

Presenting a Model to Assess Organizational Acceptance of e-Commerce

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Abstract: Studies conducted in the country, do not have a strong theoretical framework to evaluate the acceptance of e-Commerce, therefore, this study combined the two models “technology acceptance” and “planned behavior” for a model with higher predictive power which they are the strongest theoretical models available with each other. Then, factor “trust” and “organizational factors” (consisting of three factors “profile information systems specialists”, “corporate identity” and “leader”) was added to the model, taking into account conditions industries for localization and increasing the efficiency of the model. In addition, a questionnaire was prepared, according to the literature to evaluate the model and it was sent to managers of micro and small companies in the industry. The model derived were analyzed, after collecting data, migrate by SPSS and PLS. The results of the research showed that organizational factors had on the acceptance of e-Commerce, the greatest impact. In this study, all factors were influential with the exception of “norms”.

Key words: e-Commerce, technology acceptance model, the theory of planned behavior, analytical model, analyzed

INTRODUCTION

Electronic Commerce (EC) is without rival, the traditional forms of trade both in terms of increased computing power and how to reduce the cost of communication. And it is a revolution in improving relations between businessmen, supplier and customer. e-Commerce is changing the way of doing activities and organizational communication (Applegate *et al.*, 1996). Undoubtedly, e-Commerce will lead to changes in business processes and organizational structure required supporting the new processes. Europe Union defines it as opposed to Electronic, “e-Business is based on processing and electronic transmission of data including text, sound and video.

This study is important for two reasons, first of all to identify the factors influencing the adoption of EC fill part of the gap in knowledge, the use of e-Business in Iran. Second, we tried in this study, prediction and testing new relationships, between invoices to enrich the model. For example, information systems was predicted by experts, the organization to train employees and fix errors and problems, related to this factor, the ease of use of EC.

This study provides in part to develop a basic model, a maximum of research. In addition, this study describes the factors model, accurately and then expresses this study, the model assumptions. The research evaluates in the method, the sample was collected and research describes as well as providing data, data analysis methods.

THE FRAMEWORK AND THE MODEL

The purpose of this is to build a model to increase the adoption of e-Commerce, therefore, the research is the first to examine the existing theoretical models in the literature, theoretical framework for model extraction. Then, the final research model is presented with the addition of predictive factors, according to the conditions prevailing in the industry.

Theoretical models: Model Theory of Reasoned Action (TRA): the theory was presented by Jn and Fishbein for the first time in 1967 (Ajzen and Fishbein, 1980) this theory, two problems, according to a study: First, the difference between “treatment” and “plan” Dude must be specified. Because, when the kind of behavior applied to other factors, except the intention of a person, it is a problem. Second, this model is not clear, they do not behave from going to a party or something else (Sheppard *et al.*, 1988). For this purpose, Jn Stretch, another theory, called the theory of planned behavior, adding another variable, called “behavioral control” theory TRA (Ajzen, 1985). These two models have many similarities.

Completeness and appropriateness of these two theories has been proven in many studies (Bandura, 1977; Ajzen, 1991; Davis, 1989). These two models are shown in Fig. 1.

Also, another model called the Technology Acceptance Model (TAM) introduced by Davis in 1989 that is modified and improved theory of TRA, the adoption of information systems (Davis, 1989) (Fig. 2).

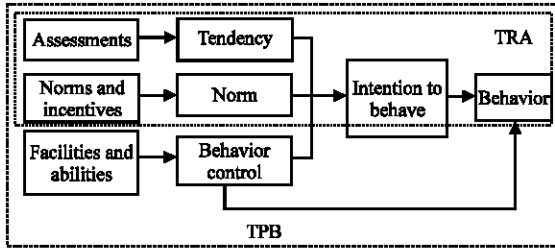


Fig. 1: Model theory of planned behavior and the theory of reasoned action

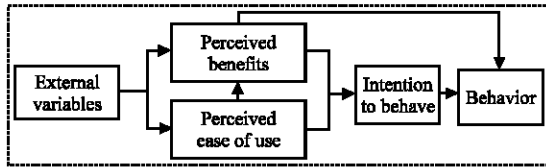


Fig. 2: Technology Acceptance Model (TAM)

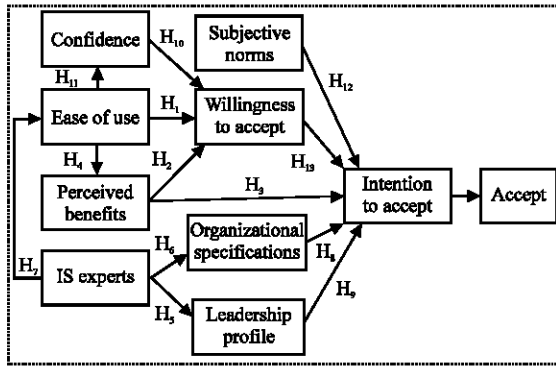


Fig. 3: The proposed model

Technology Diffusion Theory (IDT) has another theory which is used by researchers to evaluate the acceptability of an innovation and new technology. This model is indicative of the acceptance process of innovation and new technologies by users (Rogers, 1983).

Research model: Because, theoretical models to predict the rate of adoption of e-Business model is created with greater predictability with the integration of the TAM model with other accepted theories including IDT, TPB and TRA (Hu *et al.*, 1999).

IDT and TAM Models are similar to each other and for example, “comparative advantages”, the same structure with “perceived usefulness”, the model TAM and the structure is complicated, the IDT, very similar to the perceived ease of use, the TAM. A combination of the two, TAM and TPB was used in this study, according to the cases cited for this study (Fig. 3).

Edalatkhah pay, the paper reviews the problems launching of e-Commerce in Iran. He said the lack of appropriate infrastructure for implementation, the major cause of non-proliferation of this technology. We focus on the study entitled “Challenges of e-Commerce adoption in India” for the organizational variables; it is done by Tarafdar and Vaidya. They were identified variables “organizational characteristics”, “leader” and “profile information systems specialists” as the most important organizational factors influencing the adoption of e-Commerce. Also, we added, these factors in the model as they are found in Fig. 3.

The use of IT technologies, still in its infancy in our country and public awareness is low about this technology. Insufficient knowledge about a new technology (which is associated with confidential information and financial transactions) leads to doubt to use it. Therefore, we predicted that the trust factor, a close association with the tendency to adopt e-Commerce. Variable individual innovation leads up the chance to test the new technology, so this variable has been added to model to enhance the power of prediction (Fig. 3).

Definition of variables and assumptions: TAM Model assumes that ease of use and perceived benefits are the primary factors affecting the acceptance. Assumptions TAM, based on this principle, the adoption of real-affected, the intention and the intention is also affected by the tendency of people to use the system. Finally, the willingness of the person affected, directly by ease of use and perceived benefits (Davis, 1989).

- H₁: ease of use, perceived to affect, the willingness to accept
- H₂: perceived benefits are effective with a tendency to accept
- H₃: ease of use perceived to affect, the intention to accept
- H₄: intent to accept that is effective, real acceptance

IS a professional associated with the external environment and facilitate new career, constantly. They understand the emergence of e-Commerce technology and executive capability and they have great technical capabilities, so they can develop, e-Business in their respective fields. And they have the ability to learn from leaders, end users, decision makers and other powerful people. At the same time, they do many efforts to attract investment to operate the new system. Peyton states, the political consequences and end user support have an important role in determining the willingness of organizations to adopt e-Commerce (Tarafdar and Vaidya, 2006).

Table 1: Definitions used in the model variables

Variables	Definition	References
Perceived benefits	It is the value at which a person assumes the use of a specific system will improve his performance	Davis (1989) and Davis <i>et al.</i> (1989)
Ease of use	The ease of use of the system by the user	Davis (1989) and Davis <i>et al.</i> (1989)
Reliability	The reliability of the customer's point of view, the confidence in the quality and reliability of the services that are offered by an organization	Robinson <i>et al.</i> (2005)
Subjective norms	A person thinking about that what theoretical most people who are important to him have in the case of performing a certain action	Ajzen and Fishbein (1980)
Willingness to accept	Assess a person's degree of favorable or unfavorable on the adoption of specific technologies	Ajzen (1991)
Profile IT professionals	Details such as the ability to educate IT professionals, technical capabilities, understanding the benefits of e-Commerce and solve technical problems	Tarafdar and Vaidya (2006)
Organizational specifications	Corporate IT resources, knowledge and technical skills and financial resources necessary organizational components	Tung <i>et al.</i> (2008)
Leadership profile	Characteristics required for leadership EC on the organization such as defining the role of the individual in the organization, providing the necessary infrastructure and training and completion of projects related to the EC	Tarafdar and Vaidya (2006)

Tarafdar and Vaidya (2006) found that organizational characteristics and specifications leadership are affected by specialists, IT and they influence the intention to accept, directly.

- H₅: profile specialists of information systems influence leadership characteristics
- H₆: view information systems professionals, the impact on organizational characteristics
- H₇: view information systems specialists effective easy to use

Corporate IT resources, knowledge and technical skills and the complexity of IT, increase willingness to accept various e-Business technologies in organizations.

- H₈: specifications organization, influencing the intention to accept

Senior managers have different interests to acceptance of e-Commerce. A pioneering approach and can lead active, the adoption of e-Business in senior management.

- H₉: leader, effective on going to accept

Trust is in general use, the reduction of social complexity and risk perception of the technology with the results and assume certain of its behavior. Ease of use of a system can eliminate all risks and user concerns according to a better understanding of the system. Chang and colleagues found that ease of use has a positive effect on user confidence and on the other hand can affect confidence, the willingness to accept (Tung *et al.*, 2008). Hamdan also demonstrated in a study, entitled the effect of e-Commerce that the use of e-Business and consumer confidence, there is a significant relationship (Lefebvre *et al.*, 1991).

- H₁₀: trust, interest, influence and acceptance
- H₁₁: ease of use, affects the trust

Associated norms are directly and significantly with the intention to use the system. In fact, establishes norms, attitude and intent of an individual to perform a behavior.

- H₁₂: anxiety affects the intention to accept

Experts deemed necessary, a large study approach to understanding social behavior. Because, attitude, behavior, determination and this assumption implies, implicitly that with the change of attitude can be changed, their behavior (Ajzen and Fishbein, 1980). If someone thinks that the consequence of performing a behavior is positive, the person will have a positive attitude to perform the behavior. Therefore, we predict, affect behavioral intention, the intention to accept.

- H₁₃: willingness to accept affects the intention to accept
- H₁₄: the intention is to adopt effective, real acceptance

The variables used in the proposed model are defined, briefly in Table 1.

METHODS

In this study, a questionnaire, a tool that dealt with the measurement characteristics and traits for which it is designed, based on a five-point scale Likert and it is distributed among the sample units (CEO) and it is measured in terms of their relation to the adoption of e-Commerce in their company.

The research is descriptive according to the methods of data collection and the approach used in data collection. And this study is one of the surveys, the classification of descriptive research.

A pilot study was used to determine sample size. That is the first instance consists of 15 company executives and the distribution of the main characters, respectively of the sample. The adoption of e-Business was as a base of the main characteristic of this study. The distribution of these traits is equal to 0.94, the initial sample. Confidence findings was considered, 0.95 level. The sample size was estimated to be necessary to investigate, using the distribution of the main characters. Given that this research wills the sampling error is <5%. Sample size was calculated using equation:

$$n = \frac{z_{\alpha/2}^2 \cdot P(1-P)}{d^2} = \frac{(1.96)^2 (0.94) (0.06)}{(0.05)^2} = 87$$

Thus, 86 responses were collected, without difficulty, after sending 396 questionnaires by email. The population demographic characteristics is shown in Table 2.

The number of men was more and in general, the average education of managers is high. Other characteristics of the community that >85% of the populations are active in national and international markets.

Validation and reliability: In this study, reliability was assessed by calculating the correlation coefficients

between each variable manufacturer with hidden variables. With high reliability discrete model, if every manufacturer is variable, highly correlated with other variables block manufacturer or in other words, every manufacturer is different, a good correlation with latent variables that block. Factor variables are specified manufacturer in the following table. In this study, all variables are manufacturer high correlation coefficient with their corresponding hidden variable that shows its high reliability (Table 3).

Table 2: Demographic characteristics

Parameters	Frequency	Percentage
Gender		
Male	64:00	74.400
Female	22:00	25.600
Age		
20-30	9.00	10.500
31-40	40.00	46.500
41-50	24.00	27.900
>50	13.00	15.100
Education		
High to low	0.00	0.000
Associate degree	7.00	8.100
Bachelor	32.00	37.200
MA	37.00	43.000
PhD	10:00	11.600
Market activity		
Local	0.00	0.000
Regional	11:00	12.800
National	59.00	68.600
International	16:00	18.600

Table 3: Validation and reliability

Variable builders	Hidden variables	Correlation coefficients between each of the variables constructively with hidden variables	Cronbach's alpha
Perceived benefits	Benefits 1	0.968	0.872
	Benefits 2	0.834	
	Benefits 3	0.868	
Ease of use	Benefits 4	0.837	0.898
	Ease of use 1	0.858	
	Ease of use 2	0.935	
Confidence	Ease of use 3	0.942	0.865
	Trust 1	0.863	
	Trust 2	0.817	
Anxiety	Trust 3	0.814	0.745
	Trust 4	0.903	
	Norms 1	0.776	
Characteristics of IT professionals	Norms 2	0.898	0.731
	Anxiety 3	0.859	
	Specialists 1	0.752	
Leadership characteristics	Specialists 2	0.889	0.879
	Experts 3	0.767	
	Leadership 1	0.964	
Organizational properties	Leadership 2	0.884	0.779
	Leader 3	0.880	
	Organization 1	0.679	
Willingness to accept	Organisation 2	0.961	0.903
	Organization 3	0.833	
	Willingness 1	0.850	
Intention to accept	Willingness 2	0.952	0.898
	Intention 1	0.954	
	Intention 2	0.955	

Table 4: t-student test for equality of men and women mean acceptance

t-values	df	Deviation of standard error	Deviation of the mean	Sig. (2-tailed)
Acceptance				
-2.322	31.187	0.25198	-0.58523	0.027

Table 5: ANOVA for equality of means

Age	Population	Alpha level-0.05		Education	Population	Alpha level-0.05			Market activity	Population	Alpha subsets 0.05		
		Group 1	Group 2			Group 1	Group 2	Group 3			Group 1	Group 2	Group 3
>50	13	2.923	-	Associate degree	7	2.286	-	-	Regional	11	3.7273	-	-
31-40	40	3.675	3.675	BS	32	-	3.281	-	National	59	-	3.6441	-
41-50	24	3.750	3.750	MA	37	-	4.108	4.108	International	16	-	-	4.3750
20-30	9	-	4.444	PhD	10	-	-	4.200	Credibility	-	1.000	1.000	1.000
Credibility	-	0.086	0.125	Credibility	-	1.000	-	0.993					

Table 6: Path obtained assumptions

Assumptions	Confidence	Organizational specification	Leadership profile	Ease of use	Perceived benefits	Willingness to accept	Intention to accept	Acceptation
Intention to accept	-	-	-	-	-	-	-	0.806
Willingness to accept	-	-	-	-	-	-	0.041	-
Perceived benefits	-	-	-	-	-	0.120	0.089	-
Ease of use	0.757	-	-	-	0.864	0.271	-	-
Leadership profile	-	-	-	-	-	0.373	-	-
Organizational view	-	-	-	-	-	0.565	-	-
Profile specialists	0.853	0.854	0.712	-	-	-	-	-
Subjective norms	-	-	-	-	-0.072	-	-	-
Confidence	-	-	-	-	-	-	-	-

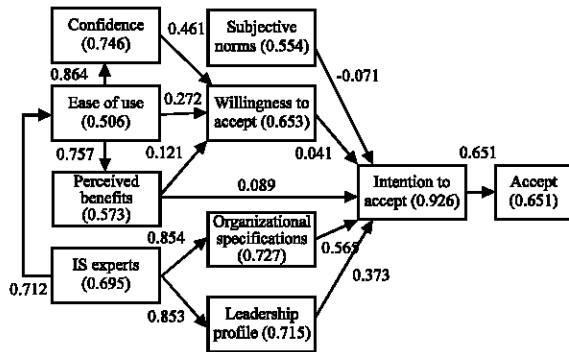


Fig. 4: The results of the study hypothesis

Cronbach’s alpha is one of the ways that it can calculate the reliability of the questionnaire (Cronbach, 1951). Acceptable rate is 0.7, a component variables and 0.6 is acceptable at times (Barclay *et al.*, 1995).

Cronbach’s alpha for the 27-question Likert is higher than the recommended level of 0.7 in accordance with Table 3. The evidence shows that questionnaire has high reliability.

This study has been discussed to examine the relationship between demographic characteristics and the dependent variable models-acceptance (Table 4). Because gender is composed of two groups, t-test was used to evaluate the relationship with admission. ANOVA was used to evaluate the average admission age groups, education and market activity (Table 5).

Assumptions about the average are rejected for each of four tests, according to Table 5. Our results

indicated that means men are more accepting of women. As we age, the reduced admission. And higher levels of education, the increased acceptance. The last test showed increases with increasing market acceptance of the company.

We need, Structural Equation Modeling (SEM) to analyze and solve the model used in this study. This method can be approximate at once, solving several causal relationships. You see the results of path analysis and hypothesis testing in Table 1 which resulted in a structural way, Partial Least Squares (PLS). Most of them have a high confidence level is that it represents a model of acceptance of hypotheses. The results confirm that all new assumptions of this model. Here, only the association between anxiety and intention to accept the hypothesis is rejected (Table 6 and Fig. 4).

CONCLUSION

The model was analyzed with the following structural equation modeling. As we mentioned in the previous section, only the twelfth hypothesis is rejected that is the effect of subjective norm on intention to adopt (H₁₂). Assumptions related to the TAM Model were accepted in full (H₁, H₂, H₃, H₄, H₁₃) that is indicative of the effectiveness of the model. Assumptions related to organizational factors were established with a very high impact (H₅, H₆, H₈ and H₉). Assumptions related to certain factors (H₁₀) were confirmed. Its effect predicted by the researchers is significant, the influence of specific information systems professionals, the convenience of

e-Commerce (H_7). H_{14} is the default value, indicating a high power model. In the present study, organizational factors are more effective against the other factors. According to the case presented in the previous sections, organizational factors are the most important barrier to implementation of e-Business in Iran. This study confirms these findings. But as it proved in this study, this is not a problem because of the lack of influence of other factors in the model. The difference between organizational factors and other factors model because of the conditions and extreme weakness of the necessary infrastructure. Therefore, we must ensure that the infrastructure of the letter required for successful implementation of e-Commerce in our country.

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