An entrepreneurship ecosystem consists of a set of actors and related factors (such as governments, universities, investors, experienced consultants, service providers, media, and large companies) that are managed in a way that enables productive entrepreneurship (Stam, 2015). Entrepreneurship ecosystems can play an important role in the development and level of entrepreneurial activities in a particular environment.

Creating a dynamic and effective entrepreneurship ecosystem has garnered much attention from national leaders. Startups face numerous challenges in discovering business partners and seeking help from families, friends, and other personal relationships as part of their communities and cultures (Giardino et al., 2015). Therefore, many emerging ecosystems worldwide need a theoretical framework to develop their communities towards an successful and sustainable ecosystem.

In recent years, despite efforts made towards entrepreneurship development, there is a lack of significant and sustainable growth in the field of entrepreneurship and small and medium-sized businesses in the country. Unfortunately, many entrepreneurs in Iran face obstacles such as government policy fluctuations and the use of subjective policies, unhealthy business environment, instability of government and employer managers, inappropriate and unsupportive laws, lack of environmental confidence, lack of trade infrastructures, lack of social and cultural norms support for entrepreneurship, inappropriate market conditions, high interest rates on bank loans, and so forth, which have placed them in an unfavorable business environment. Therefore, in Iran, only 10% of entrepreneurs succeed in starting their business activities, and the remaining 90% stop at the startup phase.

The role of the government is to create a startup environment with policies that support startups and attract risk-taking investors. Furthermore, entrepreneurs' understanding of the ecosystem and the success of startups plays a vital role in leveraging its resources. Conducting in-depth research to guide entrepreneurs towards business success and having a correct understanding of the entrepreneurship ecosystem is essential. Additionally, finding out whether the influence of the startup ecosystem on the success of startups contributes to enhancing the startup ecosystem is necessary. This is important for entrepreneurs, policymakers, and university managers.

Although numerous studies have been conducted on the entrepreneurship ecosystem and its relationship with related variables, this research comprehensively examines the elements of the ecosystem by studying six specific pillars of the ecosystem and their interrelationships with founders' perceptions and the success of small and medium-sized enterprises (SMEs) in Iran. Therefore, it is expected that the valuable results of entrepreneurship research in Iran, by providing a better understanding of the entrepreneurship ecosystem to legislators and entrepreneurs in these economies, will contribute to the entrepreneurship literature. This study was conducted in Tehran and targeted SME owners who have been managing their companies here for at least five years, hence they have entrepreneurial experience and can judge about it.

1. Literature Review

- **Entrepreneurship Ecosystems**

There is no common definition of entrepreneurship ecosystems among researchers or practitioners. The first component of this term is entrepreneurship: a process in which opportunities for creating new products and services are examined, evaluated, and exploited (Shane and Venkataraman, 2000). The entrepreneurship ecosystem approach often limits this entrepreneurship to "high-growth startups" or "scale-ups" and claims that this type of entrepreneurship is an important source of innovation, productivity growth, and employment

(Mason and Brown 2014). From an empirical perspective, this claim seems overly restrictive: networks of innovative startups or entrepreneurial employees can also be productive forms of entrepreneurship. Even failed investments can be constructive for society (Davidsson, 2004). However, it appears that innovative and growth-oriented entrepreneurship is increasingly emphasized in entrepreneurship literature.

Entrepreneurship development requires a network of various elements that are referred to as the entrepreneurship ecosystem. In dissecting the term entrepreneurial ecosystem, the word "entrepreneur" refers to an individual responsible for planning and taking risks related to their own firm, derived from the French word "Entreprendre," first used in France in 1862, meaning to undertake and commit. The term "ecosystem" refers to a close environment and concerns complex relationships between living organisms and their environment and the impact of human activities on these relationships (Christian, 2003). Combining these two words creates a new term called the entrepreneurship ecosystem, defined as an element - individuals, organizations, or institutions (Theodotou et al., 2012). The entrepreneurship ecosystem refers to elements outside the individual entrepreneur that can either motivate or hinder the individual's decision to become an entrepreneur or their likelihood of success upon starting an entrepreneurial venture.

The entrepreneurship ecosystem comprises three dimensions: the actors that constitute it and their interactions (formal and informal networks), physical infrastructure, and culture. The entrepreneurship ecosystem also includes institutions that support entrepreneurs: government or private financial agencies (banks, business supporters, investors, etc.), support institutions (business incubators, consultants, etc.), research organizations (research centers, laboratories, etc.), and business consortia (active businesses, labor unions, etc.).

- **Entrepreneurial Success**

In general, financial, economic, and environmental indicators are factors that constitute the success of a business. However, the precise components and measurement of success variables continue to be problematic. The lack of transparency in the concept of entrepreneurship is an important issue that researchers in the field of business must examine in detail (Baron and Henry, 2011).

Entrepreneurial success may be a dependent variable in empirical studies, often without operational explanation. A review of the literature on the definition of entrepreneurial success indicates that four important aspects are associated with this concept. Firstly, entrepreneurial achievements are influenced by cultural issues or are based on individual perspectives (Rauch & Frese, 2000). For example, it has been identified that risk-taking investors and entrepreneurs seeking financial security have different perspectives on the success of a business (Black et al., 2010). Secondly, achieving wealth is a standard indicator of success (Black et al., 2010). Next, gender differences also influence the understanding of success. For the criterion of success, men use external standards to achieve recognition or acknowledge their achievements. In contrast, women use internal definitions of success, such as achieving what they intend to do.

However, the latest research on entrepreneurial success utilized in this study defines entrepreneurial success as a combination of individual and business performance factors: the personal perceptions and aspirations of the entrepreneur for their life and business, along with sustainable business growth and goals beyond business objectives (Fisher et al., 2014).

- **Entrepreneurial Perception**

Perception can be understood as a cognitive structure. Perceptions are individuals' mental representations of the physical environment around them that are captured and elaborated in their minds through their senses (Liñán et al., 2011). Due to various cognitive biases, these representations can vary among individuals, meaning that when a person is faced with complex problems with insufficient information, a tendency to make judgment errors may occur. Entrepreneurs are highly vulnerable to many cognitive biases because their work environments are characterized by uncertainty and high time constraints, which impact their perceptions. Entrepreneurs may perceive lower levels of risk or have greater confidence in their ability to start a business compared to others. Additionally, previous studies suggest that entrepreneurial perception is linked to gender.

Kassar (2006) found that women have lower growth expectations than men. The theory of opportunity perceptions and social culture perceptions (Liñán et al., 2011) evaluates the correlation between perception and some of the ecosystem factors mentioned in this study. Furthermore, 9 Entrepreneurial Framework Conditions (EFCs) identified by the Global Entrepreneurship Monitor (GEM) have been included in the analysis of this correlation.

2. Research Method

The method used for this study was primarily based on quantitative methods. Statistical, mathematical, and computational approaches were used to evaluate theories and analyze correlations between variables. This

approach focused on quantitative methods and questionnaires to generalize research concepts, predict future results, or examine any significant correlations.

3. Data Collection

Based on the information from the Tehran Province Planning and Investment Organization in the year 1401 (2022), a total of 200 small and medium-sized companies existed. The study population consisted of all owners or CEOs of small and medium-sized companies and startups in Tehran province who had been managing their companies for at least five years. Questionnaires were directly distributed to respondents (offline collection) and also sent through social networks (online collection) including Facebook, Google Drive, LinkedIn, and official email. All criteria were rated on a 5-point Likert scale ranging from 1 to 5, corresponding to completely disagree, disagree, neutral, agree, and completely agree. Therefore, there was scientific evidence for drawing conclusions, and the findings will be more valid and objective. A total of 200 responses were obtained from Tehran city, representing the target audience and considered to contribute to the study's objectives. Convenience sampling method was used in this study, and data were collected as much as possible. According to Hinkle (2005), the minimum subject-to-item ratio in factor analysis should be 5:1 for Exploratory Factor Analysis (EFA). In this analysis, a ratio of 10:1 was used to ensure the quality and reliability of the unshakable analysis. Therefore, with a minimum of 13 items in the survey, 200 responses were collected.

4. Data Analysis

In this article, the examination of eight fundamental factors used in this exploration depends on. Important concerns were sent to ensure the quality and credibility of all study scales. Based on the purpose of this study, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed as a suitable technique for this model, allowing researchers to determine. Internal consistency reliability (CR), convergent validity (AVE), and discriminant validity (HTMT) were identified using Exploratory Factor Analysis (EFA). Structural Equation Modeling (SEM) was used for cross-validation of correlations between variables and confirmation of hypotheses with Variance Inflation Factor (VIF), coefficient of determination (R2), predictive relevance (Q2), and non-parametric bootstrap.

5. Findings

- Respondent Characteristics

The demographic data of the 200 respondents are presented in Table 1 below.

Table 1: Demographic Characteristics of Participants

Demographic Variables	Status	Frequency	Percentage
Gender	Female	119	59.5
	Male	81	40.5
Age	Between 20 to 25 years	76	38.7
	Between 26 to 30 years	52	26.1
Education	High school diploma	22	11
	Bachelor's degree	47	23.5
	Master's degree	99	49.5
	Doctorate	32	16
Company Activity Period	Less than 1 year	43	21.5
	2 to 3 years	78	39
	4 to 6 years	39	19.5
	More than six years	40	20
Company Size (Number of Employees)	Less than 10	92	46
	11-20 employees	54	27
	21-40 employees	31	15.5
	More than 40 employees	23	11.5

Survey respondents comprised 40.5% females and 59.5% males. 61 individuals (30.50%) were between 25-34 years old, 80 (40.00%) were between 35-44 years old, and 49 respondents (24.50%) were 45-54 years old. Among the 200 respondents, individuals aged 18 to 24 and above 55 years old accounted for 3% and 2% respectively. Of the respondents, 49.5% had a university education, while postgraduate, college, and high

school educational levels accounted for 32%, 47%, and 22% respectively.

- Measurement Model Results

Measurement validity and reliability were the first steps in the analysis process. PLS-SEM provided two vital indicators for assessing these features: factor loadings and composite reliability. Each indicator was confirmed to measure the expected results. First, all factor loadings provided were equal to or greater than 0.70, indicating desirable results for statistical correlation coefficient (Nunally, 2008). Accordingly, the selected items in each construct met the required reliability with values above 0.7 (ranging from 0.722 to 0.886). Second, composite reliability (CR) was used for assessing internal consistency of the construct, with Cronbach's alpha value in PLS. A composite reliability above 0.7 is acceptable in terms of internal consistency and satisfactory compatibility (Gefen et al., 2011).
The CR values for both dependent and independent variables are presented in Table 2.

Table 2: Factor Loadings, Cronbach's Alpha, Extracted Means and Variances, and Variable Weight Loadings

Variables	Cronbach's Alpha	Extracted Mean Variances	Structural Reliability
Entrepreneurial Success	0.882	0.914	0.680
Perception of Entrepreneurship	0.87	0.902	0.607
Available Markets	0.678	0.815	0.596
Workforce (Human Capital)	0.722	0.844	0.643
Support System	0.77	0.851	0.588
Training and Development	0.849	0.892	0.623
Legal Framework	0.837	0.902	0.754
Cultural Support	0.836	0.888	0.667

Based on Table 2, it is observed that the extracted average variance for all constructs is more than 0.50, indicating they are equipped with acceptable reliability. The values of composite reliability (CR) for eight variables range from 0.588 to 0.754, exceeding 0.70 for all variables. Therefore, the CR results demonstrate strong internal consistency and satisfactory stability for the tested variables. The Average Variance Extracted (AVE) for all variables met the requirement of being above 0.50, as their values ranged from 0.815 to 0.914.
Furthermore, the Fornell-Larcker criterion (Fornell & Larcker, 2015) was utilized to determine discriminant validity. The results are presented in Table 4. Discriminant validity of variables was assessed using two different techniques.

Table 3: Fornell-Larcker Criterion

Variables	Entrepreneurial Success	Perception of Entrepreneurship	Available Markets	Workforce (Human Capital)	Support System	Training and Development	Legal Framework	Cultural Support
Entrepreneurial Success	0.772							
Perception of Entrepreneurship	0.371	0.816						
Available Markets	0.425	0.602	0.790					
Workforce (Human Capital)	0.42	0.310	0.558	0.821				
Support System	0.445	0.281	0.371	0.541	0.77			
Training and Development	0.344	0.521	0.547	0.221	0.358	0.848		
Legal Framework	0.481	0.478	0.641	0.501	0.534	0.550	0.756	
Cultural Support	0.347	0.321	0.521	0.456	0.451	0.309	0.538	0.800

As shown in Table 3, the discriminant validity of all constructs used in the current study was satisfactory.
The next step was to investigate the significance of path coefficients through structural equation modeling, as presented in Table 4. Accordingly, Hypothesis 2 was supported in this valid analysis, demonstrating clear and direct positive effects of entrepreneurial perception on entrepreneurial success. The entrepreneurial environment had a moderate effect on entrepreneurial perception and success. Culturally, the path coefficients between entrepreneurial perception and the ecosystem were determined as follows: $\beta = 0.152$ (available markets), $\beta = 0.363$ (education and nurturing), $\beta = 0.242$ (legal framework), and $\beta = 0.242$ (support system). It is notable that the direct effects of entrepreneurial perception on entrepreneurial success were presented as $\beta = 0.371$.

Moreover, Hypothesis 1 was also supported statistically, indicating a path coefficient between entrepreneurial success and the ecosystem as follows: available markets (β = 0.185), education and nurturing (β = 0.235), legal framework (β = 0.189), support system (β = 0.229), and workforce (human capital) (β = 0.172). Figure 1 illustrates the values of the path analysis and the impact of variables (Figure 1).

Figure 1: Path analysis and the impact of variables

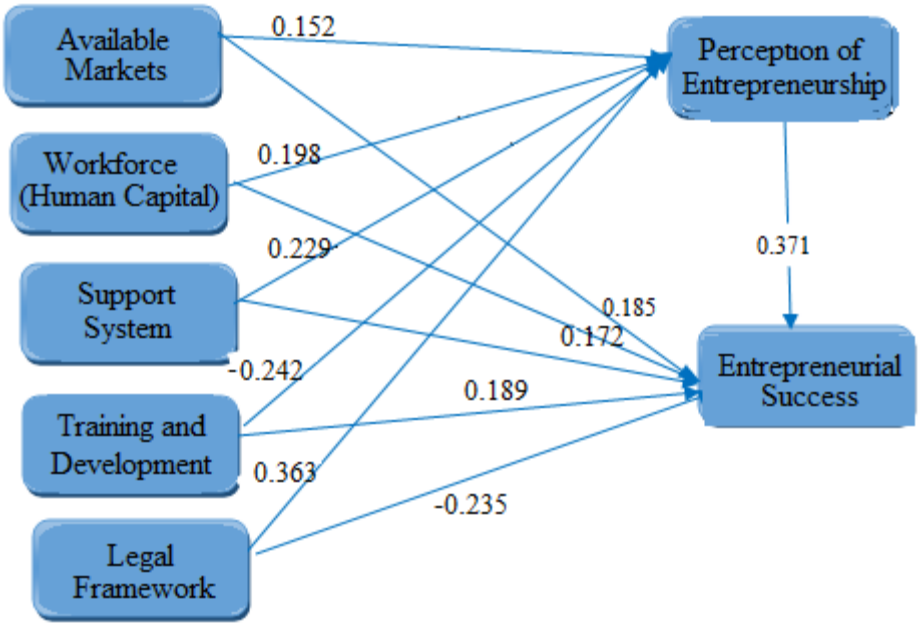

Table 4: Path coefficient values and significance level

Direct hypotheses	Path coefficient	P values	Result
Accessible markets → Entrepreneurial perception	0.0193	0.152	Hypothesis Confirmed
Workforce → Entrepreneurial perception	0.002	0.198	Hypothesis Confirmed
Support system → Entrepreneurial perception	0.002	0.222	Hypothesis Confirmed
Legal framework → Entrepreneurial perception	0.013	-0.242	Hypothesis Confirmed
Education → Entrepreneurial perception	0.00	0.363	Hypothesis Confirmed
Cultural support → Entrepreneurial perception	0.558	0.043	Hypothesis Rejected
Accessible markets → Entrepreneurial success	0.00	0.185	Hypothesis Confirmed
Workforce → Entrepreneurial success	0.001	0.172	Hypothesis Confirmed
Support system → Entrepreneurial success	0.026	0.229	Hypothesis Confirmed
Legal framework → Entrepreneurial success	0.007	0.189	Hypothesis Confirmed
Education → Entrepreneurial success	0.004	-0.235	Hypothesis Confirmed
Cultural support → Entrepreneurial success	0.601	0.044	Hypothesis Rejected

The proposed statistics in this report show the relationships between the entrepreneurial ecosystem, entrepreneurial perceptions, and startup success. Specifically, 9 hypotheses have been confirmed, two hypotheses have been rejected, and two hypotheses provide contradictory results. The findings of this study demonstrate the role of the ecosystem, such as providing accessible markets, education and training, and human capital like entrepreneurial talent, in strengthening entrepreneurship in society, especially in economic, educational, and other aspects. Ecosystem elements have a positive impact on founders' perceptions and contribute positively to entrepreneurial success.

6. Discussion and Conclusion

The proposed statistics in this report demonstrate the relationships between the entrepreneurial ecosystem, entrepreneurial perceptions, and startup success. Specifically, nine hypotheses have been confirmed, two hypotheses have been rejected, and two hypotheses provide contradictory results. The findings of this study illustrate that the role of the ecosystem, such as providing accessible markets, education and training, and

human capital like entrepreneurial talent, strengthens entrepreneurship in society, especially in economic, educational, and other aspects. The elements of the ecosystem positively influence founders' perceptions and have a positive impact on entrepreneurial success.

Furthermore, the researcher also found a positive correlation between entrepreneurial perceptions and business success. Policy recommendations for ecosystem creation should focus on affecting the perceptions that lead to startup success. The ecosystem approaches in this study play a crucial role in establishing a supportive entrepreneurship ecosystem in society, which reduces the risk of new investment failures by influencing founders' perceptions.

Based on the research results, education and training have a greater impact on entrepreneurial perceptions than other environmental factors. The practical elements of the entrepreneurship ecosystem indirectly affect the success of small and medium-sized enterprises that require the benefits of the ecosystem. Depending on each country, this signifies where they want to focus their resources. If they intend to strengthen entrepreneurial perceptions, national leaders must emphasize more on education within the community. Specifically, entrepreneurial perceptions are potentially shaped through professional and formal educational processes, including higher education levels such as an Economics degree or MBA programs that can integrate entrepreneurship. Universities should provide essential business knowledge such as law, taxation, and accounting to support entrepreneurs in their business ventures. Previous researchers also agree on the importance of education in a startup ecosystem, where successful entrepreneurs can act as mentors to guide or inspire potential entrepreneurs. (Rise, 2011).

Entrepreneurs can learn critical perceptions from the stories presented by their mentors, thus reducing the likelihood of failure when executing a startup (Berbegal-Mirabent et al., 2012). Universities and existing companies can launch incubators and accelerators using agile methods, lean startups, customer development, and systematic entrepreneurship to educate and guide new startups. SMEs can access the capital, human resources, knowledge, and networks of these organizations for sustainable development (Blank, 2013).

Another aspect that managers must consider is the supporting system that significantly influences perceptions in the research results. The market, with a wide range of supportive institutions such as incubators and accelerators, can nurture potential entrepreneurs and attract significant investments of venture capital (Roundy et al., 2017).

To establish a financial mechanism, the innovation center plays a role in upgrading private investment funds, researching capital enhancement for startups, and enhancing investment funds, including startup investment funds (An & Thanh, 2020). The supportive organization connects successful founders and potential entrepreneurs, creating a dense network of startups, along with seminars, talk programs, and startup competitions to attract, discover, and nurture young entrepreneurs.

The government plays a crucial role in creating IPRs and technology transfer policies to promote innovative startups in society. The current trend in national innovation policy structures is increasingly focusing on a multidisciplinary and multi-sectoral approach (Acs et al., 2014). Supportive institutions should take a leading role in providing business talents, quality resources with a mindset, skills, and valuable experience for the sustainable growth of young entrepreneurs. Therefore, educational and support systems should be encouraged to invest more in entrepreneurial perceptions compared to other ecosystem factors by managers to have a positive impact. Other ecosystem factors such as human capital and accessible markets should be examined after investing and effectively implementing these two vital elements. The main goal of this research is to identify the crucial determinant of the entrepreneurial ecosystem and founders' startup perceptions concerning business success. The findings of this study provide empirical evidence to support many previous studies by offering a better understanding of the impact of the ecosystem on entrepreneurial perceptions and entrepreneurial success. According to the results of this study, the following environmental elements significantly influence entrepreneurial perceptions and entrepreneurial success: available industry, education and training, regulatory structure, supportive infrastructure, and workforce. Positive relationships are identified for encouragement at the management level.

Recommendations regarding ecosystem aspects should be carefully considered. With this emphasis, governments, university leaders, incubation institutions, and entrepreneurs worldwide can effectively practice entrepreneurial ecosystems. Ultimately, the nurturing entrepreneurial success and fruitful outcomes of ecosystem activities are considered fundamental factors in improving entrepreneurship in the future.

The findings indicate a credible correlation between ecosystem aspects, entrepreneurial perceptions, and startup success. Despite having practical recommendations and significant data, this study primarily describes the conditions in Iran. Based on the clear results, the effectiveness of appropriate entrepreneurial ecosystem variable communications for startup growth and support for university-based knowledge companies are

considered the most important. Therefore, it is recommended that banks prioritize providing facilities to both small and large university-based companies.

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