

Investigating factors affecting the development of information technology-based businesses in Iran

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Abstract

The purpose of this research, which was conducted with a quantitative approach and using a questionnaire tool, is to validate one of the conceptual models available in the literature and provide a framework of factors affecting the development of the digital economy in Iran. The statistical population of this research includes the founders, managers, employees and experts of businesses based on information technology and digital economy activists in the country, and the minimum sample size for the validity of the results according to the method used for quantitative analysis is 160. In this research, the findings of the reference qualitative research were implemented in the form of a questionnaire using the Google Form tool and sent to a community of industry activists. The data received through 240 completed questionnaires were analyzed using the confirmatory factor analysis method, and the results were presented in the form of a final model. The results of this research show that the development of the digital economy requires simultaneous attention to environmental factors and inter-organizational factors, and the government as a policy maker plays a key role in the development of digital businesses.

Keywords:

Information Technology,
IT-based businesses,
Data-driven Economy,
IT Economy.

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Extended Abstract

Introduction

In recent decades, a large number of information technology-based businesses have risen to the top of the world's top companies list. Until the early years of the third millennium AD, large companies and owners of oil wells and mineral resources, along with industrial production complexes that are several decades and several hundred years old, have been the flagships of the list of the largest and most successful companies in the world, but this dominance has been challenged by IT-based start-ups during the last two decades. According to a report by Economist magazine, and from 2006 to 2016, the top of the world's top companies was suddenly evacuated from the active companies in the field of energy and production, and the information technology companies captured the vacant place. These changes is a clear sample of transient of the world economy from source-based to data-based, Challenging the position of super companies such as ExxonMobil and Royal Dutch Shell by emerging companies like Alphabet and Facebook are clear signs of the digitization of industries and the superiority of the digital economy over the traditional world economy.

The value of the production of information technology businesses from the total production of the world has increased by 29% in the period of 5 years, between 2015 and 2020, has reached 24 trillion and 615 billion dollars, and the share of the digital economy has reached 25% of the total world economy. In other words, the digital economy has swallowed two and a half percent of the share of the traditional economy in 5 years. (UNCTAD, 2019) These facts show the need to pay attention to the position of businesses based on information technology.

According to the importance of the subject and based on the mentioned materials, the main problem of this research is to identify the main factors affecting the development of businesses based on information technology in the country as the most important players of the digital economy era.

Theoretical Literature

IT-based businesses

Businesses that convey their proposed value to customers through various information technology tools, and the main components of their business model are based on information technology, are called information technology-based businesses. In another definition, based on the research done by Witt et al., those businesses whose ways of doing work and creating income change with the changes made in digital technologies can be considered as information technology-based businesses. (Weit et al., 2014)

Digital Economy

The digital economy is opposed to the classic economy in which economic activities are being done in traditional offline platforms. In the digital economy, all activities are carried out on digital platforms based on information technology. There are three defined levels in the definition of digital economy. Its limited definition as the main core of the digital economy includes specialized products in the field of information and communication technology, including hardware production; software development, and the provision of internet and telecommunication services. In the second level, in addition to the central core, it also includes the added value resulting from digital platforms and services. The third level of definition, referred to in the literature as the digitized economy, includes the added value resulting from the use of information technology in all industries.

Kazemian & Mardani (2016) has considered the environmental, organizational, and human factors as the most important factors of the success of the business under study.

Khayatian et al, (2014), in order to identify the way of growth of the knowledge-based companies in Iran, have identified environmental features, infrastructure, financial provision, organizing, and human force as the most important factors effective on the growth of these businesses.

Methodology

The present study is qualitative and applicable, and questionnaire is its data-collecting tool. The questionnaire distribution has been done electronically and in the google form field. The statistical community includes founders, managers, employees, and knowledgeable persons in the information technology businesses, and persons active in the country's field of digital economy. After identifying and defining the problem, previous related studies have been reviewed and the possible dimensions of the model have been identified. Then, the most appropriate and comprehensive conceptual model was selected among the previous researches and with brief modifications, it became the basis for designing the research questionnaire. After evaluating the validity of the content, the designed questionnaire was sent to a community consisting of three different groups of industry activists and the received data was analyzed using Structural Equations Method.

Discussion and Results

The inferential statistics was used to test hypothesis, and the spss software was used to investigate the hypotheses of the study. Then the PLS software was used for the conceptual model of the study. After conducting the tests and making corrections, the final research model was confirmed, consisting of 5 main categories and 22 subcategories or indicators. The main categories counted include 1) organizational factors, 2) environmental factors, 3) policy factors, 4) economic results and 5) non-economic results.

Internal characteristics refer to the factors that a business must focus on for success. In other words, if the following factors are present in a business, the chances of being successful in the market are much higher than businesses that did not pay attention to these factors. In other words, this group of factors refers to the internal coordinates of businesses prone to growth and development. These factors include: the right project team, business model, specialized human resources, access to financial resources, innovation and effective marketing.

The second group of factors affecting the development of businesses under research is environmental factors. These factors include five categories of sanctions, inappropriate laws, weak information technology infrastructure, economic stagnation of the country and problems of the information technology innovation system.

The third category of factors explained in this research is the role of the government in the development of such businesses in the country. These factors have focused on how the government intervenes in this matter in such a way as to facilitate and accelerate the growth of these businesses. Although these factors are also relevant for businesses in different sectors, the examples of these policies are different in IT businesses and how the government supports them.

Conclusion

During the past years, many studies have been conducted on the topic of information technology businesses, but few researches have comprehensively and multi-dimensionally addressed the important factors affecting the growth of these businesses and the development of the digital economy in the country. According to this research gap, the current research was defined. The main result of this study is a conceptual model consisting of several categories of factors affecting the development of the digital economy in Iran. The scientific contribution of

this study is the quantitative validation of the mentioned model and the explanation of the relationship between the identified factors in the ecosystem of the Islamic Republic of Iran.

The present study was conducted to investigate the effective factors of the development of thchnology information-based businesses in Iran. One of the important results of the current research is to emphasize the key role of the government and the policy-making departments of governance as an independent factor in the development of these businesses. This issue confirms the necessity of the government's presence in this area and the need to adopt supportive policies for the growth of these businesses and the development of the digital economy in the country. Mosleh and Fani have also considered the government as the biggest customer of information technology products and services, have emphasized that the policy making and supporting role of the government in the development of information technology is very important and effective (Mosleh and Fani, 2020).

The findings of this research show that other factors affecting the development of these businesses are influenced by government policies. One of these categories is external factors. The high speed of changes in the information and communication technology industry has doubled the importance of paying attention to these factors (Hajipourfard et al, 2021). One of the important indicators under this category of factors is information and communication technology infrastructure. According to international statistics, investment in the development of information technology infrastructure is the driver of economic growth and development of countries (Sayeh Miri and Abbas Khani, 2019; Salehi Abar, 2016). Another important environmental factor is sanctions and economic stagnation, which have made it difficult for companies and related institutions to work in different economic sectors.

Another group of factors that are indirectly influenced by policy factors are organizational characteristics. These factors include the right project team and access to expert human resources, the right business model, innovation and marketing. Ghazinouri and his colleagues have also pointed out the importance of specialized human resources in the success of the research subject businesses. (Ghazi Nouri et al, 2019)

According to the model of this research, the results of the development of these businesses can be classified in two parts: economic results and non-economic results. Productivity growth, economic prosperity and employment are among the most important economic consequences of digital economy development. These findings have been confirmed in other studies such as Amjadi and Shafei and Salehi Abar. Amjadi and Shafei have found a direct relationship between the development of information technology and the growth of productivity. (Amjadi and Shafei, 2017) In Salehi Abar's research, the effect of information technology development on the country's economic growth is also highlighted. (Salehi Abar, 2016) The second category of digital economy development results in the country are long term non-economic results, which include protecting the environment, promoting entrepreneurial culture, and promoting information transparency.

The findings of this research can effectively help policymakers in the field of digital economy and clarify the way of the government in the optimal allocation of support resources for these businesses.