



Training Centre for Social Science  
And Education  
709 Military Trail-Ontario  
647-745-5753

<http://americanhealthcare.wixsite.com/soc-paris>



Ontario College for Research  
and Development

## Analyzing Factors Impacting on Entrepreneurship Using Systems Thinking: Case of Pardis Science and Technology Park in Tehran

- 1- Omid Ali Kharazmi (Corresponding Author), Assistant Professor, Urban Management, Ferdowsi University of Mashhad, Mashhad, Iran, [kharazmi@um.ac.ir](mailto:kharazmi@um.ac.ir)
- 2- Amin Nedaei, Master of Urban Management, Ferdowsi University of Mashhad, Mashhad, Iran, [amin\\_nedaei@yahoo.com](mailto:amin_nedaei@yahoo.com)
- 3- Vahideh Montazerian, Master Student in Urban Management, Ferdowsi University of Mashhad, Mashhad, Iran, [v.montazerian@gmail.com](mailto:v.montazerian@gmail.com)

### Abstract

The concept of encouraging entrepreneurial activities is considered as a priority of many nations. The aim of this research is to evaluate influential factors on entrepreneurship and assess their current status based on systems thinking. Firstly, A conceptual model was formed based on three dimensions (subsystems) including: Economic, political-legal and cultural. The next step was to test a model in the Iranian context. A case of Pardis Science and Technology Park (PSTP) in Tehran was selected and questionnaire was distributed among 105 people. A lisrel software was utilized for computing a degree of impact. Also 8 semi-structured interviews were conducted and analyzed with Vensim software in order to complete a system and evaluate a current situation. Results of study determined most influential factors on entrepreneurship activities and also indicate that many weaknesses exist in the current situation of entrepreneurship in Iran. Suggestions for improving current situation were also mentioned.

**Keywords:** Entrepreneurship, Systems Thinking, Tehran, Pardis Technology Park

## **Introduction**

Entrepreneurship is the process of stimulating innovation through evaluating new potential opportunities, reaching the resources, implementing, exploiting and commercializing new products and services (Braunerhjelm et al, 2011). In fact, entrepreneurship is considered as a concept for improving economic growth in both developed and developing countries (Vivarelli, 2011), which can lead to reducing unemployment and poverty and employment growth in developing countries (Van stal et al, 2005).

According to the ranking of entrepreneurial countries in 2012, developed countries like the United States, Sweden, Australia, Island and Denmark are ranked first to fifth respectively and a developing country like Iran is ranked 67<sup>th</sup> which is not a proper position due to the high level of human capacities in this country. However, due to the growing demand of developing countries to entrepreneurship as an engine for development (Glaser et al, 2010), special attention should be paid to entrepreneurship for creating competitive advantage and economic development in all aspects (Vivarelli, 2011). In globalization era, by driving competition from national level to regional level, cities can compete in this era through creating new entrepreneurship capacities. Tehran, with its excellent status as Iran's economic tiger and having various research centers, scientific and entrepreneurship centers and science and technology parks, can play an effective role in promoting entrepreneurship capacity. The science and technology parks available in Tehran can also serve as intermediary between innovators and entrepreneurs (Cohendet and Pawlak, 2009). On the other hand, because entrepreneurship is a complex and multi-dimensional issue, it seems that systems thinking method can be efficient in analyzing and presenting a sustainable solution for determining factors affecting entrepreneurship (because systems thinking provides a generalized and multi-dimensional perception and focuses more on the internal relationships of elements, behavior of the system elements and their effect on each other (Senge,1990; Spruill, 2001). Since entrepreneurship plays a key role in countries' development specially in developing countries, the necessity of indicating factors influencing entrepreneurship seems essential (Acs and Szerb, 2012). This research aims at reviewing factors affecting entrepreneurship and the relationship between them, evaluating the status quo and determining the solutions for improving entrepreneurship status based on systems thinking in one of the technology parks in Tehran, namely Pardis Science and Technology Park (PSTP).

## **Research Questions**

- 1-What are the factors influencing entrepreneurship with focus on Pardis science and Technology Park?
- 2- How can entrepreneurship effective factors have relationship with each other in a systematic manner?
- 3-How is the status quo of entrepreneurial dimensions and its related factors and the solutions for improving them with focus on Pardis Science and Technology Park?

## **Methodological approach**

### **Research Method**

The research methodology of this study is explanatory. This research has been designed with the purpose of identifying and reviewing the effective factors in entrepreneurship based on PSTP experience. In order to reach this objective, researchers have used both qualitative and quantitative approach in order to triangulate the data. For qualitative research, a questionnaire were used which consisted of 31 questions and 3 parts including economic, political-legal and cultural. The questionnaire was graded based on Liker scale from 1 (strongly agree) to 5 (strongly disagree). The reliability of this questionnaire was evaluated by Cronbah's alpha and its value equals 0/778. The questionnaire's structural and content validity is confirmed by some expert's judgment. The population of this research is experts and managers of PSTP that are totally 105 people. Questionnaires were distributed among these people from which 68 were returned. The data obtained was analyzed through descriptive and inferential analysis using SPSS software for determining the degree of impact and LISER software for determining the significance of factors' effect in studied dimensions. If the coefficient of determination for each factor is between  $-1/96$  and  $1/96$ , this factor is not significant and there is no relationship between this factor and the given dimensions, and if the coefficient of determination is not in this range, it is significant and it can be concluded that there is an actual relationship between factors and the given dimensions. In addition, semi- structured interviews were used to gather data and eight experts of Pardis science and Technology Park were interviewed using snowball sampling technique. The information obtained was analyzed based on theme analysis by coding data. Finally, the entrepreneurial dimensions and related factors were simulated in a dynamic system by using VENSIM software.

### **Area of study**

Tehran is a capital of Iran with almost 8,000,000 populations with strong knowledge based institution and also a variety of industrial based organizations. PSTP is located 20 km north east of Tehran in 180,000 square meters and has a capacity to expand up to 1,000,000 square meters in its vision. The main objective of this park is to bring innovators and entrepreneurs and also acts as an effective intermediary agent between research bases like universities and industry.

### **Research Background**

Extensive researches regarding entrepreneurship were carried out and each researcher has paid attention to specific aspect of this field. Bosma et al (2008) did extensive researches regarding the process of implementing entrepreneurship and presented a model in which potential desirability to entrepreneurship is created through the interaction of entrepreneurship's supply and demand and finally this desire will come to practice by evaluating entrepreneurial risks. Furthermore, researchers like Lopez-Garciaet et al (2005) undertook some studies about entrepreneurship steps in business firms and presented their findings in a model by reviewing the factors influencing them and determining effective factors. Researchers like Laffont and Khilstrom (1979) did researches regarding types of risk in

entrepreneurship and pointed to two kinds of risk in their findings. These risks are related to evaluation of opportunity cost and risk of reward. Finally Vivarelli (2011), Acs (2008), Glaeser (2010), Graham (2005), Van stel et al (2005) carried out studies about the entrepreneurship differences in developed and developing countries. They found infrastructural weaknesses for establishing entrepreneurship in developing countries such as legal weakness and lack of cultural infrastructures like the existence of trust atmosphere. In addition, in his documentary studies, Lorentzen (2008) evaluated the effective factors in finding entrepreneurial opportunities and finally established a framework including individual and environmental factors for discovering and exploiting entrepreneurial opportunities.

## **Theoretical Foundations**

### **Entrepreneurship Formation**

For creating potential entrepreneurship, there must be both entrepreneurial demand and supply. There are important factors in entrepreneurial supply including perceived capabilities and willingness (Davidsson, 1997). In addition, training levels and entrepreneurship training courses are determinant in developing entrepreneurial perception. In entrepreneurial demand, some opportunities are needed to do entrepreneurial activities and entrepreneurs should also realize the opportunity developed for entrepreneurship (Shane, 2003). The quality and quantity of perceived opportunities can increase based on national and regional conditions such as economic growth, population growth, culture and national entrepreneurial policies structure (Feldman,2001). In addition, people's self-perception and their perception of environment can encourage or discourage them to involve in the process of entrepreneurial activities (Arenius and Minniti, 2005). When entrepreneurial supply and demand are combined together, the individual will assess the risks and costs of entrepreneurship which can include both the assessment of opportunity costs and the assessment of risk reward. The assessment of opportunity costs is to assess whether the way chosen for implementing entrepreneurship is the best way or not i.e. the return of investment is more than the other ways (Shane et al, 2000). The assessment of risk reward is whether doing entrepreneurial activities worth taking the risk and this risk is actually associated with the fear of failure (Khistrom et al, 1979). Now if the assessment of risks and costs of entrepreneurial activities is fair, entrepreneurial intention and activity will emerge (Bosma et al, 2008).

According to the process of entrepreneurship formation, it can be concluded that appropriate infrastructures should be provided to accelerate this process with respect to the developing countries conditions.

### **Influential Dimensions in Entrepreneurship**

Important Dimensions for entrepreneurship include economic, political-legal and cultural. These dimensions affect the formation of entrepreneurship and are influenced by the context created through entrepreneurship (Loerntzeh, 2008). The internal relationship of factors impacting entrepreneurship was stated in previous researches, however, the relationship between entrepreneurial factors has not been discovered in a systematic format and systems thinking can overcome this weakness. The relations between these three dimensions are mentioned in Figure 1.

Figure 1

## **System thinking and influencing factors on entrepreneurship**

System thinking is a tool for better understanding of complex managerial problems and issues. This method has been used for 50 years and now is widely accepted in managerial issues. In this method, events and their reasons are not studied individually or linearly, rather they are considered as a system composing of components that have mutual effects on each other. The term “system” is used because a group of interrelated components forms a single pattern which gives the planners a comprehensive perspective (Senge, 1990; Edson, 2008). This method can also be used for better understanding of the relationships among dimensions important for entrepreneurship. Therefore, the dimensions influencing entrepreneurship can be divided into 3 subsystems including economic, political-legal and cultural subsystems which will be explained in following sections.

### **Economic Subsystem**

Economic subsystem consists of various factors, however factors presented in this section affecting entrepreneurship are: macro-economic conditions, unemployment rate, income disparity, status of venture capitals and the support of financial institutions, and taxation policy.

1-Macro economic conditions: When a region experiences economic growth and stable macro-economic conditions, the probability of doing entrepreneurial activities increases. In such environment entrepreneurship with high innovation increases, since environmental conditions provide higher value resources (Lorentzen, 2008).

2- Unemployment rate: The effect of unemployment on entrepreneurship is in connection with wage rate. If in a region the unemployment rate is high, individuals’ attention toward self-employment increases. High unemployment encourages entrepreneurship due to the lack of job opportunities. On the other hand low unemployment increases the level of entrepreneurship because of flexible and robust economic conditions. Thereby, it can be concluded that high and low rate of unemployment can be both lead to entrepreneurship (Lorentzen, 2008).

3- Income disparity: Income disparity can impact supply and demand of entrepreneurship. Taking the supply side into account, high income disparity can lead individuals to self-employment, because entrepreneurship opportunity cost is low. In addition, it can encourage wealthy individuals to set up a business due to low risk and having enough financial capitals. On the demand side, high income disparity in a region encourages goods and services diversity on the market. The wealthy seek luxury goods and basic needs, while the poor focus on basic needs and essential commodities. Consequently, income disparity encourages entrepreneurship from both supply and demand side.

#### 4-Venture capitals and financial institutions’ support

The capitals act as an important infrastructural component for providing entrepreneurial context in national and regional levels and finally lead to wealth creation (Gompers et al, 2001). Base on the ability and skill of capitals, country’s legal and institutional structures and stock market, this investment can provide the context for developing innovation and entrepreneurship in both public and private sectors. On the other hand, the support of financial institutions such as banks and credit institutes can help to fulfill entrepreneurial ideas by increasing and facilitating investment opportunities (Etzkowitz, 2005).

5-Taxation policies: Taxation policy means that governments can impact entrepreneurship directly through the rules. Governments can encourage entrepreneurship by levying reverse tax for entrepreneurs or exempting them from taxation. If these regulations are subject to entrepreneurial activities, it can not only impairs scientific researchers, but also may indirectly reduce the entrepreneurship rate (Acs et al, 2008). As Figure 2 show, economic subsystem includes macro-economic conditions, income disparity, unemployment rate, venture capital and financial institutes support, and taxation policies. These factors have effect on each other and are affected by each other which finally improve innovation and entrepreneurship. Loop (R1) is indicator of the dynamics of the system. In this cycle, the optimum macro-economic condition leads to increase in venture capital and reduces the unemployment rate in the society. These factors improve macro-economic statues and the cycle is repeated similarly.

Figure 2

### **Political-legal sub system**

Political and legal factors have significant effect on entrepreneurship and can be beneficial when there is strong focus on the market and monopoly and cartel is created. In other words, the market is sluggish. Some of these factors will be analyzed in this section.

1- Macro-economic policies: macro-economic policies focus on the economy as a whole not in macro level. Generally, macro-economic policies have a significant effect on the trading status of small firms and structured a framework including taxation, labor market, regulation, social security and income policy (Storey, 1999). Macro-economic policies can promote or provide barriers to the development of large and small businesses, therefore they should be established with cautious and foresight (Lorentzen, 2008).

2-Intellectual property rights: Intellectual property means creative ideas or expressions of human mind that government will grant its developers monopoly rights to exploit them in a given period of time in order to avoid the misuse of others (Hamilton, 2002).The existence of appropriate regulation can help researchers and innovators with new ideas to complete the commercialization process of their inventions with more trust. On the other hand, industries trying to have collaboration with universities can sign research contracts with inventors and universities with complete trust. Generally it builds more trust and collaboration between university and industry which finally leads to the improvement of entrepreneurship in cities (Sarkissian, 2008).

3- Sectoral policies: In addition to general policies, to promote entrepreneurship, policies can made in specific sectors, regions or groups. These policies can include various groups of people (women, the young, immigrants and the unemployed) and different sectors of industry (IT, biotechnology, life sciences) (Storey, 1994). It seems that execution and efficiency is the key to carry out these policies successfully which is a solution for improving entrepreneurship (Lorentzen, 2008).

4-Government Resources (Government resources related policies)

The availability of government resources and their fair and optimum allocation can encourage entrepreneurship. These resources include labor force, financial capital and information and knowledge that can both create and improve entrepreneurship (Storey, 1994). The availability of resources can

make a person entrepreneur because the financial resource is available not because their idea is marketable. Studies have shown that governments help to set up and stabilize a business by supplying entrepreneurial services; however, they pay less attention to the growth of the business (Bosma and Harding, 2006).

#### 5-Deregulation

Deregulation has two aspects: first, it lifts the managerial and legislative barriers which take time, energy and resources away from entrepreneurial activities. Second, it encourages the free markets that increase competition. A deregulated environment ensures that business fitting the market can remain (Sine et al, 2001).

#### 6-Anti-monopoly laws

These laws are codified in order for banning monopoly behavior, protecting the competitive market, supporting firms' legal rights, interesting consumers and ensuring market health which totally improve entrepreneurship (Shishkin, 2002).

As can be seen in Figure 3, political-legal subsystem includes macro-economic policies, intellectual property right, sectorial policies, deregulation and anti-monopoly laws . By having direct and indirect relationships, these factors can accelerate the entrepreneurial trend through affecting macro-economy and creating laws related to intellectual property rights.

There is a loop (R1) in this system which indicates system dynamics. Appropriate macro-economic policies create anti-monopoly laws which makes government resources available for individuals. Easy access to these resources helps to formulate sectorial policies based on the resources available. When sectorial policies are formulated, it is possible to ratify coherent laws to prevent copying new ideas illegally based on these policies. These laws make the judicial system more efficient which finally affects the macro-economic policies.

Figure 3

### **Cultural subsystem**

Despite having impressive impact on improving entrepreneurship, cultural subsystem provides a context for other dimensions. Some of these influencing factors in cultural dimension are explained below.

#### 1-Social acceptance of entrepreneurship

The acceptance of entrepreneurial activities in society can increase the likelihood of their occurrence, however, negative attitude toward entrepreneurship is actually a barrier to start entrepreneurial activities (Swanson and Webster, 1992). In a study conducted in 23 countries, there was a positive correlation between the desire for entrepreneurship and social acceptance and doing entrepreneurial activities (Blanchflower, 2000).

#### 2-Bureaucracy and corruption

In societies where bureaucracy and judicial system are inefficient and corruption prevails widely, economic growth is hampered. Entrepreneurship occurs in such environment, but its benefit is limited. Bureaucracy and corruption decrease the private sector investment and venturing and finally entrepreneurship decreases and its potential gains deprived (Lorentzen,2008).

### 3-Cultural beliefs and tradition

Cultural beliefs and tradition have both positive and negative impact on entrepreneurship. If there is positive attitude toward entrepreneurship in a societies' belief, the likelihood of doing entrepreneurial activities increases and facilitates the moral commitments of resource acquisition (Shane, 2003). On the other hand if entrepreneurship is considered as a negative attitude, individuals will not be stimulated to set up (start) a business and show no willingness to take risks (McGrath et al, 1992).

### 4-Social capital

Social capital has a lot of characteristics and benefits and facilitates economic relationships (Anderson and Jack, 2002). Developing interactions, trust and collaboration are some of the benefits of social capital that are the prerequisite of entrepreneurial activities (Putnum, 2001). Social capital is sets of resources embedded in relationship and focuses more on processes rather than goals so that it can facilitate entrepreneurship (Hamilton, 2002).

In comparing entrepreneurial and non-entrepreneurial societies in eight countries, it was found that high level of power distribution incorporated (PDI), high level of individualism, high level of masculinity and low level of uncertainty were the characteristics of entrepreneurial societies (MacMillan et al, 1992).

Considering Figure 4 cultural subsystem includes social acceptance of entrepreneurship, bureaucracy and corruption, social beliefs, trust and tradition which can improve entrepreneurship. There are 3 loops in this system that show high dynamics of the system. In the first loop (R1), increase of trust improves social capital. The improvement of this capital increases individuals' commitment and it develops trust in society which increases social capital and this cycle is repeated with such trend. In the second Loop (R2) , social acceptance of entrepreneurship increases the amount of entrepreneurial activities which increases power distribution in society. This factor also leads to the more acceptance of entrepreneurship. In the third Loop (R3), high level of PDI increases bureaucracy and corruption which makes the desire to take risk more and finally improves entrepreneurship.

Figure 4

### **Conceptual Model**

By combining the three subsystems including economic subsystem, political-legal subsystem and cultural subsystem, the research conceptual model (Figure 5) developed which indicates the effect of factors on improving entrepreneurship.

Figure 5



## Results and Findings

In this section, in order to answer the research questions, each of the subsystems influencing entrepreneurship is evaluated in 4 steps (for all subsystems, these steps are repeated).

These steps are as follows:

- The effect of each factor in each dimension is computed using SPSS software with respect to quantitative information.
- The significance or the actual relationship between factors and dimensions are evaluated through confirmatory factor analysis using LISREL software.
- The qualitative information resulting from interviews are analyzed by coding and theme analysis.
- Using quantitative (questionnaire) and qualitative (interviews) information, the effect of factors on each other and their relationship is drawn for each dimension in a dynamic system framework based on systems thinking using VENSIM software.

### Economic Subsystem

In this part, the economic subsystem will be explained in 4 steps.

1- Determination of factors effect (Table 1).

The impact of factors affecting economic dimension can be seen in table 1.

Table 1 indicates the economic factors influencing entrepreneurship and shows that venture capitals have the greatest impact with 86/7 percent in supporting entrepreneurship. Adequate support for knowledge-based firms in universities with 86/6%, availability of natural resources and financial institutions support with 80% are other factors impacting entrepreneurship.

Table 1

2- Determination of economic factors significance

The significance of influential factors in legal dimension is evaluated to determine whether these factors have actual and significant relationship with the given dimension or not.

Based on table 1 which shows the influential factors in economic dimension, the significance of factors influencing economic dimension is indicated in figure 6. The eighth factor (Q8) is unemployment increase and its coefficient of determination is  $-0/01$  (the value is between  $-1/96$  and  $1/96$ ) and does not have significant relationship with economic dimension, therefore is eliminated in the final system. However, other factors' coefficient of determination is beyond this range and hence has significant relationship with economic dimension. So in order to maintain the coherency among the factors influencing economic dimension, unemployment factor is eliminated in the final system.

Figure 6

### 3-Interview analysis for the economic sub system

The results of interviews confirm the results shown in table 1 and indicate that venture capitals are the most important factor in improving entrepreneurship. They help to commercialize the innovations through making investments in new activities. However, the numbers of investors taking the risk of a new activity are very few in Iran. One of the reasons for investors' unwillingness to invest in a new activity is their uncertainty of governmental and financial institutions' support at the time of risks. To create willingness, tax incentives and insurance facilities can be granted. In addition, the establishment of counselling centers in banks to give expert advice to investors can increase their trust and certainty to be supported in harsh conditions.

It was also mentioned that one of the problems that cause people to take risk less is that they do not have access to resources and are not supported by financial institutions. Most of the entrepreneurs need financial resources with low interest to start their business. Therefore, financial institutions have an important role in this context, however, there are no supports of entrepreneurs or if there is any it includes a particular range of entrepreneurs who work in the brigade of known firms.

The results of the interviews also show that high quality science and technology parks can improve the motivation for entrepreneurship by creating competitive environment. Nevertheless, science and technology parks in Iran are not efficient due to their governmental and bureaucratic structures, hasty in creating these centers, inattention to non-university elites and not paying attention to non-knowledge-based activities and above all the lack of trust. According to what was mentioned, to enhance the conditions of these parks, the atmosphere of trust should be improved through establishing subsidiary rules. By this kind of atmosphere, the spirit of risk-taking will increase in science and technology parks and finally people will be stimulated to do entrepreneurial activities. According to one of the experts, 'one of the key factors for providing such spirit is to increase trust. Entrepreneurial activities are inherently risky and lack of trust hinders such risk, hence entrepreneurship will improve by improving trust atmosphere'.

### 4 –Drawing the final economic subsystem

Using the results of qualitative and quantitative studies, the final system of economic subsystem (figure 7) was drawn which indicates relationship towards improving entrepreneurship. In addition to the first loop (R1), another loop (R2) is added to this system. Thus by creating efficient collaboration between university and industry, entrepreneurial universities can amplify and by amplifying these, universities , research projects will increase and by transporting these projects to science and technology parks , innovation will improve in these parks which leads to the improvement of university and industry collaboration and this cycle continues which increases the dynamic of the system. In the system below, the thickness of arrows shows their effect rate, therefore the thicker the arrows, the more impact it has. For example, the increase in venture capital or financial institutions support has a significant effect in improving entrepreneurship. On the other hand, proper macro-economic conditions have lower effect on the accessibility to global markets.

Figure 7

## Political-Legal Subsystem

### 1- Determination of factors effect.

In this part, legal-political subsystem will be analyzed (Table 2)

As can be seen, table 2 indicates the effect of legal factors on entrepreneurship which shows that proper economic policies toward supporting entrepreneurship has the most impact on entrepreneurship with 93/3%. Other factors include fair distribution of government resources with 86/6% and eliminating bureaucratic regulations with 85/7% and the intellectual property rights with 77/7%. In addition, the accessibility of government resources such as land and with 53/4% and supportive policies for special entrepreneurial activities with 66/7% has the less effect on entrepreneurship.

Table 2

### 2- Determination of political-legal factors significance

The significance of factors influencing legal dimension can be implied through Figure 8.

According to table 2 which shows the influential factors on legal dimension, the significance of these factors is defined in figure 7. The coefficient of determination of the factors influencing legal dimension is more than 1/96 and less than -1/96. Therefore, there is significant and actual relationship between the influential factors and legal dimension.

Figure 8

### 3- Interviews analysis for political-legal sub system

The results of interviews confirm the results shown in table 2 and indicate that one of the reasons why people are unwilling to set up a new business is the existence of bureaucratic regulations. If one wants to start a new business, for dealing with the paperwork which can make that person frustrated. To solve this problem, administrative procedures should be reduced, cyberspace (Internet) can even be used to facilitate these procedures.

It was also stated that one of the helpful factors in creating entrepreneurship in cities is to establish subsidiary rules with proper enforcement. For instance, the intellectual property rights have been existed; however, this law does not a proper enforcement. To solve this problem, administrative and juridical bodies must be obliged to punish those who violate individuals' intellectual rights.

It was also stated that one of the factors that can have profound effect on improving entrepreneurship is anti-monopoly rules. According to one of the experts 'passing anti-monopoly rules can improve entrepreneurship in country through banning monopoly behavior, protecting and supplying competitive market, supporting firm's legal rights and ensuring the market health'. There are no comprehensive anti-monopoly rules against monopolistic activities in the country and the existing inefficient rules do not have vigorous enforcement. Therefore, in order to provide an environment for entrepreneurship, proper rules should be passed to control monopolistic behavior.

#### 4-Drwing the final political-legal subsystem

Using the results of qualitative and quantitative studies, the final political-legal system (figure9) was drawn which indicates how factors impacting political-legal dimension have relationship with each other. In this system, factors such as macro-economic policies, coherent intellectual property rights, efficient judicial system and passing integrated rules to tackle unauthorized use of new ideas, have significant effect on entrepreneurship. On the other hand, sectorial policies have subtle effect on intellectual property rights.

Figure 9

#### **Cultural Subsystem**

In this part, cultural Subsystem is analyzed.

##### 1- Determination of Cultural factors effect (Table 3)

Table 3 shows the effect of factors influencing cultural subsystem.

According to table 3 which indicates the cultural factors impacting entrepreneurship, it can be seen that having positive attitude toward entrepreneurship has the most effect on entrepreneurship with 100%. Other factors include the social acceptance of entrepreneurship in society and training individuals to become familiar with entrepreneurial process with 92/9% , the interaction among entrepreneurs with 78/6% and trust among entrepreneurs with 78/5%. In addition, the reduction of organizations bureaucracy with 64/3% and trust between entrepreneurs and managers with 71/4% are factors with the least impact on entrepreneurship.

Table 3

##### 2- Determination of Cultural factors significance

The significance of influential factors in cultural dimension is shown in the figure 10.

According to table 3, which shows the influential factors in cultural dimension, the significance of these factors is displayed in figure (10). It shows that the coefficient of determination for reduction of corruption is (Q7) is 0/94 which indicates that this factor does not have significant relationship with cultural dimension, therefore will be eliminated in the final system. Other factors are beyond this range and have significant relationship with cultural dimension. Hence, reduction of corruption is eliminated from the final system in order to maintain integration between other factors.

Figure 10

##### 3-Interviews analysis for Cultural subsystem

Confirming the information available in table 3, the data obtained from the interviews indicates that if citizens have positive attitude toward entrepreneurship and accept it in society, the tendency to do entrepreneurial activities increases and people can access the required resources and facilities more easily. Since Iran's government has focused on domestic production, entrepreneurship has gradually been institutionalized in Iranian's beliefs. On the other hand, training entrepreneurship in universities

and training centers can improve business environment by increasing individuals' awareness of entrepreneurial process and its requirements as well as declaring how to create successful entrepreneurship through encouraging entrepreneurship.

#### 4-The Final cultural subsystem

Considering the results of the researches done, the final cultural system (figure 11) is drawn which indicates how entrepreneurship among cultural factors strengthen entrepreneurship in cities. Factors such as trust, the desire to take risk, entrepreneurship encouragement, and certainty toward future and social acceptance of entrepreneurship have considerable impact on entrepreneurship. Encouraging to entrepreneurship has little impact on increasing individuals' tendency to take risks in doing entrepreneurial activities. The third loop (R3) deletes due to the elimination of corruption and bureaucracy.

Figure 11

### **A Whole Integrated System**

By combining the three subsystems described, a final system is reached which shows that the relationships among the three subsystems including; economic, political-legal and cultural subsystems (figure12).

Figure 12

### **Conclusion and Recommendations:**

Influential factors on entrepreneurship were studied in this research and these factors were considered in three different subsystems which ultimately formed a conceptual model. A conceptual model consisted of three subsystems including economic, political-legal and cultural. Results indicate that the degree of influence of each factor is different. For example in economic subsystem the most influential factors are availability of venture capital in the region, support of financial institutions and taxation policies. These factors are also supported by Etzkowitz (2005). In the political legal subsystem these factors include macroeconomic condition and stability, intellectual property rights and its enforcement laws, anti-monopoly laws and also degree of bureaucracy in organizations. Lorentzen (2008) also emphasized on political legal factors as most important elements in encouraging entrepreneurial activities in the region. In cultural subsystem these factors include degree of trust between entrepreneurs and managers, social acceptance of entrepreneurs, and intention to take risk. Results show these three subsystems are interrelated and a whole integrated system can better indicate a situation and cause and effect relationship. Shane (2003) believes that, trust is one of the most important factors that facilitate entrepreneurial activities in the region. It is concluded that the current situation of Iran needs improvement in many of these factors including intellectual property rights specially enforcement laws, enhancing level of trust between actors in the system, increasing stability of government regulations and encouraging risk taking behavior in the society.

## Reference

1. Acs, Z., Glaeser, E., Litan, R., Fleming, L., Goetz, S., Kerr, W., Klepper, S., Rosenthal, S., Sorenson, O., and Strange, W. (2008), *Entrepreneurship And Urban Success: Toward A Policy Consensus*, *The Ewing Marion Kauffman Foundation*.
2. Acs, Z., and Szerb, L. (2012), *The global entrepreneurship and development index (GEDI): perspective from the American*, *Center Of Entrepreneurship And Public Policy*, Elgar Publishers, Cheltenham.
3. Anderson, A. R., and Jack, S. L. (2002), 'The Articulation of Social Capital in Entrepreneurial Networks: A Glue or a Lubricant?', *Entrepreneurship & Regional Development*, Vol 14, No 1 pp 193-210.
4. Arenius, P., and Minniti, M. (2005), 'Perceptual variables and nascent entrepreneurship', *Small Business Economics*, Vol 24, No 3, pp 233-247.
5. Blanchflower, D. G. (2000), *Self-Employment in OECD Countries*. *Labour Economics*, Vol 7, No 5, 471-505.
6. Bosma, N., and Harding, R. (2006), *Summary Results Global Entrepreneurship Monitor*, Babson College & London Business School.
7. Bosma, N.S., Jones, K., Autio, E., and Levie, J. (2008), *Global Entrepreneurship Monitor; 2007 Executive Report*, Babson College, London Business School, And Global Entrepreneurship Research Association (Gera).
8. Braunerhjelm, P. (2011), *Entrepreneurship, Innovation And Economic Growth: Interdependencies, Irregularities And Regularities*, In Audretsch, D.B., Falck, O., Heblich, S., Lederer, A., (Eds.), *Handbook Of Research On Innovation And Entrepreneurship*, Elgar, Cheltenham,.
9. Cohendet P., and Pawlak E. (2009), 'Diversity of entrepreneurs and diversity of clusters in Nanotechnologies', *International Journal of Technology Management*, Vol 46, No 3/4, pp 386-403
10. Davidsson, P. (2006), *Nascent Entrepreneurs: Empirical Studies And Developments, Foundations And Trends In Entrepreneurship*, *Researching Entrepreneurship*, Springer: New York.
11. Etzkowitz, H. (2005), 'The Renewal Of Venture Capital: Toward A Counter-Cyclical Model', *Technology Analysis And Strategic Management*, Vol 17, pp 73-78
12. Feldman, M.P. (2001), *The Entrepreneurial Event Revisited: Firm Formation In A Regional Context*, *Industrial And Corporate Change*, Vol 10, No 4, pp 861-891.
13. Glaser, E., and Kerr, W. (2010), *What Make A City Entrepreneurial*, By Taubman Center For State And Local Government.
14. Gompers, P., and Lerner, J. (2001), *The Money of Invention*, *Harvard Business School Press*, Boston, M.A.
15. Graham, D. (2004), 'Wider Economic Benefits Of Transport Improvements: Link Between City Size And Productivity.' London: Department For Transport; Rice, P. and Venables, A. (2004) 'Spatial Determinants Of Productivity: Analysis For The Regions Of Great Britain.' Unpublished Paper. London: Lse, (2005).
16. Hamilton, B. (2000), 'Does entrepreneurship pay? An empirical analysis of the returns of self-employment', *Journal of Political Economy*, Vol 108, No 3, pp 604-631.
17. Jaffe, Adam B. (1989), 'Real Effects Of Academic Research', *The American Economic Review*, Vol. 79, No. 5, pp 957-970.
18. Khilstrom, R.E. Laffont, J. (1979), 'A General Equilibrium Entrepreneurship Theory Of Firm Formation Based On Risk Aversion', *Journal Of Political Economy*, Vol 87, pp 719-748.
19. Lorentzen, A. (2008), 'Knowledge network in local and global space', *Entrepreneurship & Regional development*, Vol 20, No 6, pp 533-545

20. McGrath, R., MacMillan, I., and Scheinberg, S. (1992), 'Elitists, risk-takers, and rugged individualists? An exploratory analysis of cultural differences between entrepreneurs and non-entrepreneurs'. *Journal of Business Venturing*, Vol 7, pp 115-135.
21. Shishkin, P. (2002), European Regulators Spark Controversy With 'Dawn Raids,' *Wall St. J.*, Mar. 1, 2002, Et A1.
22. Putnum, R. D. (2001), *Bowling Alone: The collapse and revival of American community*, Simon and Schuster, New York.
23. Reynolds, P. Bosma, N. Autio, E. Hunt, S. Hunt, S. Demono, N. Servais, I. Garcia, P., and Chin, N. (2005), Global entrepreneurship monitor: Data collection design and implementation, *Small business economics*, Vol 24, No1, pp 205-231
24. Sarkissian, A. (2008), 'Intellectual Property Rights For Developing Countries, Lessons From Iran', *Technovation*, Vol 28, pp 786-798.
25. Sine, W., Haveman, H., and Tolbert, P. (2001), *Institutional influences on founding variation in the emerging independent power industry*, University of Maryland, US.
26. Swanson, D., and L. Webster, (1992), 'Private Sector Manufacturing in Czech and Slovak Federal Republics: A Survey of Firms', The World Bank, Industry and Energy Department working paper, *Industry series paper*, No 68.
27. Shane, S., and Venkataraman, S. (2000), 'The Promise Of Entrepreneurship As A Field Of Research', *Academy Of Management Review*, Vol 25, pp 217-221
28. Van Stel, A.J., Carree, M. and Thurik, A.R. (2005), 'The Effect Of Entrepreneurial Activity On National Economic Growth', *Small Business Economics*, Vol 24, pp 311-21.
29. Shane, S. (2003), *A General Theory of Entrepreneurship*, Edward Elgar, Cheltenham.
30. Senge, P.M. (1990), *The Fifth Discipline: The Art and Practice of The Learning Organization*, Random House, London.
31. Storey, D. J. (1994), *Understanding the Small Business Sector*, Routledge, London/New York.
32. Storey, D. J. (1999), *Six Steps to Heaven: Evaluating the impact of public policies to support small business in developed economies*, Oxford: Blackwell.
33. Spruill, N., Kenney, C. and Kaplan, L. (2001), 'Community development and systems thinking: theory and practice', *National Civic Review*, Vol 90, pp 105-117.
34. Saunders, M. N. K., Lewis, Ph., and Thornhill, A. (2009), *Research Method for Business Students*, Prentice Hall, Fifth Edition.
35. Vivarelli. M, (2012), 'Entrepreneurship in Advanced and Developing Countries: A Microeconomic Perspective' *Iza Discussion Paper*, No. 6513.

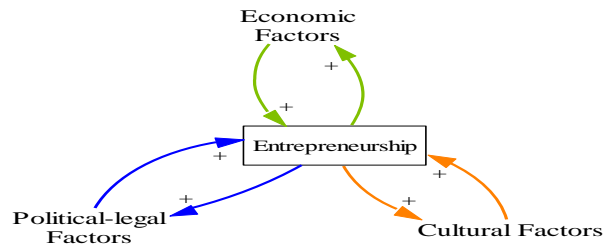


Figure 1: Relations between entrepreneurship dimensions

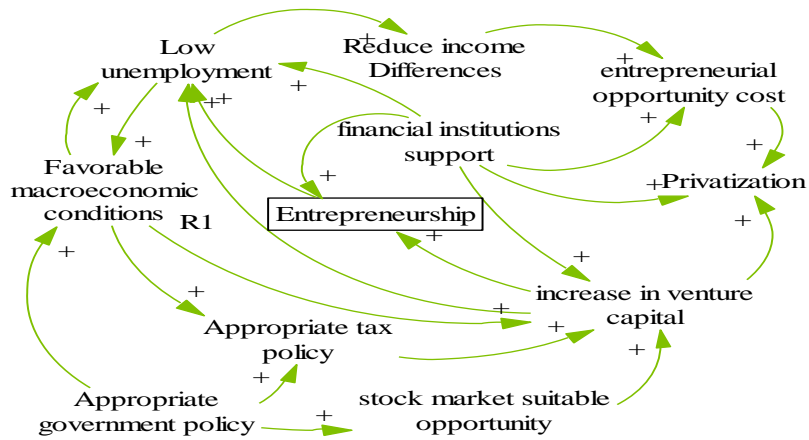


Figure 2: Economic Sub system

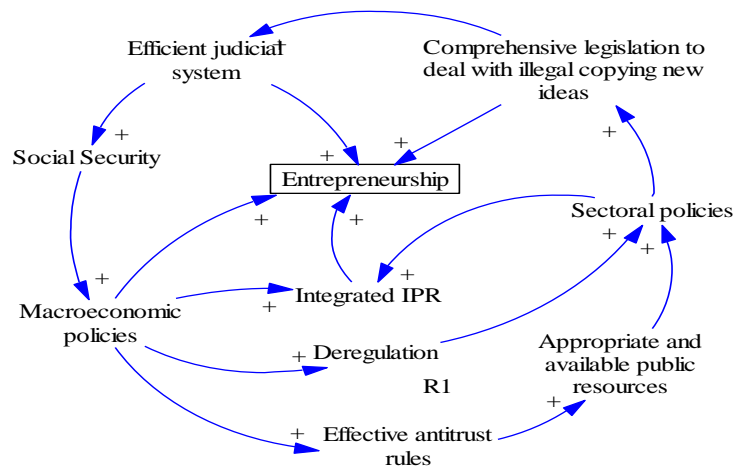


Figure 3: Political- Legal Sub system



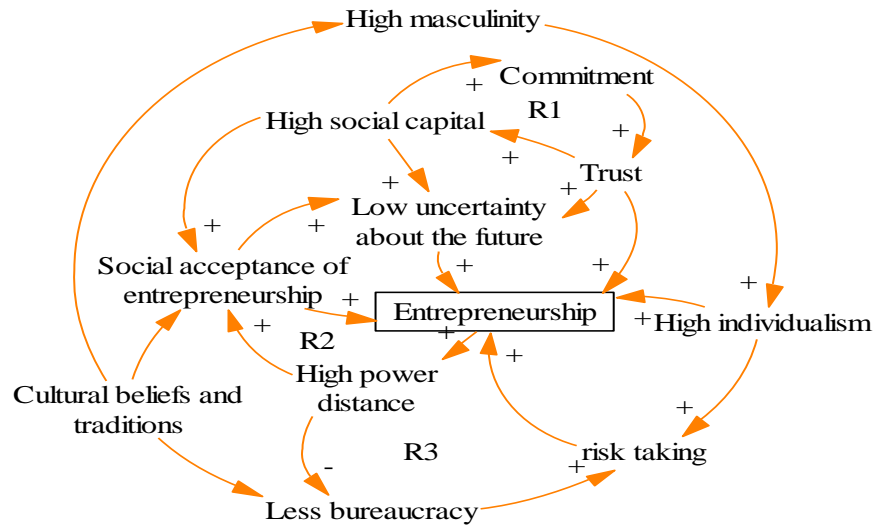


Figure 4: Cultural Sub system

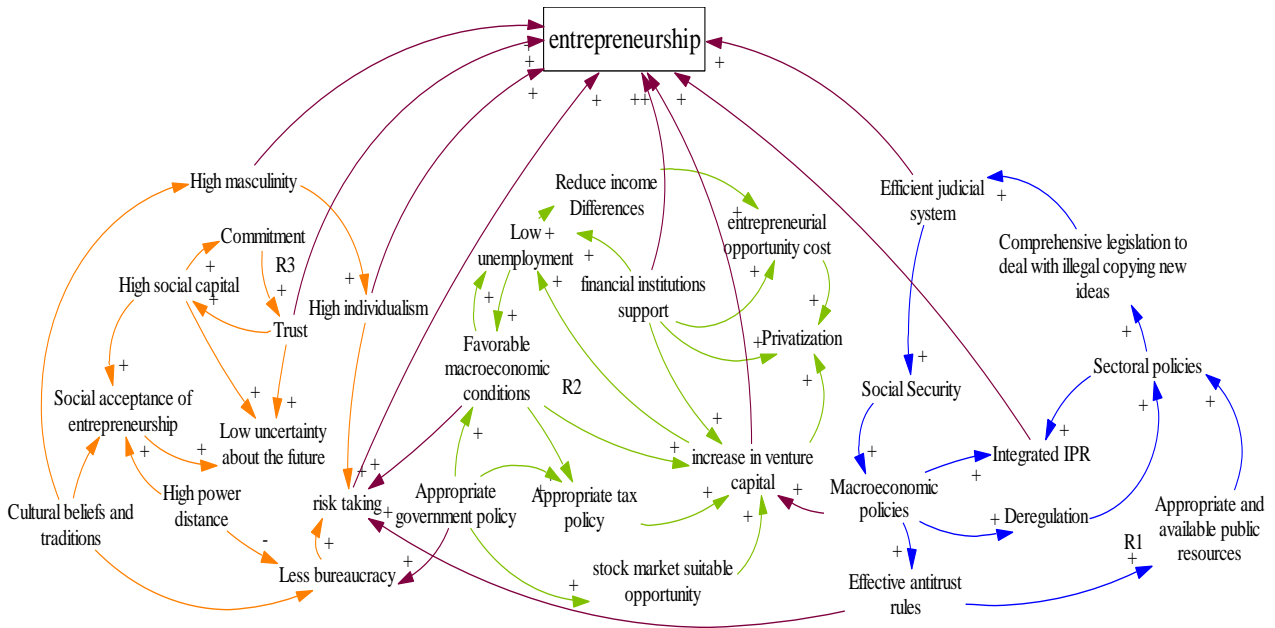
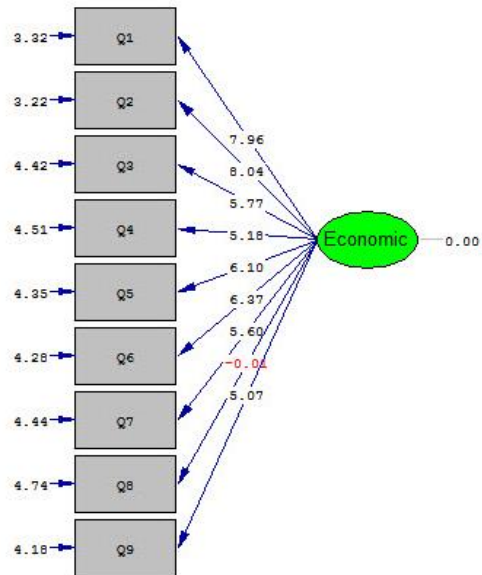


Figure 5: A whole system



Chi-Square=127.19, df=27, P-value=0.00000, RMSEA=0.290

Figure 6: Determination of economic factors significance with Lisrel

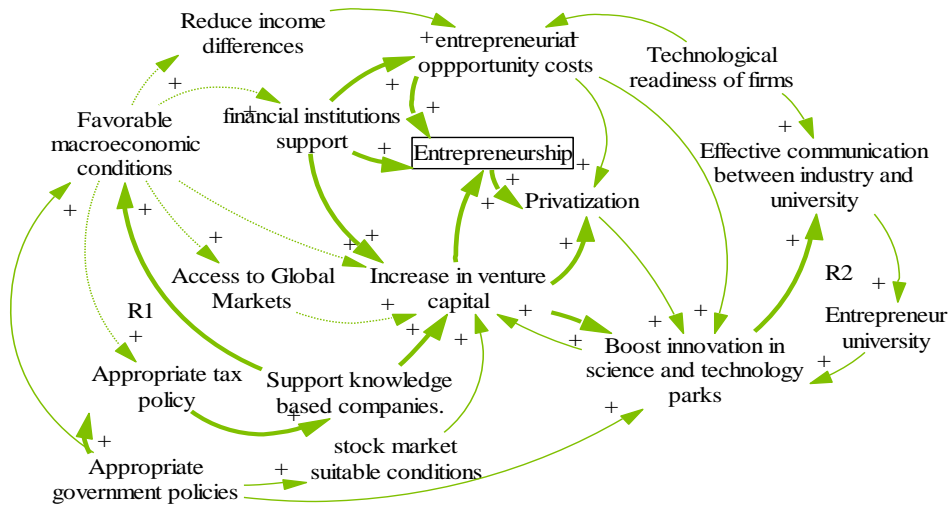
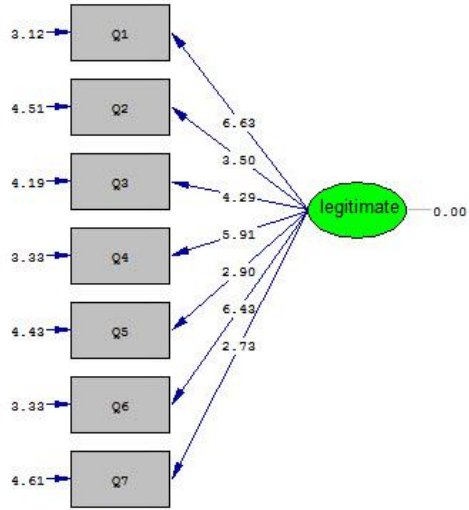


Figure 7: Final Economic Subsystem



Chi-Square=127.35, df=14, P-value=0.00000, RMSEA=0.429

Figure 8: Determination of political-legal factors significance with Lisrel

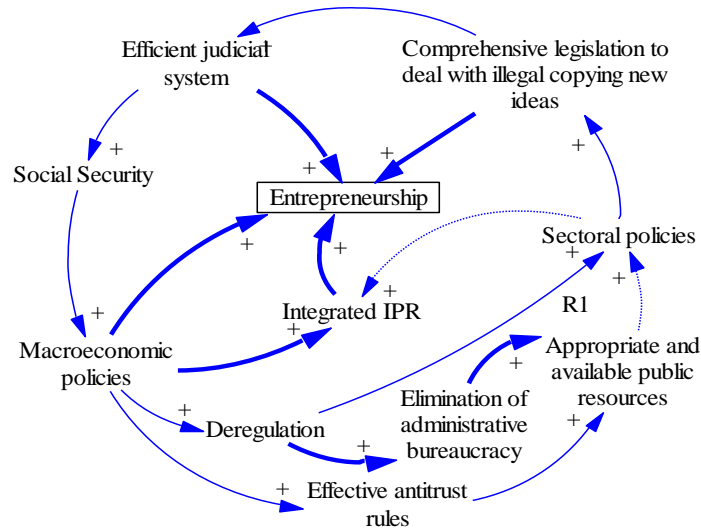
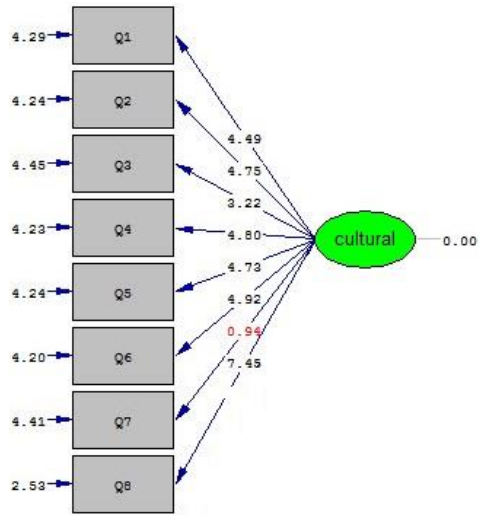


Figure 9: Final Political-Legal Subsystem



Chi-Square=200.87, df=27, P-value=0.00000, RMSEA=0.383

Figure 10: Determination of cultural factors significance with Lisrel

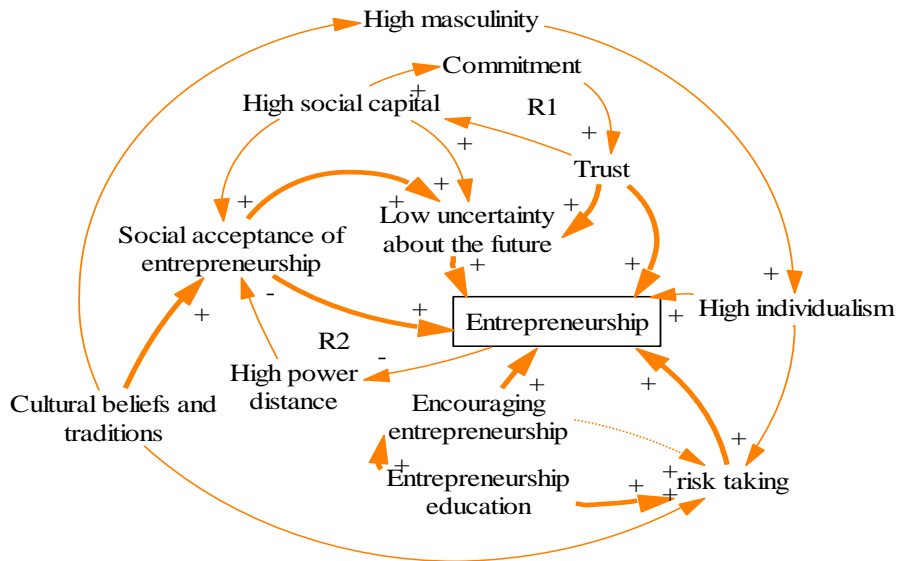


Figure 11: Final Cultural Subsystem

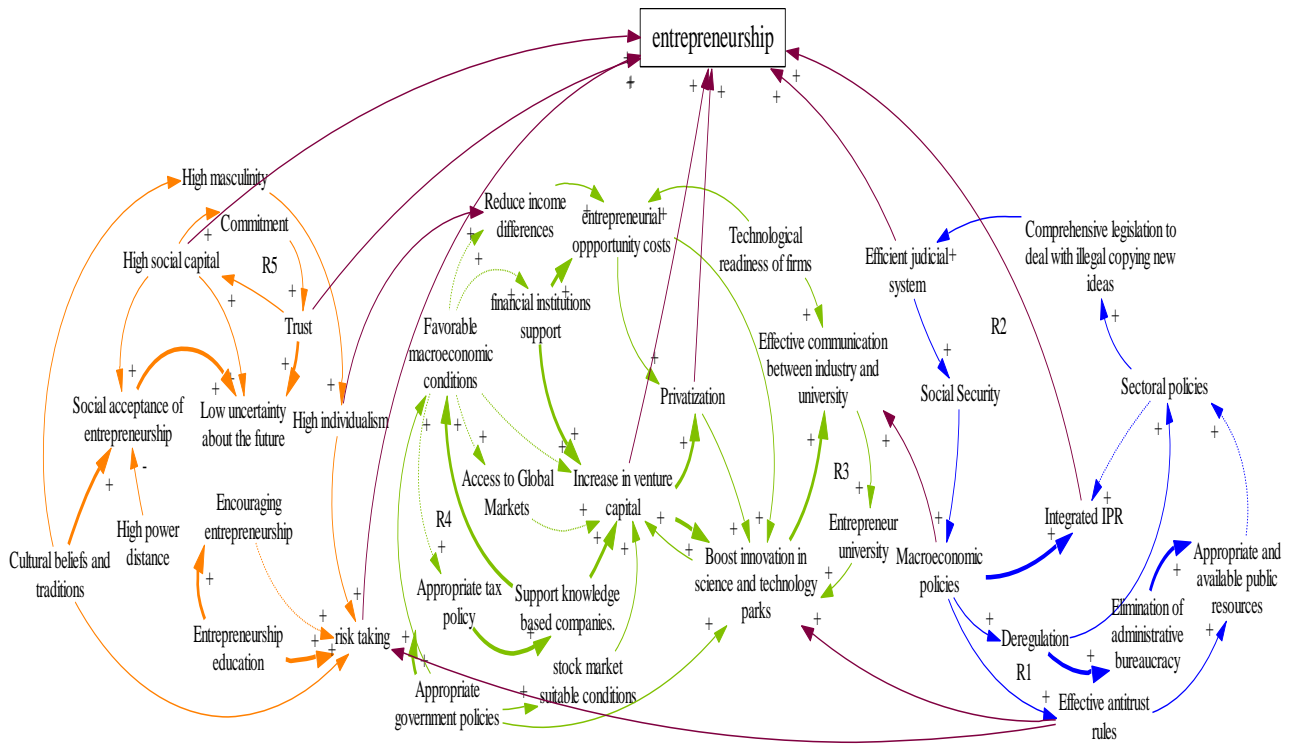


Figure 12: A Whole Integrated System

Table 1: Economic Factors

Economic factors							
	Factors	Very Low Impact	Low Impact	Medium Impact	High Impact	Very High Impact	Cumulative Frequency of High and Very High
1	Availability of Venture Capitals to support entrepreneurs	0	13.3%	0	60%	26.7%	86.7%
2	Proper Support of knowledge based companies based in universities	0	6.7%	6.7%	53.3%	33.3%	86.6%
3	Availability of resources	0	6.7%	13.3%	40%	40%	80%
4	Availability of Financial support	0	6.7%	13.3%	53.3%	26.7%	80%
5	Tax exemption for entrepreneurial activities	0	13.3%	13.3%	26.7%	46.7%	77.4%
6	Quality of Science and Technology Parks in supporting entrepreneurs	0	6.7%	20%	40%	33.3%	77.3%
7	Macroeconomic condition in the country	0	13.3%	20%	60%	6.7%	66.7%
8	Increasing unemployment rate	0	13.3%	20%	53.3%	13.3%	66.6%
9	Accessing to global market	15/4%	15.4%	7.7%	7.7%	53.8%	61.5%

Table 2: Political-Legal Factors

Political-Legal Factors							
	Factors	Very Low Impact	Low Impact	Medium Impact	High Impact	Very High Impact	Cumulative Frequency of High and Very High
1	Proper Political Situation to support entrepreneurs	0	0	6.7%	60%	33.3%	93.3%
2	Fair distribution of government resources	0	0	13.3%	33.3%	53.3%	86.6%
3	Decreasing Bureaucracy	0	0	28.6%	28.6%	57.1%	85.7%
4	Availability of laws for Intellectual Property Rights	0	7.7%	15.4%	38.5%	38.5%	77%
5	Availability of Anti-Monopoly Strategy	0	0	28.6%	35.7%	35.7%	71.4%
6	Supportive policies for specific entrepreneurial activities	0	6.7%	26.7%	26.7%	40%	66.7%
7	Availability of Government Resources	6.7%	13.3%	26.7%	6.7%	46.7%	53.4%

Table 3: Cultural Factors

Cultural Factors							
	Factors	Very Low Impact	Low Impact	Medium Impact	High Impact	Very High Impact	Cumulative Frequency of High and Very High
1	Considering entrepreneurial activities as positive value	0	0	0	57.1%	42.9%	100%
2	Acceptance of entrepreneurial activities in society	0	0	7.1%	50%	42.9%	92.9%
3	Training people for entrepreneurial activities	0	0	7.1%	64.3%	28.6%	92.9%
4	Proper interaction among entrepreneurs	0	0	21.4%	50%	28.5%	78.6%
5	Trust among entrepreneurs	0	0	21.4%	57.1%	21.4%	78.5%
6	Encouraging Innovative activities in a society	0	0	21.4%	57.1%	21.4%	78.5%
7	Decreasing Corruption in Institutions	0	0	23.1%	38.5%	38.5%	77%
8	Increasing trust between entrepreneurs and managers	0	0	28.6%	35.7%	35.7%	71.4%