The role of information technology on developing free zone markets

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A R T I C L E I N F O	A B S T R A C T
	Information technology (IT) plays an important role on developing different markets. Today, people can easily purchase goods from different stores using varieties of IT based facilities such as POS, ATM, etc. These devices help customers literally carry significant amount of money without bothering about any possible threat. In this paper, we study the impact of IT on developing businesses located mainly on free zones or in the borders of countries. We have distributed 300 questionnaires consists of 35 questions among different people and build structural equations using 28 variables. The results are analyzed using LISREL software package and they are grouped in five different groups including management, social and cultural, organizational, technical and investment factors. Chi-square represents a relatively high value, which means the null hypothesis can be rejected when All t-student represent meaningful values when the significance level is five percent. The results indicate that all these factors influence IT development, significantly.

1. Introduction

Information technology has become an inevitable fact to reach a successful business model in today's economy. During the past few years, there have been many studies associated with measuring the effects of IT based infrastructure on developing economy (Lu et al., 2009; Darrat & Saifs, 2010). Wang and Shi (2011), for instance, performed an investigation on understanding ICT adoption in the small firm sector in Southern Africa. Zhou (2011) evaluated critical success factors of mobile website adoption. Al-Mabrouk and Soar (2009) presented a study based on Delphi method for emerging issues for successful information technology transfer in North Africa a case of Libya.

Dale Stole and Muhanna (2009) proposed a contingency perspective and explained that IT capabilities' influencing on firm resources was contingent on the "fit" between the type of IT capability/resource and the demands of the industry in which it competes. In other works, using publicly available rankings as proxies for two kinds of internally and externally focused IT

capabilities, they empirically studied the degree in which three industry characteristics of dynamism, munificence, and complexity influenced on measures of financial performance. They reported that there was a general support for the posited contingency model.

Nasir and Sahibuddin (2011) performed an empirical study to detect the critical success factors for software projects. They used the content analysis and frequency analysis and detected twenty-six critical success factors associated with the software project success. They recommended that firms or project manager could control the top five critical factors to drive towards project success. Based on their findings, it seems that non-technical factors (94%) dominated over technical factors (6%). In a result unique to our study compared with previous one, they reported that the items of clear and frozen requirements, realistic estimation of the schedule and budget, along with a competent project manager were the five most critical success factors of software projects.

Soto-Acosta et al. (2010) collected a large data source by the European e-Business Market Watch and reported that web infrastructure was not substantially associated with business value. However, Internet-based innovation provided significantly a positive influence on business value. They believed there was no significant complementarities between web infrastructure and internet-based innovation. The results indicated that companies should be careful when they decide to make this kind of investments, since they have to invest heavily in web infrastructure with 'soft' investments for the development of new services, products and processes exploiting the capabilities of this infrastructure.

Omar et al. (2010) investigated the level of information sharing, information quality and usage of IT based tools among manufacturing firms located in the Northern region of Malaysia by gathering data through distributing questionnaires among some managers. The results revealed that manufacturing firms recognized the importance of information sharing, information quality and IT tools framwork in the context of supply chain management. While the usage of IT tools was reported to be between moderate to high, the overall results provided some insights into the types of data shared between manufacturers and suppliers.

Bhatt and Emdad (2010) presented an empirical study of the relationship between IT infrastructure, customer focus, and business advantages. They reported IT infrastructure to have a substantial impact on customer responsiveness, but it did not present any substantial impact on product/service innovation. IT infrastructure, customer responsiveness, and product/service innovation were reported to be relatively associated with business advantages.

The proposed study of this paper performs an empirical study to examine the relationship between IT and the success of business units located in regional and borders of country. The proposed study first presents the framework of survey in section 2 and details of our findings are given in section 3. The paper ends with concluding remarks to summarize the contribution of this paper.

2. The proposed framework

The proposed study of this paper studies the impact of five important IT factors, M1, including management (M2), social and cultural (M3), organizational (M4), technical (M5) and investment (M6) on the success of business models located in the borders of country where people may intend to travel between two countries.

Management factor (M2) includes four variables, which are bad management (V2), effective style of management (V27), middle stage management resistance (V5) and top management (V27). Social and cultural factor consists of six factors including low level awareness of the users from the

advances of IT (V9), Acceptance of IT on behalf of users (V18), Competition (V13), employee resistance (V24), organization culture (V17) and training of employees (V25).

Organizational factor (M4) has five factors including the existence of a unique team-work (V20), the lack of IT specialist (V35), the organizational structure (V4), the role of government (V14) and the lack of sufficient infrastructure (V23). Technical factors (M5) includes seven items including the lack of IT supervision (V3), the low speed of internet connection (V29), the lack of sufficient band wide (V30), the lack of necessary hardware equipments (V6), the lack of sufficient software packages (V7), the lack of user friendly of equipments (V3) and the complexity of IT (V28).

Finally, the last factor, Investment (M6), consists of six factors including the lack of investment on behalf of private and public sector on IT infrastructure (V8), the size of organization (V16), the access on financial and technical facilities (V15), the high amount of investment required (V33) and the bad experience of low return of previous investment plans on IT (V1). There are 28 questions and the sample size of the proposed study is calculated as follows,

$$n = \frac{N \times z_{\alpha/2}^2 \times p \times q}{\varepsilon^2 \times (N-1) + z_{\alpha/2}^2 \times p \times q}, \tag{1}$$

where N is the population size, $p = 1 - q$ represents the yes/no categories, $z_{\alpha/2}$ is CDF of normal distribution and finally ε is the error term. Since we have $p = 0.5, z_{\alpha/2} = 1.96$ and N=1000, the number of sample size is calculated as n=300. The questionnaires have been distributed among 300 people Cronbach Alpha (Cronbach, 1951) was calculated as 0.91, which means the results are reliable. The following five hypotheses are associated with the proposed study,

2.1 Management style and IT success

The first hypothesis of this survey is to measure the impact of management on the implementation of IT in the border sides markets.

H1: There is a meaningful relationship between management style and IT success in regional borders of country.

2.2 Culture and IT success

The second hypothesis of this survey is to measure the impact of culture on the implementation of IT in the border sides markets.

H2: There is a meaningful relationship between the culture and IT success in regional borders of country.

2.3 Organizational factors and IT success

The third hypothesis of this survey is to measure the impact of organizational factor on the implementation of IT in the border sides markets.

H3: There is a meaningful relationship between the organizational factors and IT success in regional borders of country.

2.4 Technical factors and IT success

The fourth hypothesis of this survey is to measure the impact of technical factor on the implementation of IT in the border sides markets.

H4: There is a meaningful relationship between the technical factors and IT success in regional borders of country.

2.5 Investment factors and IT success

The last hypothesis of this survey is to measure the impact of investment factors on the implementation of IT in the border sides markets.

H5: There is a meaningful relationship between the investment factors and IT success in regional borders of country.

3. The results

We have used LISREL software package to perform structural analysis and Fig. 1 shows details of our findings,

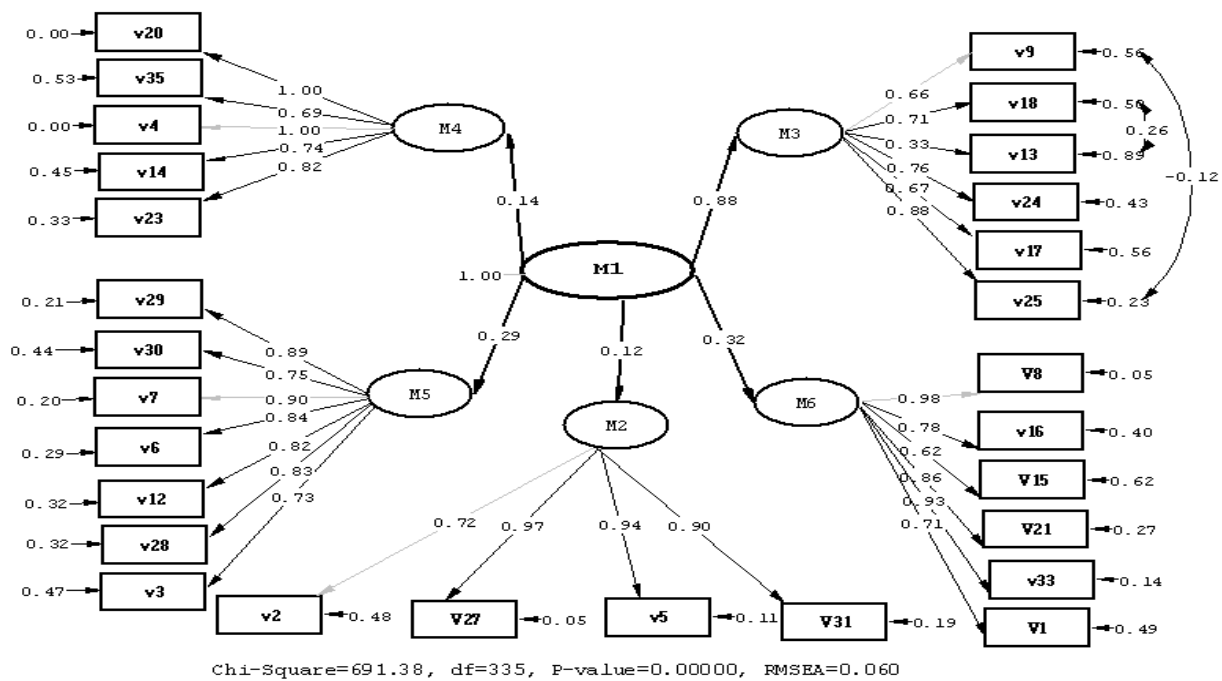Chi-Square=691.38, df=335, P-value=0.00000, RMSEA=0.060

Fig. 1. Structural analysis

As we can observe from the results of Fig. 1, there is a meaningful relationship between different factors on IT success in regional borders.

Table 1 summarizes the results of our findings. As we can observe from the results of Table 1, Chi-square represents a relatively high value, which means the null hypothesis can be rejected when   All t-student represent meaningful values when the significance level is five percent. Therefore, we can conclude that all five factors influence IT implementation in regional and free zone borders. In

summary, we can conclude management, social and cultural, organizational, technical and investment factors impact IT implementation, significantly.

Table 1

The summary of the results of our five hypotheses

Path	Latent Variables Model (Multiple items per construct)								
	Standardized path estimates				t-student		Result		
Γ_{21}	0.12*				1.97		Meaningful		
Γ_{31}	0.88*				3.91		Meaningful		
Γ_{41}	0.14*				1.98		Meaningful		
Γ_{51}	0.29*				3.13		Meaningful		
Γ_{61}	0.32*				3.30		Meaningful		
Latent Variables	X^2	df	GFI	AGFI	R.MR	SRMR	NFI	IFI	P-Value
Model	691.38	335	0.86	0.83	0.033	0.056	0.93	0.96	0.000

4. Conclusion

In this paper, we have presented an empirical study measure the impact of five factors on successful IT implementation on the borders of country. The study distributed a questionnaire among 300 people who were involved with business in border regions of Iran. The information have been processed using structural analysis based on LISREL software package. The results indicate that all five factors influence IT implementation in regional and free zone borders. In summary, we can conclude management, social and cultural, organizational, technical and investment factors impact IT implementation, significantly.

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