Citation:
Identification and Prioritization of Government Policies for Creating Small and Medium Size Enterprises Start-Up
(Case Study: SMEs in Information and Communications Technology Industry)

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ABSTRACT

In response to today’s social changes, rapid growth of technology, low rate of economic process and growing unemployment, many countries have directed their focus on implementing policies that facilitate creation of new enterprises. On the other hand, average income generation in Information and communications technology industry is notably higher than other manufacturing or service industries. Studies in Iran suggest that government policies have not paved the way for spurring entrepreneurship and manufacturing activities but they have created obstacles to growth of entrepreneurship ensuing lack of satisfactory economic growth in Iran. This research uses indices included in UNCTAD report and localizing them in Information and communications technology industry. Questionnaire was devised relying on professional data in order to assess all the five dimensions of the model. Result of analyzing data using T test and structural equations for factor analysis shows a positive and meaningful relationship between the model dimensions and creation of SMEs in Information and communications technology industry. Model dimensions can be rated in the following order: bolstering networking and knowledge, improving entrepreneurship skills in Information and communications technology industry, financial support, improving laws and regulations, fostering technology transfer and innovation.

Keywords: policy-making, government, Information and communications technology, SMEs creation, entrepreneurship

Introduction

In most of developed and developing countries, information technology is regarded as an important means of development and progress which has a great stock in economic, social and cultural programs. Some countries have adopted pioneer strategy in this regard and have therefore achieved notable success. Although it is not a long time that they have started to employ systems and information technology, they are increasingly turning into an intelligent island as a result of their comprehensive programs which has let them experience a high level of efficiency, sufficiency and competitiveness. On the other side, there are countries such as Iran whose particular circumstances debar them to have a greater use of such means for their development.
Increased tendency to knowledge-based enterprises can be explained like this: in the world economy, in some countries where higher wages are paid there is a tendency towards knowledge-based enterprises because of having relative advantages for development. This can cause their economies and job generation to boost (Adrich, Backman and Werner, 2009). Deployment of information and communications technology is critically decisive for an organization to survive; otherwise they can never be able to employ modern methodology nor to compete with rivals. Information technology industry works to provide software and hardware infrastructures needed for generating software packages and software equipment. Employment of Information technology is important for developing industries in other parts of national production; i.e. this modern industry is in the forefront of other modern industries. Given the fact that central government has always played the most fundamental role in great changes and developments (Abrahamian 2011), and that there is a need to bolster entrepreneurship development policies in order to increase entrepreneurship activities, government must fulfill its duty by adopting proper policies to create an environment that allows business and enterprises to boost and number of new entrepreneurs entering into domestic and foreign markets to increase. Therefore, it seems that government has the upper hand in developing policies and plans that spur entrepreneurship and create small size and medium size enterprises (SMEs). Since entrepreneurship is a public matter, it needs policies for starting to develop (Didehvar, Mohammad Hosseinieh and Akbari, 2013). Bolstering entrepreneurship requires an environment which propels the number of entrepreneurs and enterprises to step up (Davari 2006). Accordingly, this paper seeks to identify and to prioritize governmental policies in the avenue to develop entrepreneurship particularly to start SMEs. This issue seems necessary in that high level of involvement of government in Iran’s economy and the obstacles which debar effective competition by private sector and entrepreneurship not only slows down the development of entrepreneurship but it can make it impossible as well (Zali, Razavi 2008). Thus, this paper puts its central focus on identifying and prioritizing government’s policies for creating SMEs in information and communications technology arena.

**Research’s Literature**
Entrepreneurship is a process in which entrepreneur employs innovative ideas and mobilizes resources to set up innovative business. It involves taking risks although it allows innovative products or services to be introduced. Scholars such as Schumpeter (1934) and Brech (1987) and Krochov & Philips (1988) describe entrepreneurship as a process which uses innovation to generate new job opportunity which, in turn, ensues generation of wealth. Precisely speaking, entrepreneurship- in large scale- means encouraging structural changes and developing jobs; while in small scale it means setting up new business (Vankres 1999). Although entrepreneurship starts from individual and individual’s motivation, vision, skills and psychological qualities, policies can bolster and develop it through increasing the number of entrepreneurs and the number of small-size enterprises. Entrepreneurship policies comprise of devising, implementing and evaluating such policies under a basic policy which is in place for the purpose of spurring entrepreneurs both before or during and after business, and they contribute to stimulating motivations, opportunities and skills. Basic policies differ from country to country. In the US, for instance, focus is directed toward creation of an economic environment which allows entrepreneur companies to run and survive in favor of generating products and services and developing new
markets (Lundstrom 2001). In UK, the basic policy means creation and improvement of a clear insight into entrepreneurship, entrepreneurship activities, bolstering the number and quality of newly-established enterprises (DTI Strategic Framework, 2000). In Finland, competitiveness and growth of enterprises, removing obstacles for running small-sized business, increasing entrepreneurship activities through adopting positive vision towards entrepreneurship as a job option are favored (Ministry of Industry and Commerce of Finland). Overall, a comparative study of entrepreneurship development in various countries suggests that entrepreneurship policies can be divided into six categories: 1- spreading entrepreneurship in favor of stimulating optimism towards it, 2- including entrepreneurship in educational system with the aim to institutionalize entrepreneurship in educational system 3- enhancing newly-established enterprises, facilitating the way to arrive in this arena, growing companies and letting them have an easy departure without unnecessary administrative formalities, 4- providing fund needed for running business in order to improve affordability of newly-established enterprises 5- supporting newly-established enterprises, increasing their quality and quantity and backing new or potential entrepreneurs 6- adopting strategies to focus on target group. Although enforcing such plans can improve entrepreneurship activities, studies have shown that cultural, organizational, governmental and economic environment factors can influence on entrepreneurs (UNIDO 2008). Traditional economic policies in the highly complicated markets of present-day are impotent to guarantee sustainable employment and economic growth. From other side, entrepreneurship and innovation are two critical elements required for achieving economic growth and industrial development (Stevenson and Lundstrom 2007). Entrepreneurship is a source of job generation and economic growth and contributes to expansion of SMEs (UNCTAD 2012). It also contributes to structural change and to introduction of innovative industries and expansion of economic activities (UNCTAD 2013). Various countries have taken actions for development of entrepreneurship (Alvani, Moghimi et al. 2011). When entrepreneurship activities step up in a society, it gives rise to a suitable environment for many to run their own business (Davari 2013). Emergence of new businesses contributes to increase of value added production, financial earnings, creation of new jobs as well as the innovation. These are all necessary elements for SME sector to boom (UNCTAD 2013). Government is a primary player which can play a significant role in booming entrepreneurship activities by making proper policies. Basically, governments and decision-makers are central in this regard (Harrison and Lich 2010). They have certain political means which can be used for shifting capital towards research activities and emergence of new SMEs. Small Business Innovation Research (SBIR) launched by US is a prime example (Link and Scott 2010). During the recent decades Information technology has played a central role in politics (Norris and Nye 1999), reduction of bureaucracy (Moon Bretschneider 2002), performance management (Brawn 1999) and re-engineering (Anderson 1999). Bolstering information technology capacity is fundamentally necessary for developing countries for two reasons: first, lack of sufficient skills expertise in information technology industry can curb the expansion process of entrepreneurship, second: information technology capacity in a form that allows man to employ ICT can be considered as a way to acquire human and social capital through acquiring new skills or knowledge. Entrepreneurship is a key factor to economic boom in our modern age. Governments
have, in the recent years, started to encourage and spur entrepreneurship and support entrepreneurs who are in need of such supports. It seems that governments have the most ideal position for paving the way for entrepreneurship through making proper designs and policies to foster entrepreneurship (Didehvar, Mohammadi Hosseinieh and Akbari, 2013). In fact, governments can play their role by:

- Creating entrepreneurship spirit
- Providing technological infrastructures
- Developing infrastructures and governmental policies
- Causing economic growth (Alvani, Moghimi et al. 2011).

This paper looks into a variety of models and views regarding how to make policies for entrepreneurship. Basic model was determined in UNCTAD. In a study launched by UNCTAD in Geneva in 2005, three central directions were identified regarding the way to make policies for entrepreneurship. The study made distinction between macroeconomic principles that affect economic activities (such as large-scale stability of economy, labor market, local infrastructures, tax, etc.) and policies that influence on entrepreneurship which include increasing access to finance, facilitating entries and exists (establishment and winding up for companies), government support programs (UNCTAD 2005). Each of these items are going to be elaborated as follows:

**Increasing access to finance**

Small enterprises have limited access to bank finance and other traditional means for funding. Government can fill this gap for them by providing them with funds, for example, in lieu bank guarantee.

**Facilitating entries and exists (establishment and winding up for companies)**

Entrepreneurship is much more influenced by administrative and legal matters than market situation. Legal and administrative procedures can shape the way in which new enterprises take form.

**Government support programs**

Programs can guarantee the success of other policies regarding entrepreneurship boom. Given the obstacles faced by entrepreneurship activities, it must be admitted that supportive programs have central role in formation of skills that are necessary for starting new businesses. Programs that focus on needs of SMEs or certain groups (such as women) are prime examples.

Having reviewed former studies and having extracted UNCTAD model (2012) indices, following variables were used in this paper:

**Improving skills and education of entrepreneurship**

This statement means that entrepreneurship must be included in curriculum of educational system (either formal or informal) and relevant programs must be devised to establish the idea of entrepreneurship as an ideal thing and to introduce effective entrepreneurship and spurring the public to gain an insight into this idea and directing public education towards it as well as introducing models under which entrepreneurs can impress and success the whole society. Other actions that can be taken in this regard include devising entrepreneurship-related subjects in educational curriculum, promoting entrepreneurship skills and encouraging the public towards self-employment in elementary to high school levels and to hold practical courses for university students to teach them self-employment and entrepreneurship (UNCTAD 2012).
Improving of Law and Regulations Environment
It means that all requirements necessary to be met for running start-ups should be reviewed, impediments facing start-ups must be removed, entrepreneurs must be directed towards start-ups (UNCTAD 2012), laws and regulations governing the business matters must be enhanced. The most important of such laws and regulations are those related to registration of company, changing their subject of activities, founders’ relations, tax laws and competition regulations (Ahmadpour 2007).

Facilitating of technology and innovation Movement
Movement of technology and innovation means backing every action aimed to spread information and communications technology into private sector via introducing ICT in business; informing campaigns and creation of new capabilities in ICT, supporting platforms related to online and cell phone –based communicating of market events; providing ICT knowledge to target groups such as women and entrepreneurs; spreading intercompany networks in favor of development of technology and innovation through improving horizontal communications via cluster development strategy; helping standardization of local companies networks (including social and environmental standards); improving business communications through developing communication sources; creating creation of links among public entities, research institutions, universities and private sector via identifying common activities that can be done with participant and interested parties; enhancing the participation of governmental and private sectors as well a governmental-private structures in favor of spreading innovation; developing links between academic settings and industry; supporting start-ups which have high technologies via creation of business incubators and high-tech businesses; establishing science-technology parks; fostering the creation of start-ups that help commercializing innovation; building networks in knowledge-based sectors under direction of academicians throughout the world and providing convenient and cost-effective access to inventions that have patented for authors (UNCTAD 2012).

Improving of Funds (Supportive Finances)
Access to finance comprises of loans and bank facilities that banks and governmental/private financial entities are to provide; giving entrepreneurs bank guarantees, raising budgets for innovations and creating new financial capacities to assist start-ups (UNCTAD 2012).

Boosting of Awareness and Networking
It means to focus on critical links between businesses existing in an industry and the knowledge, information that are increasingly transferred into them. Networks are a series of links with high rate of reliability which may directly or indirectly be established among members of a particular group. Improving knowledge and networking encompasses actions that aim to provoke private sector to make plans and to bolster network among entrepreneurs, to raise knowledge about entrepreneurship opportunities, to highlight entrepreneurship values for society (UNCTAD 2012). In addition, entrepreneurship activities in a particular area can lead to sparking business and learning in people settling there.
Creating SMEs
Establishing enterprise with a clear idea of running a new business which does exist in current or potential markets is referred to as setting up a business.

Research Methodology
Research methodology means selecting the means or process by which a research subject can be confirmed or rejected (Sarmad, Bazargan and Hejazi, 2005: 22). This research is applied in terms of its objective and is qualitative in terms of the method it uses. It is also descriptive-survey from the vantage point of the way it gathers data. Statistical population comprises of professionals and directors working for Mobile Telecommunication Company of Iran (known as ‘Hamrah Avval’ in Iran) [n=100]. Sampling is conducted randomly. Analyzing data and answering the research questions was done using descriptive statistics (frequency distribution table, standard deviation and mean) as well as deductive statistics (T test, structural equations for factor analysis). For the purpose of rating indices, Friedman test was utilized. This research uses a questionnaire for the purpose of assessing the five dimensions of the devised model. It has been prepared using indices introduced by UNCTAD 2012 report and institutionalizing it in information and communication technologies under direction of professionals.

Research questions are as follows:
Primary questions of research:
What policies government can adopt in favor of creating SMEs in Information and communications technology and what is their priority?
Notable secondary questions:
What policies government can adopt in favor of spreading entrepreneurship knowledge and skill in order to develop SMES within Information and communications technology industry?
What policies government can adopt for fostering transference of technology and innovation in favor of development of entrepreneurship in SMEs within Information and communications technology industry?

Theoretical Research Framework:
Theoretical framework of this research was selected after a review on concepts and theories included in UNCTAD 2013 model. Our framework covers all the three aspects of entrepreneurship policy: development, implementation and evaluation, which all must constantly be overlapping with each other (Didehvar, Mohamadi Hosseinieh & Akbari 2013). Since Iran’s economy is in a transition avenue from a production-based economy towards efficiency-based economy according to world competitiveness report in 2013 (Schwab 2012), this research aims to identify and prioritize government policies in booming SMEs.
Findings of this Research:
Internal consistency of different part of coefficient Cronbach–Alpha questionnaire was found to be 93% for the whole questionnaire. Coefficient Cronbach–Alpha was not lower than 70% for none of the research factors.

Structural equations modeling
Structural equations 16 is a statistical model which evaluates the links between a several of variables. It tests internal relations in a certain set of equations such as regression equations. Combinational structural equations are made of measurement model and structural model. To implement this method in this research, Smart PLS2 was used. The most notable advantage of this software was its ability to not using large size of samples. To test the reliability of structures, combinational reliability coefficients and coefficient Cronbach–Alpha was used which if they are proper, they can be found to be reliable. Chin states that minimum score for reliability is 0.707 and also coefficient Cronbach–Alpha must not be lower than 0.7. Factor loadings are calculated through calculating correlation of the indices of a structure. If the value is equal or higher than 0.4, variance of structures and its indices are higher than variance of evaluation error of that structure and so reliability of that model is accepted. But if the value is lower than 0.4 those indices must be corrected or they must be removed from model. To calculate reliability fitness criteria, the general model containing all structures, dimensions and research questions was implemented using Smart PLS2. Result which includes standardized coefficients can be seen in Fig. 1. As can be seen in the figure, factor loadings coefficients for all questions is higher than 0.4.
If coefficient Cronbach-Alpha and combinational reliability is greater than 0.7, it can be acceptable for the primary structures of the research.

**Convergence Reliability**

To determine convergence reliability of the research, variance average extracted (AVE) was utilized. The minimum acceptable value for VAE is 0.4. VAE values for each structure have been presented in the table below. As can be seen, VAE values are greater than 0.4 which confirms that this research has an acceptable convergence reliability.

<table>
<thead>
<tr>
<th>Structure</th>
<th>Variance average extracted (VAE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving laws and regulations environment</td>
<td>0.87</td>
</tr>
<tr>
<td>improving skills and education on entrepreneurship</td>
<td>0.63</td>
</tr>
<tr>
<td>Financial support (Raising funds)</td>
<td>0.83</td>
</tr>
<tr>
<td>Bolstering Knowledge and Networking</td>
<td>0.87</td>
</tr>
<tr>
<td>Facilitating technology and innovation movement</td>
<td>0.90</td>
</tr>
<tr>
<td>Creating the SMEs</td>
<td>0.90</td>
</tr>
</tbody>
</table>

All structures are reliable in terms of divergence reliability.

**Assessment of Structural Model**

Two methods were used for assessing structural model fitness: t value meaningfulness coefficients, R^2.
**T value Meaningfulness Coefficients:**

The most basic criterion for assessing the relationship between structures is t value meaningfulness coefficient. If its value is higher than 1.96, it means that the relationship does exist properly. Figure 2 shows these coefficients for our research structures.

![Figure 3](image)

**Table 2-** $R^2$ values and cumulative index for structures of the research

<table>
<thead>
<tr>
<th>Variable</th>
<th>$R^2$</th>
<th>Cumulative index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of laws and regulations</td>
<td>0.85</td>
<td>0.87</td>
</tr>
<tr>
<td>improving skills and education on entrepreneurship</td>
<td>0.30</td>
<td>0.63</td>
</tr>
<tr>
<td>Financial support</td>
<td>0.80</td>
<td>0.83</td>
</tr>
<tr>
<td>Bolstering Knowledge and Networking</td>
<td>0.83</td>
<td>0.87</td>
</tr>
<tr>
<td>Facilitating technology and innovation movement</td>
<td>0.86</td>
<td>0.90</td>
</tr>
<tr>
<td>Facilitating technology transfer and innovation</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Average</td>
<td>0.72</td>
<td>0.83</td>
</tr>
</tbody>
</table>

**Friedman Test**

It is a non-parametric test which is used to make a comparison between three or more dependent rated samples (Ghiasvand 2008). Freidman test produced the following two outcomes: the first outcome was descriptive statistics which shows the average of each variable’s rates. Lower averages, higher importance the variable will have.
Table 3 - Variable averages and ratings

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean rank</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of laws and regulations</td>
<td>4.24</td>
<td>4</td>
</tr>
<tr>
<td>Improving skills and education on entrepreneurship</td>
<td>2.07</td>
<td>2</td>
</tr>
<tr>
<td>Financial support</td>
<td>3.24</td>
<td>3</td>
</tr>
<tr>
<td>Bolstering Knowledge and Networking</td>
<td>1.10</td>
<td>1</td>
</tr>
<tr>
<td>Facilitating technology and innovation transfer</td>
<td>4.43</td>
<td>5</td>
</tr>
</tbody>
</table>

Indices rating

Table 4 - Indices rating for ‘improvement of laws and regulations’

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean rank</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing transparent information on how to set up SMES in</td>
<td>4.80</td>
<td>8</td>
</tr>
<tr>
<td>Information and communications technology industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changing the laws governing creation of SMES</td>
<td>4.64</td>
<td>6</td>
</tr>
<tr>
<td>Making proper insolvency laws to enable a new start after</td>
<td>4.66</td>
<td>7</td>
</tr>
<tr>
<td>bankruptcy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing legal consultations to newly established SMES in relation</td>
<td>3.46</td>
<td>1</td>
</tr>
<tr>
<td>Not changing supportive instructions and programs rapidly</td>
<td>3.46</td>
<td>3</td>
</tr>
<tr>
<td>Providing window services such as government services centers</td>
<td>4.54</td>
<td>4</td>
</tr>
<tr>
<td>Decreasing time for obtaining licenses and approvals</td>
<td>5.05</td>
<td>8</td>
</tr>
<tr>
<td>Decreasing the expenses of obtaining licenses and approvals.</td>
<td>4.36</td>
<td>2</td>
</tr>
</tbody>
</table>

Conclusion

Research questions and hypotheses were analyzed on the basis of the findings research and results of former studies. Our results showed that the outcome of this research is accurate and practicable. 1-6 analysis of data regarding ‘government policies for improvement of entrepreneurship awareness and skills in SMEs working within Information and communications technology industry’ demonstrated a positive meaningful relationship between such improvement and booming business. That is to say that when such knowledge and skills are greater, more number of SMEs are likely to be founded in Information and communications technology industry. This finding is consistence with those of former studies. According to OECD, a policy that can be adopted in micro-level for fostering entrepreneurship is to provide knowledge, consultation and to devise managerial programs for SMEs runners or their potential owners (OECD, 2007b). also, Lundstrom and Stevenson have stated that entrepreneurship policy encompasses fostering access to knowledge and consultation on how to run a new, small business in national and social scale and to enhance supports and services which are to be rendered to small enterprises and to generate opportunities for learning more on entrepreneurship and on how to run a new small business. In their modeling of government and market factors that influence SMEs, Noin et al. (2009) cited the ‘knowledge’ as a main issue. Similarly it was cited by Ahmadpour and Erfanian (2007) as well. 2-6 analysis of data demonstrated a positive meaningful relationship between technology and innovation transference and booming business for SMEs working in Information and communications technology. This finding is consistence with those of former studies. According to OECD, a policy that can be adopted in micro-level for fostering entrepreneurship is to provide knowledge, consultation and to devise managerial programs for SMEs runners or their potential owners.
owners (OECD, 2007b). Also, Lundstrom and Stevenson (2001) have stated that entrepreneurship one of the SMEs policies is increasingly using technology and R&D activities (transference of technology and innovation). Also, information technology model (UNDP) encompasses five main factors which are all necessary for achieving such development. 3-6 analysis of data demonstrated a positive meaningful relationship between financial support and the likelihood of booming business. That is to say that when financial support is greater, more number of SMEs are likely to be founded in Information and communications technology industry. Such supports can be provided through bank facilities, and capital funding or providing other funds to SMEs (Lundstrom and Stevenson 2001). Financial support has also be noted by Danaee far et al. (20074) in his three-policy model. 4-6 analysis of data demonstrated a positive meaningful relationship between bolstering knowledge and networking and the likelihood of booming business. That is to say that when such knowledge and networking are better, more number of SMEs are likely to be founded in Information and communications technology industry. This finding was consistent with the findings of former studies. Lundstrom and Stevenson (2001) stated that entrepreneurship policy includes establishing networks to share ideas and also participating (conference, conventions, seminars etc. about policies). UNCTAD model (2005) has also underlined this as a main area of government policies for supporting entrepreneurship.

Suggestions:
Analyzing data from professionals and directors working in Information and communications technology industry directs us to make the following suggestions:

Practical Suggestions:
Government can focus on academic settings, governmental agencies, public media and e-learning in order to improve entrepreneurship skills within this industry. It can also be supportive for entrepreneurship training courses as well. Government can adopt following policies for improving financial conditions of SMEs: rendering long-term loans, adjusting proper loan interests (affordable for SMEs), exempting SMEs from paying loan interest for some years, granting some financial exemptions for them and reducing insurance fee for those working in this industry. Government can foster network exchanges for entrepreneurs and business owners within this industry and work to spread entrepreneurship circles and pave the way for circulation of information.

Recommendations for Future Studies
Following recommendations can be made in accordance with theoretical literature of this research:
Authors can focus their attention on suggestions for government in booming SMEs in Information and communications technology industry in international level. Authors can focus more on networking dimensions such as public networking, managerial networking or social networking. Authors can focus on effects of government policies in creating different types of business including domestic, family, rural, social etc., businesses.

596
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