

Information Technology Acceptance in Small and Medium Sized Enterprises: The Iranian Insurance Agencies and Brokers

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Concentration of numerous studies through information technology (IT) acceptance issue specifically in developing and less-developed countries indicates the importance of acceptance section as a substantial stage in implementation process. Perceiving problems, opportunities, threats and fundamentals will make implementation more convenient. Considering numerous researches in field of IT acceptance, present study offers essential classification for models which declare the effective factors in acceptance, while presenting critical concepts of acceptance through IT literature. Additionally, categorized models were tested in Iranian insurance agencies and brokers in order to compare their effectiveness and the results and findings enhanced the necessity of considering non-technical factors. In this regard, the approaches which have been employed within acceptance process were classified in long-term, mid-term and short-term strategies in the end.

Keywords - Acceptance, innovation, implementation, small and medium sized enterprises (SME)

Field of research: Technology management

1. INTRODUCTION

The concept of implementation through programming literature indicates all organizational activities which led to utilizing new technologies and innovations in daily tasks (A. Senn and C. Laudon, 1990). Implementing a system in an organization includes different steps and various models which were presented in order to describing its processes; however, some of researches are focusing on functions and roles. On the other hand, the innovations' strategy is enhanced through another approach which defines the role of superior managers within innovation implementation in organizations. The third approach persists in the role of organizational factors in coordinating implementation progress and routinizing innovations and technologies as a part of organization affairs but it generally offers a three-step process for implementation including acceptance, management and routinization.

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According to the literature of IT programming system, acceptance is introduced as one of the main steps in implementation procedure and innovation deduction. The classification of implementation through three mentioned models can be seen in Table 1. Thus, IT acceptance plays a key role in implementation process and if we receive a bright conception of problems, opportunities, threats and fundamentals and consequently apply proper strategies toward these issues, the process of implementation will become more and more improved. Studies depict that four factors including adoptability, trust, ease of use and usefulness have distinctive effects on implementing a new technology (Feng-Cheng Tung et al., 2008). Additionally, acceptance of new technologies such as internet and e-commerce is more influenced by individual and organizational experiences and characteristics rather than personal beliefs (Byung Gon Kim et al., 2007). Therefore, several researches, specifically in developing and less developed countries, took place in order to emphasize the importance of acceptance process as a substantial step in implementation procedure. Kendall, Huang & Chou, Cloete and Shih studies are typical examples of them (Zamanian, 2005).

1. 2. IT as an innovation

As a general explanation, innovation is the process of getting creative idea and changing it to new products, services and approaches (Aghayi Fishani, 1998). In other words, innovation includes engaging inventions and technologies to create a new or better product, process and system (Soltani Tirani, 1999).

In most of IT articles literature (for instance Venkatesh studies (Venkatesh et al., 2003) and Kendall researches (Kendal et al., 2001)), implementation of IT determined as an innovation diffusion. This is because, on one hand acceptance and diffusion of information technologies follow the procedures of acceptance and diffusion of innovation and on the other hand IT acceptance like other aspects of innovation have its own changes and consequences which are concerned with the whole organization (Cloete, 2002). In his researches, over new technology acceptance models, Geroski realized that changes over all of these models function as an S-shaped curve which means at the first and the end of the acceptance period, the growth of innovation use will decrease and in the middle term increase rapidly (Geroski, 2002).

Table 1
Classification Of Different Implementation Models (Zamanian, 2005)

	Chengalur (Chengalur-Smith and P. Duchessi, 1999)	Zmud (Cooper and Zmud, 1990),(Zmud and Kwon, 1987)	Preece (Chengalur-Smith and P. Duchessi, 1999)
Before implementation	Initiation and adoption	Initiation	Initiation
		Adoption	Progression
After implementation		Adaptation	Decision
		Acceptance	Planning
		Routinization	Installation
		Infusion	Operationalization
			Evaluation

To sum up, IT, with an innovative approach, can be declared as a new element which can be introduced to entire society within a particular period and its acceptance can be defined as the presentation of strategies which are based on this technology and going to be substituted with present systems. In other words, acceptance of IT as an innovation is a complex procedure in which organizational structure (Stoica and Stotlar, 2005), business strategies (Afuah et al., 2001), organizational culture (Deshpandé et al., 1993) and even organizational environment (Sinkula, 1994) will be affected.

1. 3. Influential factors through IT acceptance

Numerous investigators have done several researches to identify influential factors through IT acceptance. Hillier, in his study, scrutinized the effects of cultural factors through websites implementation (Hillier, 2003). In his article, Hsiao, counted distrust and cultural resistances as the main barriers of electronic market acceptance (Hsiao, 2003). Demeester also tried to address the cultural outcomes of IT implementation (Demeester, 1999). On the other hand, some of researchers attempted to describe the necessity of realizing innovation

and its effects on acceptance procedure. Cloete believed that e-commerce acceptance involves with understanding its usefulness (Cloete, 2002). Poon & Swatman, also, figured it out that perceiving usefulness is the most important reason of internet acceptance and its continuous usage in organizations (Ibid). Of course, because of numerous influential factors, it seems to be logical if the process of technology acceptance by users lasts for a long time (Ling, 2000).

2. RESEARCH APPROACH

Kim et al. In a recent study which has done over the issue of implementing e-commerce in airline corporations in order to improve customer satisfaction, found that through utilizing acceptance models the customers are more pleased than before (Hong-bumm et al., 2009). Accordingly, while concerning customer satisfaction, Bailey & Pearson distinguished the influential factors which was followed by Cheney et al. study that classified these factors into 3 groups: 1.uncontrollable (organization mission and time frame) 2.not exactly controllable (mental environment and system development supporters) 3.completely controllable(users' training and system users classification) (Legris et al., 2003). These efforts finally led to different models presentation which highlighted various aspects of acceptance.

Having innovative strategy, some of these models, announced IT acceptance as an innovation approval. In a general categorization, these models can be classified in two versions:

a. Technical models: these models basically investigate those processes which should be highly considered by organizations during the entering of IT into their affairs. Generally these kinds of models are focusing on IT acceptance steps. MEDIA-SME model can be specified as a typical example of this category which affirms that the life cycle of e-commerce includes analyzing, planning and implementing through which the costs and risks of using e-commerce will be reduced.

b. Behavioral models: one of the most crucial points in innovative technologies acceptance through organizations is concerning the importance of non-technical problems role. Behavioral models which are presented on the basis of social and behavioral theories, usually, enhance the effectiveness of norms and users' mental concepts (Venkatesh et al., 2003). The main idea of these models is human behavior which plays a key role in process

of long-term acceptance and infusion of the technology by acceptors (organization employees, people, financial partners, etc.) and it's the reason why issues such as business strategies, planning, implementing and managing this new technology can't be considered only through technical models.

This approach covers a vast majority of researches and studies which have been done through the field of IT acceptance. While the studies which have been done through early 1990, because of networks limitation, generally concentrated on soft and hard ware features, recent researches instead of considering technical affairs, highly stressed managerial principles and organizational structures. In accordance with a research which declares the use of technology in service providing in 2009, 87 percents of people behavioral variance in using technology indicates high efficiency of non-technical technology acceptance models for hospital staff (Vassilios et al., 2009).

On the other hand, increasing tendency of IT use in organizations and variety of its applications lead to extensive scrutiny of behavioral factors through innovation acceptance. Education (Foo and Lim, 1997), (Misic and Hill, 1994) satisfaction (Stylianon et al., 1996), security (Stylianon et al., 1996), individual issues (Cheung and Lee, 2000) and trust (Suh and Han, 2002) are some of those factors which were considered specifically by researchers. Venkatesh et al, 2003, during scrutinizing numerous models in this field, announced that all of these models follow the conceptual structure which can be seen in Fig. 1 (Venkatesh et al., 2003). Each of these methods contains several elements which define and predict a variable. It is worth to mention that in 10 analyzed researches, behavioral intent is assumed as dependant variable in IT acceptance, although in all of these models actual use of IT is presented as the final dependant variable. (Zamanian, 2005)

3. METHODOLOGY

Since the purpose of this study is to identify principles and patterns in order to preparing the situation for actual utilization of e-commerce in small and medium enterprises which finally leads to effective use of this technology through them, this research will be declared as an action research. In present study through a behavioral approach toward acceptance issue, the individual models of IT acceptance were analyzed. Then, on the basis of credential researches, eight models of reasonable action theory(TEA), technology acceptance model

(TAM), motive model (MM), theory of planned behavior (TPB), model of personal computer use (MPCU), theory of innovation diffusion (IDT) and social cognition theory (SCT) were selected as those which have been referenced more than the others.

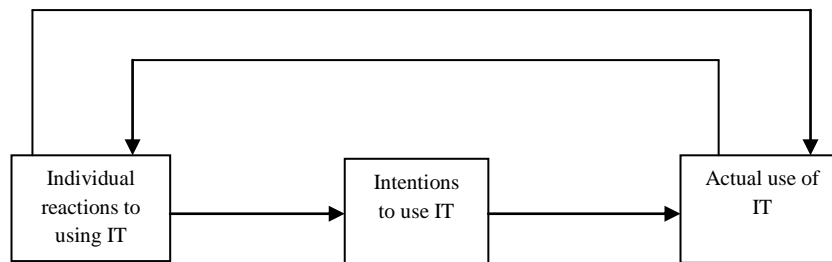


Fig.1. Basic concept underlying user acceptance models (Venkatesh et al., 2003)

But, because of limitations and difficulties within simultaneous evaluation of the eight mentioned models, we preferred to choose essential ones. Therefore, since the only research which have compared all the eight models at a same time was the study of Venkatesh et al (2003), three basic models of TAM, TPB and IDT which had the most efficiency in IT acceptance (case research: Computing Resource Center), were picked up in accordance with the results of Venkatesh study. In conformity with Venkatesh and Davis studies, TAM2 was indicated to be more powerful in prediction rather than TAM; thus, TAM was replaced with TAM2 in this research. Also, due to various emphasis upon better efficiency of integrated basic models (for instance, in a recent study, 2010, integrated approaches was discussed through which the acceptance of using cell phone in bank processes was analyzed (Zhou et al., 2010)), two integrated models of UTAUT (Venkatesh et al., 2003) and TAM/TPB/IDT (Yi et al., 2006) were selected for evaluation within field study steps. It is worth mentioning that UTAUT in Venkatesh et al study has performed more effectively than eight basic models. Integrated model of Yi et al. also was determined to be more considerable than three basic models in accordance with the research results. Since in present study the factor of behavioral intent was considered as dependant variable, the relation between facilitator conditions and behavior of technology use was replaced by the relation of this element with factor of behavioral intent in UTAUT.

3. 1. Population, sample and sampling approach

Legal agencies of two insurance companies and insurance brokers which are classified as small and medium enterprises comprised statistical population of this study. Because of research limitations this study only considered Tehran agencies and brokers. Frequency of identified agencies and brokers can be seen in Table 2.

3. 2. Tools for data gathering

Using questionnaires which is the most frequent method of collecting information was utilized through present study. The questionnaire contained 4 demographic questions and 61 questions about elements of 5 selected models.

Table 2
Groups of Statistical Population

Enterprise	Frequency	Percent out of total
Brokers	28	39/44
Legal agencies for the first company	40	56/34
Legal agencies for the second company	3	4/22
Total	71	100

3. 3. Data collecting and analyzing

After determining statistical population and research tools, the research questionnaire was submitted to the company managers. In order to data mining and defining the variables, collected information was analyzed by SPSS.11.5 software and variables of each model, using regression analysis method, were examined by Enter approach. In order to comparing different models, Adjusted R Square (R_a^2) standard was employed to regulate unequal variables in different models. Using this standard is common through similar researches.

4. RESEARCH FINDINGS

After data mining, modified determiner coefficients of models were computed. The results can be noticed in the Table 3. As can be seen, in this research, independent variables of TAM/TPB/IDT indicate maximum variance of behavioral intent variable.

Table 3
Models Modified Determiner Coefficients

Model	Modified determiner coefficient (R_a^2)
TAM/TPB/IDT	0.459
UTAUT	0.427
TAM//	0.359
TPB	0.305
IDT	0.205

In other words, in this statistical population the mentioned model, because of interpretation of behavioral intent variable through e-commerce acceptance, seems to be more efficient than the others. Some of the findings that can be concluded directly or indirectly through the investigations are presented below:

1. The mentioned theory of several researches which discussed the positive effect of basic models integration and adding new elements to these models through defining variance of behavioral intent is admitted within study results. Similar to Venkatesh (2003) and Yi (2006) studies, this research confirmed the higher efficiency of integrated models such as UTAUT and TAM/TPB/IDT.
2. Findings of present study considerably approve similar researches results in comparing the efficiency of technology acceptance models. In conformity with several researches outcomes, similarly, TAM seems to be more effective among other basic models.
3. Since our purpose in this study was to analyze behavioral and non-technical models, computed determiner coefficients for mentioned models implies that behavioral factors play an essential role in accepting or refusing e-commerce.

5. CONCLUSION

The necessity of developing IT use in industrial and economic matters of organizations has enhanced the perception of recognizing critical fundamentals and removing technical and non-technical obstacles toward IT acceptance to become an urgent need for managers and policy makers. One of the most crucial points of this field is the necessity of considering non-technical factors, because on one hand these elements are prevalently overshadowed by technical affairs and on the other hand converting methodologies and ideologies specifically through a society claims precise recognition of factors and adoption of short and long term policies. Totally, it can be concluded that acceptance is the initial stage of e-commerce implementation process. In order to achieve a successful implementation, the approaches which have been employed to accelerate the acceptance process should be classified in long-term, mid-term and short-term strategies.

Long-term strategies: persuasive and supportive policies, offering educational and counseling sessions, introducing successful samples of e-commerce implementation and other programs which present the advantages of utilizing target technology and also the obstacles ahead of the acceptance procedure to enterprise owners, seem to be indispensable through this level.

Mid-term strategies: it is highly important to organize training activities to enhance the potential usefulness associated with the technology. Additionally, emphasizing on behavioral factors to direct usage intention and personal standards should be taken into account as well as skill training in order to facilitate technology acceptance while we are considering mid-term strategies.

Short-term strategies: as for short-term strategies, it is needless to mention that a technology can be more successfully implemented if we can provide the individuals with sufficient substantial evidences which indicate their own improvement through using technology. Further, particular people with pioneering characteristics can be found in every organization who accepts the new technology advantages more willingly in comparison with their peers. Hence, in order to gain better results, it is crucial to firstly inform them about the target technology and employ them to successfully diffuse the technology through the whole organization within implementation process.

Hence, it seems that small and medium sized enterprises are undoubtedly the areas which gain the superior priority in planning mentioned strategies due to their ease of decision making and organizational agility.

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