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Analyzing the Effects of Accelerators and Incubators on Iranian Startups (Case study: Startups Located in Tehran and Qom Universities)

*Seyed Mohammad Ali Jafari**
M.Sc, Entrepreneurship Management (New Business), Faculty of Management and Accounting, Farabi Campus, University of Tehran

Asef Karimi, Ph.D.
Assistant Professor, Faculty of Management and Accounting, Farabi Campus, University of Tehran .

ABSTRACT

The study was an attempt to find the strengths, weaknesses, and neutral (ineffective) points of accelerators and incubators concerning the growth of startups. The information used in the study was the result of an analysis of 15 startups in the accelerators of Qom and Tehran universities and accelerators in these two cities in Iran.

Based on surveys and interviews carried out to extract information using thematic analysis, about 105 codes, 23 basic themes, 9 organizing themes, and 3 global themes, were extracted.

The strengths found in accelerators and startups concerning startup growth are:

Effective intermediation between credit institutions and the banks with startups, effective and positive help in forming startup teams, positive effect on learning and enhancing sales, research and development processes, so on, direct and effective financial support for startups

Neutral points found in accelerators and startups regarding startup growth are as follows:

Ineffective renovation of buildings and infrastructure unrelated to startup growth, non-identification of startup priorities to spend their budget

Weaknesses found in accelerators and startups regarding startup growth are as follows:

Involvement of startups with office paperwork, holding time-wasting meetings of startups and meetings demonstration gatherings for senior executives, high and negative pressure on startups to increase sales in the short term.

Keywords: Incubator startup, accelerator

Introduction

Startups are temporary organizations with no formal frameworks (Blank & Dorf, 2012). Startups are the driving force of the new economy and are key players in innovation and job creation in the world (Lukeš et al., 2019). The failure rate of startups because of many challenges and obstacles is estimated at about 90% (Kalyanasundaram, 2018). Thus, on the one hand, the existence of startups is necessary for the growth of an innovative economy, and on the other hand, the failure rate of this very important tool is very high.

There are two important tools in the world to support startups (Bone et al., 2019):

1. Accelerators:

Accelerators are the companies or organizations that try to have a positive effect on startups in three phases: 1) Holding meetings or using other tactics to find talented teams that want to start a startup with a specific idea, 2) Preforming a limited program in terms of time (about three months) and financial support, providing management and entrepreneurship training, mentoring, and so on so that startups participating in this course could carry on their way independently and 3) Holding an event called demo day to show the results of startups' efforts during the accelerator support period to potential investors to invest in startups (Luik et al., 2021).

2. Incubators

Accelerators are organizations trying to be the link between the university and industry and help startups grow by filling this gap (Rothaermel & Thursby, 2005). One of the major differences between accelerators and incubators is the support period for startups (in accelerators it is about three months and in incubators several years) and the intention to support startups - accelerators make startups prepare their Minimum Viable Product (MVP) as soon as possible to examine the market and attract capital, but incubators try to give startups more opportunity to understand the behavior and needs of the market and find the right path of growth by using intellectual and financial facilities. (Cohen & Hoshberg, 2014). Although science and technology parks are different from incubators, they both run incubation programs and have many similar angles (José, 2016).

Considering the very high significance of the existence and growth of startups for countries, a platform has to be provided for their growth that has the least problems and maximum productivity. The two platforms that can be useful for the growth of startups are incubators and accelerators (Bone et al., 2019). The study intends to examine the strengths, weaknesses, and neutral points of accelerators and incubators among startups in Tehran and Qom in Iran. The results can be a useful guide for senior managers who can change the policies of accelerators and incubators.

Theoretical framework and hypotheses:

Startup:

Startups are temporary organizations that lack formal frameworks (Blank & Dorf, 2012).

The entrepreneurs who found startups are looking for a repeatable (fixed income) and scalable (exponential revenue growth) business model (Blank S., 2007).

The journal European Startup Monitor, publishing information on all startups in continental Europe each year, provides a detailed definition of startups with three components:

1. Startups are young and under ten years old.

2. The nature of startups is innovation - this innovation could be in business model or in product and service or both

3. Startups are growing exponentially, which can be in the profitability or size of their employees (Kollmann, Stöckmann, Hensellek, & Kensbock, 2016).

Incubators:

The interfaces between academia and industry are called incubators, and many incubators operate under the auspices of universities and are known as the university business incubator (UBI). The main task of incubators is to create an optimal and efficient relationship between industry and academia (Wonglimpiyarat, 2016).

Given Table 1, the relations between the university and industry can be classified into seven categories.

Table 1. Industry-University Relations (Perkmann & Walsh, 2007)

Research partnerships	Inter-organizational arrangements for conducting collaborative R&D
Research services	Activities commissioned by companies, including contract research and consulting
Academic entrepreneurship	Development and commercial exploitation of technologies by academic scientists through the creation of firms (alone or with partners)
Human resources transfer	Multi-context learning mechanisms such as training of companies' employees at the university; postgraduate activities in firms; graduate trainees; and temporary transfer of scientists to companies
Informal interaction	Formation of social relationships and networks at conferences, etc.
Commercialization of property rights	Licensing of university-generated intellectual property (patents) to firms
Scientific publications	Use of codified scientific knowledge within industry

Incubators bring about the right environment for startups, and small businesses, especially small knowledge-based companies. In the context of the services of incubators, services such as providing the necessary infrastructure for startups such as servers, computer programs, and offices - providing knowledge and information related to management and business - legal advice, and any service that leads to the independence of startups and small companies from the Incubators (Stal, Andreassi & Fujino, 2016).

Accelerator:

Accelerators are organizations or companies that implement a consistent and timely program for startups, and intend to help startups under their own support to grow and gain market share, in which case their investments in shares of those startups become profitable (Pauwels et al., 2016).

An accelerator continues to operate continuously in a cycle, which can be broken down into three stages: 1- selecting growth-prone startups, 2- presenting and implementing a limited program in terms of time and specific investment in exchange for a portion of a startup's stake, in this stage startups are provided with support, including financial support to support the living of group members for a limited period and training programs on management and entrepreneurship, and 3- after completing the accelerator training and support course for startups, on a day called demo day, potential investors, other members of startups, media, and so on, gather in a gathering so that the startups reaching the end of the accelerator period by the accelerators by presenting the Minimum Viable Product (MVP) to show their efforts during this period to convince the investors to continue investing in their startup (Luik et al., 2021).

Differences between accelerators and incubators:

incubators are designed to nurture nascent ventures by buffering them from the environment, providing them room to grow in a space sheltered from market forces.

Accelerators, in contrast, are designed to speed up market interactions to help nascent ventures adapt quickly and learn. Practically, accelerators differ from incubators on four important dimensions. (Cohen & Hoshberg, 2014).

Table 2. Comparison of accelerators and incubators (Cohen & Hoshberg, 2014)

	Accelerators	**Incubators**
Duration	3 months	1-5 yrs
Cohorts	Yes	No
Business model	Investment; non-profit	Rent; non-profit
Selection frequency	Competitive, cyclical	Non competitive
Venture stage	Early	Early, or late
Education offered	Seminars	Ad hoc, hr/legal
Venture location	Usually on-site	On-site
Mentorship	Intense, by self and others	Minimal, tactical

Literature Review:

Wise & Valliere (2014) tried to find the effect of managers' abilities and characteristics in accelerators on startups. The study examined the information about startups operating in two of the world's leading accelerators (DMZ & TechStars). According to the studies, it has been found that the experience of accelerator managers as founders of previous startups reduces the likelihood of failure in startups, but the extent of their connections in the startup ecosystem does not reduce the likelihood of failure in startups. The researchers in the study recommend that accelerator managers be selected from among experienced people as founders and not people who have a lot of relationships and connections only in the startup ecosystem.

Joo & Hong (2021) have studied the role of accelerators in the growth and success of startups. The scholars found that the existence of mentoring and entrepreneurship guidance by accelerators has a positive effect on startups. The results are based on statistics and information from 220 startups with a lifespan of fewer than seven years.

Lukeš et al. (2019) examined 2544 Italian startups, 606 of which were members of the incubator program concluding that incubator programs in the short term not only do not have a positive effect on startups, but also have a negative effect on their income and do not affect the new jobs created by startups. However, the negative effect of incubators on revenue generation becomes a positive effect in the long run.

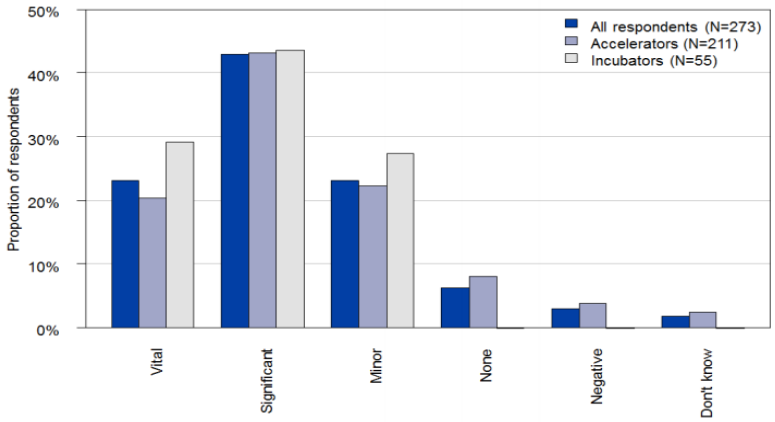
Colombo & et al. (2012) tried to answer this question: Do incubators help single-academic and non-academic startups? The study examined information from 1646 startups, of which 244 startups were single-academic startups. The scholars found that the most important issue for academic startups is business communication, and incubators need to be able to form this relationship. According to the results, incubators in Italy have been able to reduce this gap between startups and industry, and thus have no significant impact on academic startups. Nonetheless, in the case of non-academic startups whose main issue is communication with technology and academic units, the effect of incubators is positive and helps these startups to connect with academic and technology centers.

Rijnsoever et al. (2017) in their study on whether the presence of incubators helps startups or not, they hypothesized the efficiency index of incubators as their ability to help the process of raising startup capital. In the study, which was based on the analysis of 935 entrepreneurs in startups, they found that the presence of incubators has a positive effect on startups in two ways: 1. It helps startups attract more money as capital

and 2- allows startups to enter into negotiations with official institutions and banks and attract capital by relying on the credit of incubators.

Bone et al. (2019) examined the effects of incubators and accelerators simultaneously with a sample population of 273 startups in the UK. They found that most of the startups in the study believed that the role of accelerators and incubators was either vital or significant. The study also discusses which types of support play a more important role, and found financial support and support for forming startup teams, including important support. On the other hand, there are supports such as laboratory supplies and tools that have not been found useful in the study.

Figure 1. The significance of incubators and accelerators in the startup ecosystem (Bone et al., 2019)



Material and Methods:

Research approach and strategy:

The study approach was qualitative analysis using thematic analysis. Firstly, using the existing knowledge and systematic review, the interview protocol was prepared and distributed to six experts from the management team of Tehran University Science and Technology Park, Farabi Branch, faculty of Tehran University, specializing in strategic management and business management, who were experienced in cooperating and consulting with different companies and startups for validation.

Table 3. The Methodology based on research onion (Saunders, Lewis & Thornhill, 2009)

Dimensions	Qualitative methodology
Data collection method	Interview - Review of documents
Research horizon	Cross sectional
Goals	Exploratory
Research strategy	Qualitative (thematic analysis)
Research approach	Inductive
Philosophy of research	Interpretive
Orientation	Fundamental

Data collection method:

Data collection and information related to CEOs and senior managers of 15 independent startups and startups in the Science and Technology Park of Tehran University, Farabi Branch, Qom University incubators and accelerators in Qom and Tehran was done through interviews.

Data analysis:

The interviews analysis was carried out using content analysis or thematic analysis. Thematic analysis is a method for determining and analyzing the research theme and data obtained. Thematic analysis is a basic method of other qualitative analysis methods. This method is widely used in humanities studies where qualitative analysis asks questions about humans and their behavior, experience, and understanding of events (Terry et al., 2017).

In this study, based on the theme model, the codes were merged in three stages (conversion of basic codes to basic themes, conversion of basic themes to organizing themes, conversion of organizing themes to inclusive themes) based on similarities to approach abstract themes.

Table 4. The steps of thematic analysis (Vaismoradi, 2016)

Phases	Stages
Initialization	Reading transcriptions and highlighting meaning units; Coding and looking for abstractions in participants' accounts; Writing reflective notes.
Construction	Classifying; Comparing; Labelling; Translating & transliterating; Defining & describing.
Rectification	Immersion and distancing; Relating themes to established knowledge; Stabilizing.
Finalization	Developing the story line

Results and Discussion:

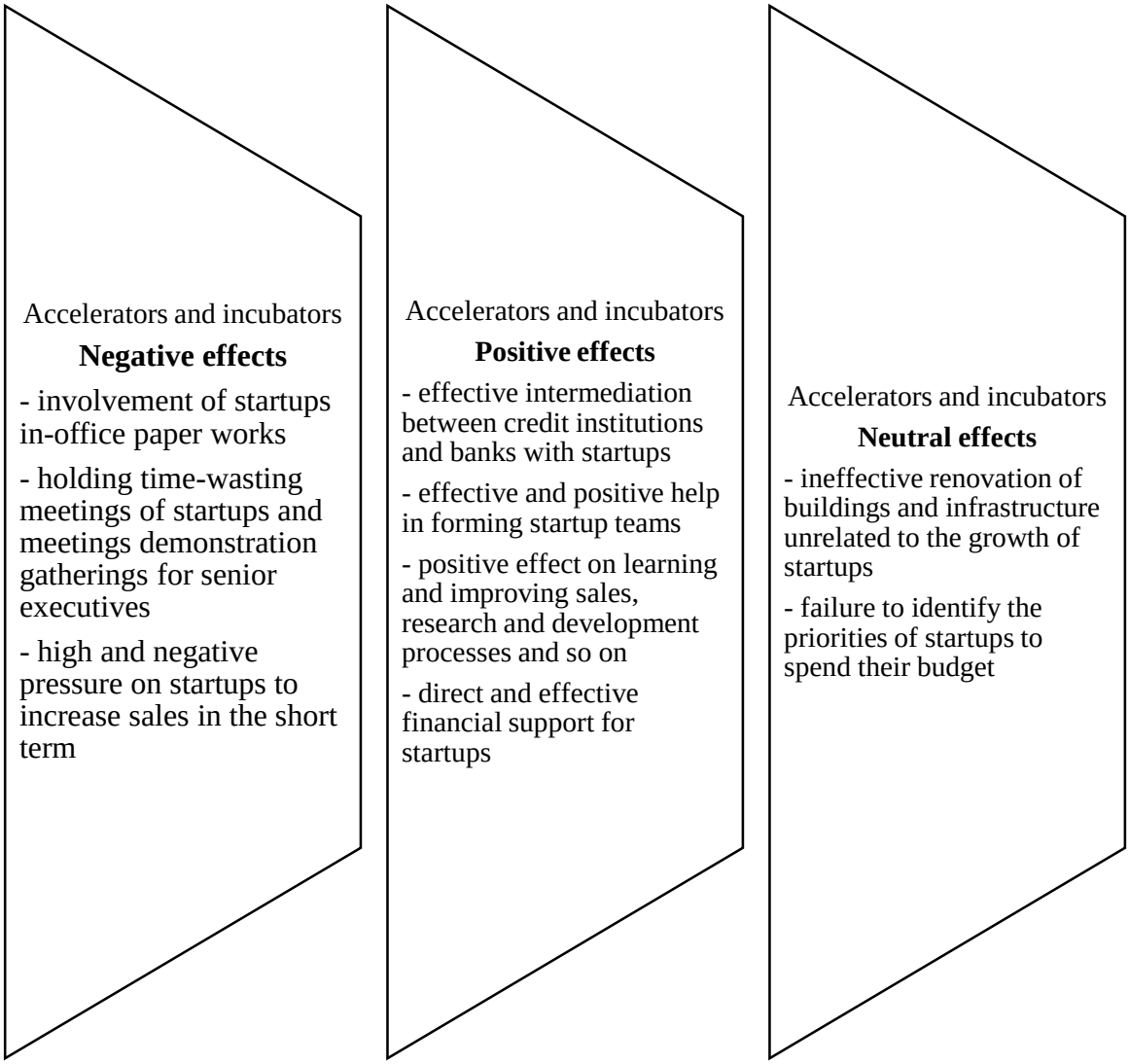
The study investigated the risks leading to failure in startups. About 105 codes, 23 basic themes, 9 organizing themes , and 3 global themes were extracted in the study.

Table 5. Analysis of basic, organizational and global themes

Basic themes	Organizing themes	Global themes
Provision of low-interest loans to startups by negotiations with banks and financial and credit institutions	**Effective intermediation between credit institutions and banks with startups**	**incubators and accelerators** **Positive effects**
Bargaining with banks and credit institutions to get a breathing space for financial repayment		
Transferring the experience of other teams previously stationed in accelerators and incubators and had problems or strengths in terms of communication inside the team.	**effective and positive help in forming startup teams**	
Introducing people (capable of bearing entrepreneurial risks) to newly formed teams		
Holding multiple startup weekends to get people to know each other		
Emphasizing the significance of planning and strategy development for startups and helping them learn strategy development processes	**positive effect on learning and enhancing sales, research and development processes, so on**	
Teaching the use of simple tools for developing a vision and positioning in the market, such as a business plan, etc.		

Training and studying the concepts related to startups		
Holding different gatherings and inviting university professors and founders of successful startups to transfer experience		
Transferring direct experience from senior accelerator executives and incubators via their previous experience as startup founders		
Financing startups by accelerators in a limited time	**Direct and effective financial support for startups**	
Special financial arrangements such as significant discounts for office rent by incubators		
Building or renovating a building at the start of an incubator or accelerator Activity because of excitement without examining whether such heavy costs are consistent with their vision and mission of helping startups grow or not	**Ineffective renovation of buildings and infrastructure unrelated to the growth of startups**	**incubators and accelerators Neutral effects**
Buying interior furniture from the best brands, (because senior executives want their interiors to look like the world's most prestigious acceleration centers.)		
Misusing all budgets allocated to some incubators affiliated with universities	**non-identification of startup priorities to spend their budget**	
Purchasing laboratory equipment and equipping it regardless of the needs of startups		
	Involvement of startups with office paper works	**incubators and accelerators Negative effects**
Holding multiple monitoring meetings regardless of the schedule announced by the startups		
Building a bureaucratic office structure regardless of the nature of the startup space		
Forgetting the reason for the existence of accelerators and incubators that help startups	**holding time-wasting meetings of startups and meetings demonstration gatherings for senior executives**	
Wrong evaluation structure for evaluating accelerators and incubators by ministries and boards		
The inclination of incubators and accelerators to upgrade their position even at the cost of startups wasting time	**High and negative pressure on startups to increase sales in the short term**	
Static scheduling by accelerators and incubators regardless of the different nature of each startup from another startup and the pressure on them to increase sales in the short term		

Figure 2. Themes network



Recommendations:

Future researchers are suggested:

1- Using statistical methods and increasing the sample, one can repeat the same research topic and obtain wider and more accurate results.

2- The study carried out is specific to the startup ecosystem of Iran, future scholars can study the startup ecosystems of other countries to reach different results and compare the results with each other.

3- What kind of startup need to use accelerators and what kind of startup should use incubators? This can be an interesting topic for future studies.

Conclusion:

Startups and innovative companies are the driving engines of the new economy, yet how can we reduce their failure rates and increase the desire and effort of entrepreneurs to succeed in their startups? This is a question that has boggled the minds of the rulers of various countries, especially developing countries, such as Iran. Accelerators and incubators are the main growth platforms of startups. When the platform and growth area of startups is healthy and helps them, startups can grow faster and suffer less from the risks of entrepreneurship. However, if in the context of the formation of new entrepreneurship, there are drawbacks and weaknesses, one cannot expect startups to be successful in the country. Accelerators and incubators as the root of modern entrepreneurship have a key role in technology-based economic growth. Given the significance of recognizing strengths, neutral areas, and weaknesses in accelerators and incubators, the study tried to obtain the most important strengths, neutral areas, and weaknesses in accelerators and incubators using thematic analysis and interview.

Strengths, neutral areas, and weaknesses as a result of interviews with 15 startups located in science and technology parks and accelerators in Qom and Tehran in Iran:

Effective intermediation between credit institutions and banks with startups, effective and positive help in forming startup teams, positive effect on learning and improving sales, research and development processes, and so on, direct and effective financial support for startups, ineffective renovation of buildings and infrastructure unrelated to the growth of startups, failure to identify the priorities of startups to spend their budget, involvement of startups in-office paper works, Holding time-wasting meetings for startups, demonstration gatherings for senior executives, high and negative pressure on startups to increase sales in the short term

Based on the results of Bone et al. (2019), direct financial support for startups and helping startups form teams are among the strengths of accelerators and incubators, and building laboratories and pieces of equipment not used by startups are their neutral point. The results of this study confirm our study.

According to Rijnsoever et al. (2017), incubators help startups in two ways: 1- By increasing the capital needed and 2- By granting credit to startups to enter into negotiations with banks and credit institutions. The results of this study confirm our study.

According to Lukeš et al. (2019) incubators have a negative effect on the sales statistics of startups in the short and a positive effect on their long-run sales. The results of this study confirm our study.

According to Wise & Valliere (2014), the high experience of senior managers as startup founders in the past has a positive effect on how accelerators are managed and thus a positive effect on startups. The results of this study confirm our study.

Considering the significance of having a platform for startups, the following points are recommended to senior executives able to make changes to accelerators and incubators:

1- The interests of accelerators and incubators managers have to be integrated with the interests of startups. Thus, the managers do not try to disrupt the programs and strategies of startups to promote and gain other benefits.

2- The managers and employees with previous experience in founding startups and understanding the risks and threats in this field as a founder should be used.

3- Spending the allocated funds in areas that do not help the growth of startups should be refrained from.

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