

*Full Length Research Paper*

# Identification of the effective structural factors on creating and developing digital entrepreneurship in the agricultural sector

Nour-Mohammad Yaghoubi<sup>1</sup>, Mahdi Salehi<sup>2\*</sup>, Amir Eftekharian<sup>3</sup> and Ebrahim Samipourgiri<sup>4</sup>

<sup>1</sup>Department of Management, School of Management and Accounting, University of Sistan and Baluchestan, Zahedan, Iran.

<sup>2</sup>Department of Accounting, Ferdowsi University of Mashhad, Mashhad, Iran.

<sup>3</sup>Young Researcher Club, Islamic Azad University, Zahedan Branch, Iran.

<sup>4</sup>University of Sistan and Baluchestan, Zahedan, Iran.

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Nowadays, information technology influences all levels of organizational and social activities and causes change in the nature of trend and business. Different kinds of entrepreneurship can be created from the combination of the concept of entrepreneurship and information technology, and one of them is digital entrepreneurship. Hereto, if we use the Internet and the information and communication technology as a tool for creating business and trend opportunities, it can be said that we enjoyed digital entrepreneurship. The researcher in the present study tends to study the structural efficacious factors of creation and development of digital entrepreneurship. Certainly, the main focus of the present study is to identify a way of creating small and medium companies. Also, the researcher used the different theories, application survey and questionnaire of digital entrepreneurship. In the present research, the sample size consists of 40 entrepreneurship experts in Iran. Data analysis was carried out by using the statistical program packages SPSS 17.0 and Lisrel 8.54. The results illustrated that between the structural factors of digital entrepreneurship, the cognitional role of government is more important than other factors.

**Key words:** Digital entrepreneurship, information and communication technology, digital workplace, government factors, electronic readiness level.

## INTRODUCTION

As more companies engage in digital business - whether by selling their produces online or by selling digital wares, or by engaging in both - the question of how starting a digital venture differs from starting a traditional venture becomes more important. Entrepreneurs and managers who are contemplating starting a digital venture need to understand the opportunities, pitfalls and hazards of digital entrepreneurship, to include a typology of new digital ventures, the characteristics of each type of new digital venture, and a discussion of how those characteristics shape the critical success factors of each

type of venture. One major factor that can be between digital entrepreneurship and traditional entrepreneurship is the product, whether it is a goods or a service. A new venture that sells digital goods or services is pursuing a form of entrepreneurship that is at least mildly digital and faces significant differences in how its market will respond (e.g. piracy of digital goods versus theft of non-digital ones), as the recording industry has learned.

The ramification of having digital products do not seem to have been intuitively obvious and as the music and movie industries continue to adapt to the digital marketplace, understanding how digital entrepreneurship works will become more and more important to established industries as well as to practitioners and scholars of entrepreneurship. Another factor that may

\*Corresponding author. E-mail: mahdi\_salehi54@yahoo.com.

cause critical differences between how digital and traditional ventures work is the workplace itself. When goods and services can be digitized, the need to have physically collocated work teams is dramatically reduced. In order to better control costs, many digital ventures may exist in "virtual" forms in which computer-mediated communication (CMC) is the primary or only means of communication within the organization, between the organization and the key external stakeholders (for example, suppliers and customers) or both.

## LITERATURE REVIEW

Market orientation, an organization-wide focus on tracking and responding to customer needs and competitor behavior (Slater and Naver, 1995; Naver and Slater, 1990; Kohli and Jaworski, 1990; Deshpands and Webster, 1989) is important to most organizations, but it may prove even more important in the context of digital entrepreneurship. In the context of digital entrepreneurship, this phenomenon may be particularly common because of the necessary emphasis on technology. Once the principals of a new digital venture have mastered the technology needed to operate their business - which is not a small task - they may feel that they know what they need to know in order to be successful, disregarding the principles of market orientation, which in turn is likely to lead to the failure of the new venture.

### Digital entrepreneurship

The term entrepreneurship became visible in the 1700s, to describe the bearing of the risk of buying at a certain price and selling at uncertain prices (Cantillon, 1755). Over time, understanding of entrepreneurship was developed more broadly to include the risk-taking behaviors of individuals who pursue perceived opportunities (Ireland et al., 2005; Shane and Venkatraman, 2000). Entrepreneurship has been defined as the pursuit of opportunity beyond the resources currently controlled, and Venkatraman (1997) delineated the scholarly field of entrepreneurship as the examination of how, by whom, and with what effects opportunities are discovered, evaluated, and exploited to create future goods and services. Following these definitions, the academic field of entrepreneurship research has examined the traits and characteristics of entrepreneurs (sometimes referred to as the supply-side aspect of entrepreneurship) as well as the market and economic conditions surrounding entrepreneurial activities (demand-side) (Thornton, 1999).

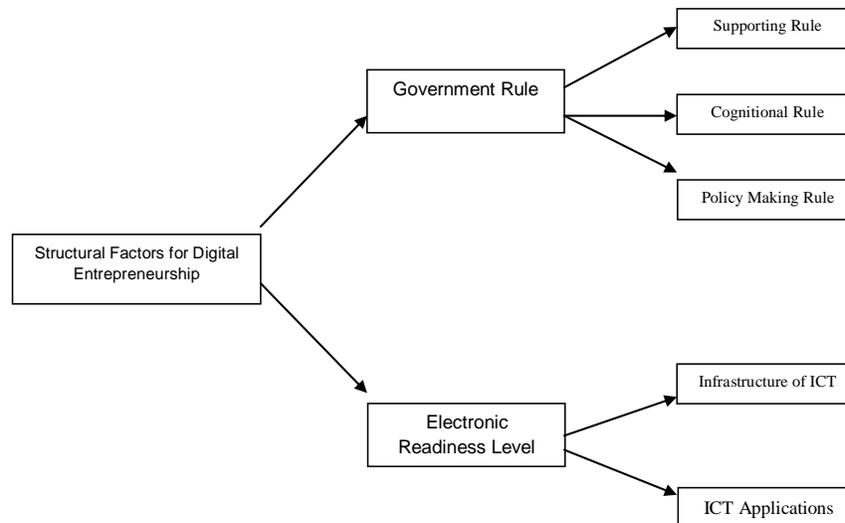
According to Drucker (1986), entrepreneurs search for change and exploit it as an opportunity. Of particular interest for our purpose is the strong relationship between

entrepreneurship and change in institutions and markets. Entrepreneurship has been characterized as a source of upheaval of the competitive conditions, generating conditions of "creative destruction" (Schumpeter, 1934). The Schumpeterian perspective on entrepreneurship posits that entrepreneurs render certain industries obsolete while creating new ones. This perspective seems especially useful to understanding digital entrepreneurship, since digital media and information technologies have generated new conditions for communication, as well as new opportunities for business models while also damaging long-standing, established industries (Porter, 2001). Key characteristics of the competitive changes associated with the digital entrepreneurship include the greater ability to process and transfer information instantly and freely and the digitization of processes and activities (Brynjolfsson and Kahin, 2002; Negroponte, 1995; Tapscott, 1996).

### Entrepreneurship and digital entrepreneurship

The critical characteristics and aspects of the entrepreneurship process have been identified and clarified in earlier literature (Kuratko and Hodgetts, 2004; Cunningham and Lischeron, 1991; Timmons and Spinelli, 2004). Entrepreneurship involves recognizing and seizing opportunities, transforming those opportunities into marketable goods or services, adding value through time and resources, assuming risk, and realizing reward. Entrepreneurial activities may occur in a variety of settings, including new and old ventures, non-profit institutions and the public sector. In short, new value creation is the defining characteristic of entrepreneurship. Digital entrepreneurship is a subcategory of entrepreneurship in which some or all of what would be physical in a traditional organization has been digitized. Thus, digital entrepreneurship implies an entrepreneurship that is associated with some degree of digital goods or services, or with other forms of digital activity. Given the rapid rise of digital activities among all firms, it seems likely that digital entrepreneurship will become more and more common, suggesting the need for a deeper understanding of this phenomenon.

To better understand digital entrepreneurship, a typology must be developed to distinguish the degree of digitalization that pervades any business environment. A beginning point for such a typology should explore the potential of digitalization within the activities, processes, boundaries and relationship associated with the firm, in other words, the firm's value chain. The degree of business digitalization may be derived through: 1) the digital nature of a firm's goods or services, 2) the digital distribution potential of a good or service, 3) the potential digital interactions with key external stakeholders within the value chain, and 4) the digital potential of virtual internal activities associated with a firm's operation.



**Figure 1.** The conceptual framework of structural factors for digital entrepreneurship.

These four elements serve as a means to define the degree of digitalization associated with specific firms and industries. Thus, digital entrepreneurship implies entrepreneurship, or new value creation, involving digital goods or services, digital distribution, a digital workplace, a digital marketplace, or some combination of these. This entrepreneurship activity relies on information technology to create the market, distribute, transform or (in the case of digital services) perform the product.

White information technology is associated with many organizations productivity, business performance and customer values. It serves as the basic infrastructure in digital entrepreneurship. Without information technology, digital entrepreneurs would be unable to deliver their products or services and in some cases, the product or service itself could not exist without information technology. Digital entrepreneurship thus exists on two disciplines: 1) management (particularly entrepreneurship) and 2) information systems.

### Digital workplace

The reach of the Internet also allows digital entrepreneurship to take advantage of potential employees and partnership all over the globe without forcing anyone to relocate. Global virtual teams can offer considerable benefits to the digital entrepreneur, marking it easier to locate and hire talent, harnessing cultural diversity, importing resource utilization and increasing flexibility and responsiveness (Duart and Snyder, 1999). However, there is a potential cost as well. Managing virtual teams presents challenges very different from those experienced by normal managers (Cramton, 2002; Kayworth and Leidner, 2000) and digital entrepreneurs who take advantage of the digital workplace, as such,

they should be aware of these challenges.

### Structural factors for digital entrepreneurship

#### *Governmental rules*

Laws and supports of government can develop digital entrepreneurship and decrease its barriers. Instability in policies of government and inconsistency between policies and policy interventions has more effect on formation and continuity of entrepreneurship activities. Herein, government can play three different roles towards creating and developing digital entrepreneurship: 1) supporting role, 2) cognitional role, and 3) policy making role.

#### *Electronic readiness level*

E-readiness is a measure of the quality of a country's ICT infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit (Economist Intelligence Unit, 2009). When a country uses ICT to conduct more of its activities, the economy can become more transparent and efficient. Also, in the other definition, the electronic readiness is a collection of capabilities that are available in society to creating or developing the infrastructure of information and communication technology and increasing their capacity of use for hunting the valuable opportunities. So, electronic readiness level can play two different roles in creating and developing digital entrepreneurship: 1) infrastructure of information and communication technology, and 2) information and communication technology applications which are shown in Figure 1.

**Table 1.** The results of expectations and perceptions of experts about supporting the role item of government rules of structural factors for digital entrepreneurship.

Item	Mean	S.D.	Mean difference	Sig. (2-tailed)	t	df
Supporting role	3.0375	0.62213	2.43750	0.000	24.779	39

**Table 2.** The results of expectations and perceptions of experts about the cognitional role item of government rules of structural factors for digital entrepreneurship.

Item	Mean	S.D.	Mean difference	Sig. (2-tailed)	t	df
Cognitional role	3.0804	0.64710	2.48036	0.000	24.242	39

**Table 3.** The results of expectations and perceptions of experts about the policy making role item of government rules of structural factors for digital entrepreneurship.

Item	Mean	S.D.	Mean difference	Sig. (2-tailed)	t	df
Policy making role	3.0155	0.59002	2.41545	0.000	25.892	39

**Table 4.** The results of expectations and perceptions of experts about the infrastructure of the ICT item of electronic readiness level of structural factors for digital entrepreneurship.

Item	Mean	S.D.	Mean difference	Sig. (2-tailed)	t	df
Infrastructure of ICT	3.0625	0.74506	2.46250	0.000	20.903	39

## RESEARCH QUESTIONS

Considering the high content, it can be said that the main questions of the present study are as follows:

- 1) Are the mean scores of structural factors for digital entrepreneurship more than average?
- 2) Which dimensions of structural factors for digital entrepreneurship is greater than other dimensions of it?
- 3) Is there acceptable goodness of fit in exploratory and structural equation modeling in the present study?

## RESEARCH METHODOLOGY

The sample size of the present study consists of 40 persons that were selected at random from experts of digital entrepreneurship in the agricultural sector.

Digital entrepreneurship questionnaire was designed by researchers. It contains 22 items and it has 5 dimensions namely: supporting role, cognitional role, policy making role, infrastructure of ICT and ICT applications. The reliability of this questionnaire was reported as 0.927. A 5 point Likert-type scale ranging from "I strongly disagree" to "I strongly agree" was used in this study. Data analysis was carried out by using the statistical program packages SPSS 17.0 and Lisrel 8.54.

## EXAMINATION OF QUESTIONS

Table 1 illustrates the mean score of expectations and

perceptions of experts about the supporting role item of government rules of structural factors for digital entrepreneurship. The result of Table 1 shows that the mean score of this test is more than the average score and the significance of this item is less than 0.01. This implies that this item of structural factors for digital entrepreneurship is significant. Table 2 illustrates the mean score of expectations and perceptions of experts about the cognitional role item of government rules of structural factors for digital entrepreneurship. The result of Table 2 shows that the mean score of this test is more than the average score and the significance of this item is less than 0.01. This implies that this item of structural factors for digital entrepreneurship is significant. Table 3 illustrates the mean score of expectations and perceptions of experts about the policy making role item of government rules of structural factors for digital entrepreneurship. The result of Table 3 shows that the mean score of this test is more than the average and the significance of this item is less than 0.01. This implies that this item of structural factors for digital entrepreneurship is significant.

Table 4 illustrates the mean score of expectations and perceptions of experts about the infrastructure of ICT item of the electronic readiness level of structural factors for digital entrepreneurship. The result shows that the mean score of this test is more than the average score and the significance of this item is less than 0.01. This

**Table 5.** The results of expectations and perceptions of experts about ICT applications item of the electronic readiness level of structural factors for digital entrepreneurship.

Item	Mean	S.D.	Mean Difference	Sig. (2-tailed)	t	df
ICT Applications	2.9464	0.51881	2.34635	0.000	28.603	39

**Table 6.** Friedman test of dimensions of structural factors for digital entrepreneurship.

Dimensions of structural factors for digital entrepreneurship	Mean rank
Supporting role	3.18
Cognitional role	3.75
Policy Making role	2.86
Infrastructure of ICT	2.59
ICT applications	2.62

$\chi^2 = 15.400$ ; df = 4; Sig. = 0.004.

implies that this item of structural factors for digital entrepreneurship is significant. Table 5 illustrates the mean score of expectations and perceptions of experts about ICT applications item of the electronic readiness level of structural factors for digital entrepreneurship. The result shows that the mean score of this test is more than the average score and the significance of this item is less than 0.01. This implies that this item of structural factors for digital entrepreneurship is significant. Table 6 illustrates Friedman test of dimensions of service quality that it shows mean rank of service quality dimensions and it shows which item or dimension according to expectations and perceptions of students is trace on scarification of student from sort service quality of this place. The result of Table 6 illustrates that the cognitional role has a high score and its effect on structural factors for digital entrepreneurship is more than that of other dimensions, while infrastructure of ICT has a low score than other items.

Also, the significance of this test is less than 0.01, so there is a significant difference between items or dimensions of structural factors for digital entrepreneurship.

In accordance with the study of Byrne (1998), a ratio of  $\chi^2$  to df of less than 3 was generally considered an indicator of a good model fit, and a ratio of less than 5 was considered acceptable. An adjusted goodness-of-fit index (AGFI) of more than 0.90, a root-mean-square error of approximation (RMSEA) of less than 0.08, a root mean square residual (RMR) of less than 0.045, and a normal fit index (NFI), a non-normed fit index (NNFI), a comparative fit index (CFI) and incremental fit index (IFI) of more than 0.90 were considered indicators of "good fit". Given their complementary features, all four indexes were used to evaluate the path model. In this model, we used the abbreviation of both criteria's dimensions (SR = Supporting Role, CR = Cognitional Role, NR = Policy

Making (Normal) Role, IOI = Infrastructure of ICT, UI = ICT Applications (Using ICT)). In the data of Table 7, it can be said that the model of structural factors for digital entrepreneurship is fitness. All data are in conformity with Byrne's (1998) procedures.

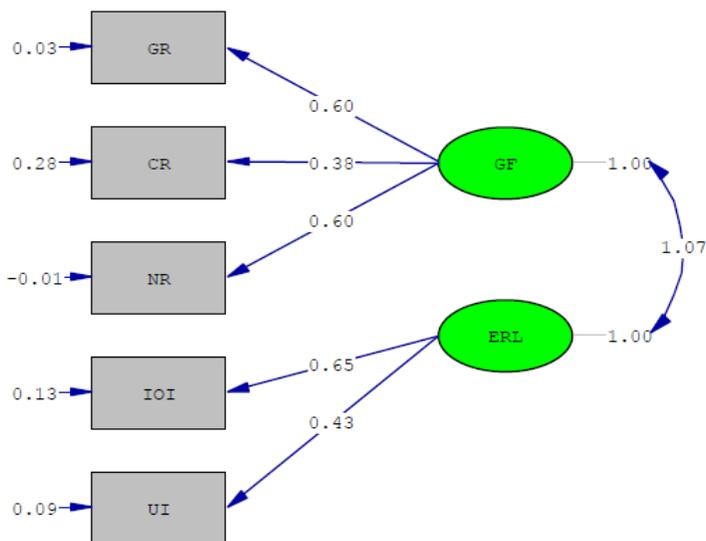
## Conclusion

The result of the test that was carried out on the first question by sample T-test illustrated that there is significance in the perceptions of experts about the mean score of the structural factors for digital entrepreneurship at all dimensions (supporting role, cognitional role, policy making role, infrastructure of ICT and ICT applications). This implies that the mean score of these dimensions is greater than their average score. So, in the present test, it can be said that expectations and perceptions of experts about structural factors for digital entrepreneurship in Iran are positive and significant. The findings of the second question's examination indicated the cognitional role has the highest importance in structural factors for digital entrepreneurship with 3.75 score, while the Infrastructure of ICT has the lowest importance in structural factors for digital entrepreneurship with 2.59 score. Also, Table 6 shows that there is significant difference among the dimensions, and that one of them has more effect on structural factors for digital entrepreneurship than the others.

Furthermore, the results of Table 7 and Figures 2 and 3 show that the model of structural factors for digital entrepreneurship is fitness. However, all data are in conformity with Byrne's (1998) procedures. Overall, it can be said that according to the results of the present study, the government factor is more important than the electronic readiness level, especially the supporting and cognitional roles. This implies that government should

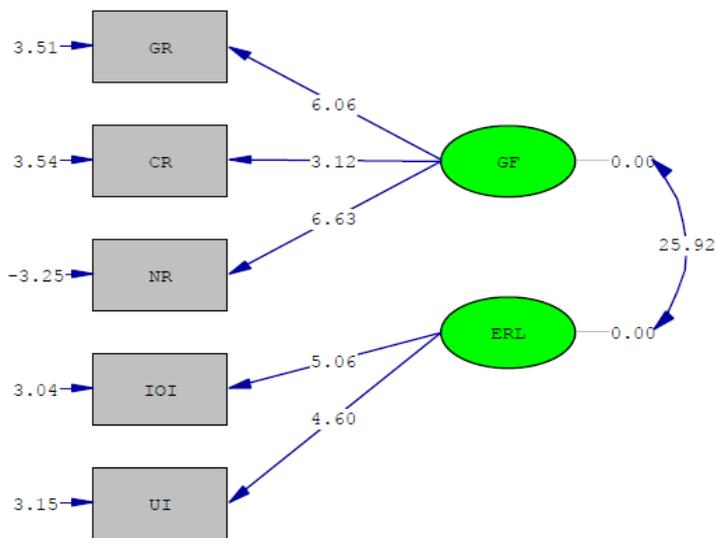
**Table 7.** Model summary of goodness of fit statistics.

Chi-square	df	RMSEA	GFI	AGFI	NFI	NNFI	CFI	IFI	RMR
4.20	4	0.048	0.93	0.82	0.96	0.97	0.99	0.99	0.028



Chi-Square=4.20, df=4, P-value=0.38007, RMSEA=0.048

**Figure 2.** Structural equation modeling (estimate state) of structural factors for digital entrepreneurship.



Chi-Square=4.20, df=4, P-value=0.38007, RMSEA=0.048

**Figure 3.** Structural equation modeling (t-value) of structural factors for digital entrepreneurship.

support the creation and development of digital entrepreneurship generally.

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