Studying Effective Factors on Accepting On-line Stock Transactions
(Case Study: Investors of the Isfahan Stock Exchange)

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Abstract: The objective of the present survey is to study effective factors on accepting on-line stock transactions. The evolutional model of technology acceptance constitutes the basis for the conceptual framework of this survey. The statistical population includes investors of the Isfahan Stock Exchange; one hundred seventy (170) of whom were selected as the sample using the random sampling method. Validity of the model is measured through structural equations modeling method, and the relationships between research variables are confirmed based on results of the path analysis. The statistical analysis in this survey uses structural equations modeling, and results illustrate that attitude, self-efficacy and perceived usefulness are major, effective motivational factors toward on-line stock transactions. Other added variables such as trust, credibility and risk are effective motivations to use on-line stock transactions through perceived ease of use and perceived usefulness.

1. Introduction

Necessity of survival in the current competitive economy and changing world requires more intelligence, more rapid responses, and better performance than before. Applying information technology during recent years has changed business processes so that many companies have conformed their performance and activity to information technology in proportion with internet development and other electronic tools. This change has especially influenced the scope of services that are based on a traditional form of close contact among the customer and suppliers, and it has changed manner of perception, development and offer of those services. Among these we can refer to the modern way of establishing relationships with customers through self-service technologies such as ATM machines and on-line transactions [39]. E-commerce is a new model that is product of change in traditional thought and is used in some cases due to companies' fears of lagging behind competitors or because of harmonization with the global act in using the internet [25]. Using Information and communication technologies (ICT) and networking across the world have importance in stable development and provide the foundation for building a digital economy and developing a knowledge-based society [2]. It seems that there is no return backward to traditional forms

of business since E-commerce has been converted into a vital tool to perform business. E-commerce provides effective methods for on-line transactions through commercial websites [36]. It could satisfy explicit and implicit customer needs [24] and, due to several reasons it could be useful. For example it provides easy access to products which might not be possible without internet. Moreover, E-commerce is a simple way to perform transactions, and although it is more vulnerable than its traditional form, it could satisfy needs and demands of consumers to a large extent [32, 46]. E-government could help improve individuals' intentions to conduct on-line transactions by making governments more accessible and responsive. Many governments enjoy the advantages of their citizens' acceptance of E-government. E-commerce and E-government's perspective not only depends on accepting internet technology as a tool to conduct transactions by people but recognizes the web environment as a reliable environment. Therefore, a comprehensive model that could explain incentive factors of individuals in using on-line transactions will be useful for academicians and activists because such a model assist in an improved perception of individual behavior encountering E-commerce and E-government environments. The technology acceptance model was combined with other effective variables on on-line transactions in

this survey to create a firm theoretical framework for selecting behavioral incentives of individuals conducting on-line stock transactions.

2. Literature Review

Various models have been proposed about technology acceptance in recent decades. Primary and basic concepts of all technology acceptance models are indicated in Figure 1.

Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) have the most applications among studies in the field pf technology acceptance models [10, 19, 31]. Of course, TAM is the modified form of TRA. Given that effective factors on accepting different technologies are different in terms of the technology and users under study and the existing environmental conditions [42], each of the proposed models will have various functions in different cases. Research literature regarding those theories for the purpose of introducing models and recognizing primary hypotheses is stated in this section. Finally, the issue of distrust in on-line environment along with research hypotheses will be mentioned.

2-1 Theory of Reasoned Action (TRA)

This theory was proposed by Fish Bayn and Ajzen in a book entitled "Credibility, Attitude, Intention and Behavior: an Introduction about Theory and Research" and is based on the assumption that individuals act reasonably. Bayn and Ajzen collect all accessible information about the target behavior and evaluate it regularly. Also, they consider the impact and result of actions and then decide to conduct an act or not based on their argument [44]. It is claimed in TRA that behavior is controlled exclusively by behavioral intention; as a result, this theory is limited to intentional behaviors (behaviors that simply need the individual's intention and will). Nevertheless, behavior needs skills, resources and opportunities which are not accessible easily and freely and this has not been considered in the scope of applied capabilities of TRA or it would probably be predicted as incomplete [11]. TRA has been extensively used in studies related to accepting various information technologies [28].

2-2 Theory of Planned Behavior (TPB)

Ajzen (1985) has developed TRA by inserting perceived behavioral control structure as the determinant factor of behavioral intention and behavior. TPB, along with perceived behavioral control structure, tries to predict unintentional behaviors too [37]. Perceived behavioral control in TPB reflects perceiving internal and external

limitations of conducting work [50]. Perceiving factors to facilitate or avoid conducting behavior are recognized as control beliefs that include internal control factors (information, skills and personal capabilities) and external control factors (opportunities, resources and possibilities) to conduct behavior [11]. Some behavioral control factors are fixed on using various technologies while others are totally different from one technology to another. A person may use similar skills in various situations. For instance, in the fields that similar skills are needed to perform tasks related to information systems, an individual's capability (internal control factor) is relatively fixed. However, special control factors are important in using each technology. Special control factors regarding conditions of using TPB are determined and studied proportional to the technology under study [38]. According to this theory, behavioral beliefs and evaluation of results create desirable or undesirable attitudes in the individual behavior. Result of normal beliefs and the motivation to realize normal expectations of others are appeared in mental norm and control beliefs determine perceived behavioral control too. Generally, attitude toward behavior, mental norm and perceived behavioral control are leaded to form intention to conduct behavior. TPB has been used as a theoretical basis of research in several studies [3, 35].

2-3 Technology Acceptance Model

This model is the modified form of TRA that Davis (1989) proposed it in his dissertation. The main purpose of TAM is to represent a basis to pursue the impact of external factors on internal beliefs, attitude and intention to use [14]. This model has a descriptive approach, in addition to its prediction approach. Thus, managers could recognize why a specific system may not be accepted and follow appropriate modified steps based on the obtained recognition.

It is assumed in TAM that usefulness and ease of use beliefs are always the main determinants of a decision to use technology. As Davis et al., wanted to use beliefs which are applied generally to study various technologies and different groups of users [14] selecting two beliefs of usefulness and ease of use seems an intelligent and reasonable choice. TAM was referenced in 424 articles in scientific journals until January 2000. This model was recognized as a strong model to predict technology acceptance by users during a ten year period [51].

The existence of a physical gap among customers and on-line sellers and unpredictability of on-line infrastructures create a kind of distrust about

on-line transactions [8]. Thus, first, there is a financial loss risk because the customer is forced to rely on electronic information and is vulnerable to incomplete information of on-line sellers or third parties. Second, there exists a privacy risk because the individual gives his personal information to the seller [13]. Therefore, on-line transactions contain a kind of granting authority from the customer to the seller. Expressly, the open nature of the internet as an infrastructure for conducting transaction, as well as its global nature, creates a kind of distrust about on-line transactions, and this converts trust and risk factors into essential factors in on-line transactions [22]. The concept of trust has long been regarded as a catalyst in transactions between the seller and buyer since it makes transaction processes satisfactory for buyers. Many researchers believe that the concept of trust is necessary for better perception of inter-personal behaviors and economic transactions [40]. The issue of trust has a high importance in E-commerce due to risk and lack of high trust of on-line transactions. Jarvenpaa and Tractinsky (1999) have shown a positive impact of trust on customers' intention to conduct purchases. Credibility is another important factor that is observed in research literature and is probably effective on on-line transactions. Some of the experts consider credibility as a part of trust and risk (e.g., McKnight et al., 2002; Pavlou, 2003), while others consider it as a separated concept [53].

This survey regards credibility as a separate factor. Generally, credibility that individuals maintain for the system, i.e. their belief based on the fact that a transaction occurs in a secure environment and preserves their privacy affects voluntary acceptance of on-line transactions. Also, risk is another important factor in E-commerce that probably affects consumer behavior [26]. Risk is either related to technology and is a result of its major infrastructures (environmental risks) or is related to communications and is a result of the seller's distrust (behavioral risks). Thus trust, credibility and risk are basic concepts that are proposed in case of lack of trust [48]. These three cases are included in the proposed model of on-line stock transactions.

3- Research Model and Hypotheses

Our objective is to predict the individual's intention to use electronic transactions using TAM and concepts of trust, credibility, risk and self-efficacy. Our proposed model is based on TAM which is adopted from TRA, and its credibility regarding the customer intentions has been confirmed [16, 49]. TAM has been successfully used in different environments and systems to study intention toward technology. This research model studies the impact

of variables of trust, credibility, risk and self-efficacy on individuals' intention to use on-line stock transactions in addition to the impact of usefulness and ease of use of variables which are the main beliefs in TAM.

Briefly, the objective of this survey is to prepare a model which could predict individuals' intention toward this technology by explaining attitudes toward using on-line transactions. The most important objectives are:

- Predicting incentives of individual attitudes toward using on-line transactions which finally result in desired behavior.
- Combining key variables of TAM with trust, credibility, risk and self-efficacy variables to predict individuals' intention to use on-line transactions.

Figure 2 shows the research model. Dependent variable, intention to conduct on-line transaction, is inserted in the model as the main variable. The Key variables of TAM include usefulness and ease of use and are inserted in the model as key variables of intention to on-line stock transactions. The proposed model has added other key variables such as trust, credibility, risk and self-efficacy to the first model which becomes coherent by inserting these variables.

3-1 Trust

Trust is always regarded as a catalyst in relationships between the customer and consumer, as both parties will expect a successful transaction. All transactions need the existence of mutual trust, especially, interactions that occur in the insecure environment of E-commerce [6, 40]. Enhancing trust level of individuals to convert potential customers into individuals who intend to conduct on-line transactions is necessary for on-line sellers. Various studies reveal that trust has a high impact on success and acceptance of on-line transactions. Jarvenpaa and Tractinsky (1999) showed experimentally that the trust factor in different cultures has a direct impact on consumer motivation to purchase. Perceiving the nature and history of consumer trust of the internet could equip on-line sellers to a set of strategic tools for building trust and this issue gives rise to the acceptance of E-commerce and, similarly, E-government [40]. Individual perception of ease of use and usefulness of technologies, like the internet, could be recognized as a motivation to use technology [42]. Therefore, it is possible to represent the following hypotheses:

Hypothesis 1: the individual's trust in on-line stock transactions has a positive impact on perceived usefulness of such transactions.

Hypothesis 2: the individual's trust in on-line stock transactions has a positive impact on perceived ease of use of such transactions.

3-2 Credibility

Ganesan (1994) defines credibility as a limit that the consumer believes the seller has in essential proficiency, honesty and reliability to perform transactions. Geyskens et al., (1998) believe that credibility is an important factor in formation of the consumer's conception of on-line environments. According to the study by McKnight et al., (2002), credibility reflects concepts of honesty, reliability and integrity. This definition implicitly contains trust in integrity of the applied medium to perform transaction (trust in infrastructures). Represented concepts about credibility indicate the fact that when consumers want to subject themselves intentionally to potential harm from on-line sellers, they consider characteristics of the related technology's substructure (websites) due to the existing environmental distrust.

On-line sellers could affect credibility of transaction's substructures by performing tasks such as facilitating encrypted transactions, installing firewalls, and using authentication mechanisms to preserve individual privacy. Thus, on-line sellers whose purpose is to decrease concerns about substructures and enhance trust in E-commerce could affect environmental distrust to a large degree. Hence, credibility of transaction substructures constitutes an important part of on-line seller credibility although sellers have no absolute control over on-line substructures [9]. Wang et al., (2003) differentiate between credibility, risk and trust conceptually and find that credibility has a considerable impact on individual intention to use on-line banking. According to their definition, credibility is the level that the people believe performing banking transactions by means of mobile phones does not create any threat for their security and privacy. User's control while interacting with website is another factor that involves individual trust. Some studies have demonstrated that perceiving ease of use and usefulness of technology affect trust and credibility [43]. Therefore, it is possible to mention the following hypotheses:

Hypothesis 3: Sense of credibility of on-line stock transactions by the individual has a positive impact on its perceived usefulness.

Hypothesis 4: Sense of credibility of on-line stock transactions by the individual has a positive impact on its perceived ease of use.

Fogg and Tseng (1999) claimed reliability is one of the key elements of trustworthiness. However, we agree with Corritore et al's idea (2003) that trustworthiness is a sign for the existence of reliability. This perspective indicates that if a phenomenon has trustworthiness, it indicates a positive signal for trust. Therefore, trustworthiness is a reason for the existence of trust but not the trust itself. So, trustworthiness is the existential reason of trust in terms of a cause and effect relationship. Corritore et al., (2003) mentioned three effective factors on trust in on-line environments including credibility, ease of use and risk. Thus, the following hypothesis is represented:

Hypothesis 5: Individual conception about credibility of on-line stock transactions has a positive impact on trust in such transactions.

3-3 Risk

Individual concerns about on-line transactions and risks they feel in on-line transactions are much more than common purchases. Therefore, a high trust level is needed to provoke on-line purchases [22]. Internet environments do not allow individuals to examine products thoroughly, see the sellers and watch their reactions while these are reliable mechanisms on which people are usually dependent. Hence, consumers cannot evaluate if on-line sellers will commit to their obligations and if they will disclose personal information. Existence of distance, impersonal nature of relationships in internet environment as well as the existing distrust in the global open substructures for transactions are factors that impose risk as an unavoidable factor on on-line transactions.

There are two forms of distrust in on-line transactions: behavioral distrust and environmental distrust [7]. Behavioral distrust is arises from the fact that the seller has an opportunity for abuse because of far distance and the impersonal nature of E-commerce as well as inability of the government to control transactions.

Consumers' intention to perform on-line transactions depends on their attitude toward on-line sellers, and their attitudes are determined to some extent by environmental and behavioral factors. Due to the insecure nature of on-line transactions, it is expected that perceiving existence of risk decreases consumers' trust in using internet for performing transactions. Moreover, individual fear regarding sellers does not adopt necessary arrangements to decrease risks related to the substructure decreases consumer trust. Studies show that perceiving existence of risk has a negative impact on individuals' intention to perform on-line transactions. Existence of risk in on-line transactions decreases the possibility of executing environmental and behavioral controls and probably this lack of control will have a

negative impact on individual intention to perform transaction.

The TRA, which TAM is based on, predicts that if individuals feel a low risk about on-line transactions, they will intend to perform transaction [2].

In this survey, we believe that variables of trust, credibility and risk affect attitudes and intentions of individuals to perform on-line transactions indirectly through usefulness and ease of use of variables. Therefore, the following hypotheses are recommended:

Hypothesis 6: Individual conception about the existence of risk in on-line stock transactions has a negative impact on perceived ease of use of such transactions.

Hypothesis 7: Individual conception about the existence of risk in on-line stock transactions has a negative impact on perceived usefulness of such transactions.

Risk is the possibility of an undesirable result occurring, and user conception about existence of risk has a close relationship with trust. Corritore et al., (2003) mentioned risk as one of the three perceptive factors which are effective on trust in internet. Thus, the following hypothesis is added:

Hypothesis 8: Individual's conception about existence of risk in on-line stock transactions will have a negative impact on trust in such transactions.

3-4 Perceived Ease of Use and Perceived Usefulness

Perceived ease of use is applied to the degree that an individual believes that using a technology could be easy and comfortable [4, 29, 33, 41, 47]. Perceived ease of use directly affects perceived usefulness and indirectly affects behavioral intention through perceived usefulness (according to Figure 4, [14]). Perceived ease of internet use in the studies of Ramayah and Aafaqi (2004), Ifinedo (2006), and Kim et al., (2008) was a positive predictor of perceived usefulness and, in studies of Kim et al., (2008) was a positive predictor of attitude of technology use.

Perceived usefulness is applied to the degree that the individuals believe that using technology will improve their performance (5, 47). It is a positive predictor of attitude toward internet use. Perceived usefulness is a direct predictor of behavioral intention and attitude to use technology but impact of perceived usefulness on behavioral intention and attitude to use technology is modified by gender, age and experience variables. Perceived usefulness of internet use in Saade and Kira (2006) and Kim et al's studies (2008) was positive predictor of attitude to

use the internet. Previous discussions are resulted in the following hypotheses:

Hypothesis 9: Individual perception of usefulness of on-line stock transactions is affected by perceived ease of use of such transactions.

Hypothesis 10: Individual attitude to perform on-line stock transactions is positively affected by perceived ease of use of performing such transactions.

Hypothesis 11: Individual's attitude to perform on-line stock transactions is positively affected by perceived usefulness of such transactions.

By using the TAM in this survey, we assume that there is a positive relationship between attitude, intention, perceived usefulness and intention to perform transactions with on-line sellers. Consequently, the following hypotheses are proposed:

Hypothesis 12: Individual intention to perform on-line stock transactions is positively affected by attitude toward on-line stock transactions.

Hypothesis 13: Individual intention to perform on-line stock transactions is positively affected by perceived usefulness of on-line stock transactions.

3-5 Self-efficacy

Self-efficacy refers to individual's beliefs with regard to their ability to the conduct special behaviors. According to Taylor and Todd, a higher level of individual self-efficacy causes the acceptance of information technologies to be more likely. Although this structure is not observed in any of the introduced models and theories, its effective role on accepting on-line banking in conducted studies has been examined by some researchers. Among these studies we can refer to Lichtenstein and Williamson (2006) who have confirmed effectiveness of this structure on accepting on-line banking.

Therefore, we can expect the individuals who believe in their skills in using computers and the internet will more probably accept on-line stock transactions. Therefore, the following hypothesis is proposed:

Hypothesis 14: Individual intention to perform on-line stock transactions is positively affected by self-efficacy in on-line stock transactions.

4- Research Methodology

This survey could be categorized among descriptive researches based on the manner of data collection. Also, it is of field type because the intended data has been collected through sampling the statistical population to study distribution of characteristics that are conducted in cross-sectional form.

4-1 Statistical Population, Sample Volume and Sampling Method

The statistical population of this survey included all investors of the Isfahan Stock Exchange. The primary standard deviation of the sample was equaled 30 persons. Thus, a sample size of 170 persons was obtained given to the standard deviation at the confidence level of 95%. Active investors in the Isfahan Stock Exchange were selected as the statistical sample. The purpose was to select those who are active in the stock exchange investment field, and it is possible to consider the statistical sample as an appropriate sample of the statistical population. Hence, judgment sampling method was used that the sample was selected in simple random form and then questionnaires were distributed.

4-2 Tools of Data Collection

Field study using questionnaire was used to collect the intended data. Questions related to measuring structures of the model under the study were based on the Likert five-option scale. Questions were prepared using the applied standard questionnaire in similar studies [2, 52] and were applied after necessary modifications.

4-3 Reliability and Validity of the Questionnaire

Content validity was used to confirm validity of the questionnaire. The primary questionnaire was reviewed by experts and specialists in the field of E-commerce by commenting about the number of questions, the manner of stating the questions, the transposition of the questions and by adding a response-options scale. The final questionnaire was designed after some revising steps and conducting an experimental phase. The Cronbach Alpha Coefficient was used to calculate the reliability coefficient. The amount of calculated Cronbach Alpha of all the research variables is equal to 84%, indicating high reliability of the questionnaire.

4-4 Data Analysis Method

Data analysis was conducted using SPSS 18 and Amos 19 software. Hypotheses were analyzed through a test, and total goodness of the research model was studied by structural equations modeling. The adaptation level of research data and the conceptual model is studied in structural equations modeling from one side that whether it has suitable goodness or not. The significance of relationships is tested from the other side. Suitable goodness indices of the model include X^2/df, RMSEA, GFI, AGFI, NNFI (TLI), NFI, CFI and IFI. Given these indices, a model has suitable goodness in which ratio of X^2 to degree of freedom (df) is less than 3, amount of RMSEA is less than 10%, amounts of GFI, AGFI, NNFI (TLI), NFI, CFI and IFI are more than 90% and amount of PNFI is more than 50%.

5- Findings

5-1 Estimation and Testing Measurement Models

First, all measurement models should be analyzed separately in order to determine the acceptability level of indices for measurement models. Based on adopting such a method, eight measurement models related to variables are tested separately. Total goodness indices for measurement models are illustrated in Table 1.

Given the results of Table 1, we can conclude that measurement models have a suitable goodness, or, in other words total indices confirm that data supports the model well.

5-2 Path analysis

In the second step, after studying and confirming measurement models in the first step, path analysis is used to test hypotheses. Total goodness indices of the path analysis are represented in Table 2.

Given these issues, we can conclude that the total indices show suitable goodness of the model by data. In other words, we can say the collected data supports the model well.

5-3 Testing Research Hypotheses

Two partial indices of critical ratio and P-Value are used to test the significance level of the hypotheses after studying and confirming the model. Critical ratio is obtained by dividing the "estimated regression weight" by the "standard error" which should be more than 1.96 based on the significance level of 0.05. Parameters less than this amount are not important in the model, and, also, amounts less than 0.05 for P-Value show a significant difference in the calculated amount for regression weights equal to zero at the confidence level of 95%. Hypotheses with regression coefficients and amounts of partial indices related to each hypothesis are illustrated in Table 3.

Given the obtained results in Table 3, all 14 hypotheses are confirmed with the confidence level of 95%.

6- Discussion and Conclusion

This survey seeks to evaluate perceptions toward on-line stock transactions among investors of the Isfahan Stock Exchange using the extended model of technology acceptance. One of the important findings of this survey is the confirmed usability of TAM as an intermediate to perform on-line stock transactions. Research findings reveal that intention to perform on-line transactions using both

variables of perceived usefulness and perceived ease of use is predictable. Moreover, perceived usefulness is a strong predictor for perceived ease of use. Therefore, it has been proved that all structural relationships of TAM are important. Four significant variables were added to the main and common TAM of on-line stock transactions to give a better picture of perception of on-line stock transactions. It was assumed that credibility, trust and risk variables have the capability to predict individual perceptions about usefulness and ease of use of modern technologies, and the self-efficacy variable is effective in intention to use modern technologies.

This survey supports findings of the McKnight and Chervany survey (2002), which shows the importance of credibility and trust in the issue of E-government and E-commerce. As distrust is increased by enhanced complexity of transactions, such as on-line transactions, the necessity of decreasing risk and increasing trust and credibility is enhanced. It is necessary that macro policy-makers and decision-makers consider concerns of people about these risks, and in this case, acceptance of E-government and E-commerce will be enhanced. There are several strategies to obtain an acceptable level of security, increase trust and credibility and also decrease risks of on-line stock transactions. Digital signatures by means of the Public key Infrastructure (PKI) is one such effective strategy. The next strategy is using trust seals offered by third parties in order to enhance trust. Most organizations use trust seals in their websites that credit service institutions offer in order to create trust in individuals for on-line transactions.

The last criterion (of course, in terms of sequence and not importance) is government rules to control on-line transactions. Also, results of data analysis show that perceived usefulness and perceived ease of use variables are determinants of customer perception toward on-line stock transactions. In other words, when an individual has positive perceptions about ease of use and usefulness of on-line stock transactions, his attitude toward using these services is more positive. Predicted positive relationships among perceived usefulness and perceived ease of use with attitudes to use internet in stock transactions are consistent with research results of Saade and Kira (2006) so that perceived usefulness and perceived ease of use in the above studies are important predictors of attitude to use internet. When users perceive technology simpler and more useful, they will show greater willingness to use. Thus, the impact of perceived ease of use is greater than perceived usefulness. The impact of perceived usefulness on attitude to perform on-line stock transactions is greater than perceived usefulness in this survey, and its impact on attitude is significant. Results indicate that perceived usefulness and attitude toward on-line stock transactions affect behavioral intention toward such transactions, and when stock traders perceive this technology to be useful and have a positive evaluation about the usefulness of the technology, possibility of applying the technology is increased.

Also, results demonstrate that self-efficacy is an important factor in behavioral intention to use on-line stock transactions and when individual self-efficacy is higher, the intention to use these technologies is greater. These results are consistent with studies of Lee (2006), Lin (2007), Klopping and McKinney (2004) and Vijayasarathy (2004). Generally, results of this survey show that generalized TAM predicts behavioral intention well and is very useful to recognize where and how to use appropriate strategies in order to change behavior. Managerial application of these findings is that predicting intention to use and technology acceptance by users should be regarded as a prismatic and multi-dimensional phenomenon and using a shallow-minded approach in the related selections and planning must be avoided.
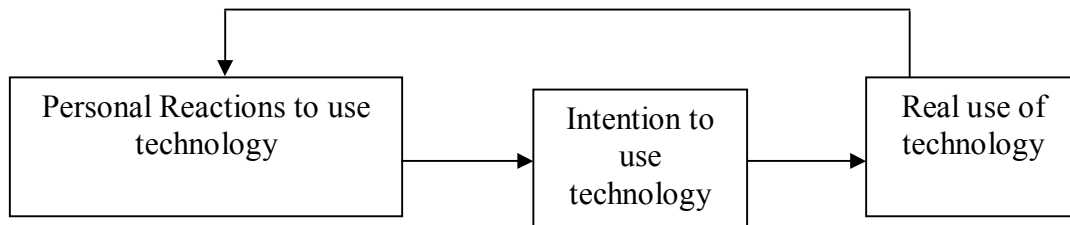
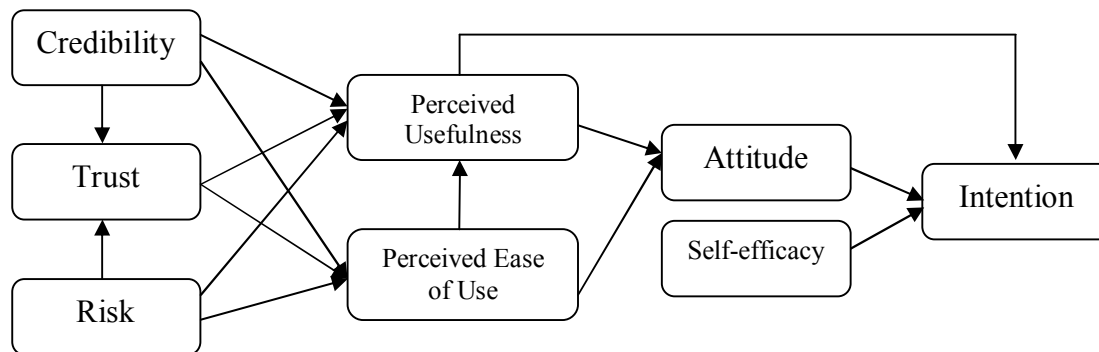**Figure 1- Basic Factors in Technology Acceptance Model By User [51]**

Figure 2- Conceptual Model of the Research

Table 1- Total Goodness Indices for Measurement Models

RMSEA	PNFI	IFI	CFI	NFI	NNFI	AGFI	GFI	χ2/df	Index Name
0.053	0.664	0.932	0.914	0.905	0.941	0.925	0.913	**2.23**	**Usefulness**
0.024	0.703	0.927	0.974	0.922	0.947	0.913	0.963	**2.25**	**Ease of Use**
0.067	0.615	0.956	0.906	0.952	0.945	0.935	0.944	**2.51**	**Trust**
0.014	0.624	0.952	0.927	0.955	0.932	0.942	0.922	**1.88**	**Credibility**
0.026	0.740	0.947	0.956	0.946	0.956	0.932	0.940	**2.72**	**Risk**
0.028	0.743	0.956	0.925	0.971	0.923	0.915	0.941	**2.14**	**Self-Efficacy**
0.050	0.812	0.925	0.954	0.923	0.915	0.924	0.926	**2.25**	**Attitude**
0.045	0.733	0.953	0.946	0.938	0.941	0.906	0.935	**1.98**	**Intention**
<٪10	**>50٪**	**>90٪**	**>90٪**	**>90٪**	**>90٪**	**>90٪**	**>90٪**	**<3**	**Acceptable Fit**

Table 2- Total Goodness Indices of the Conceptual Model

RMSEA	PNFI	IFI	CFI	NFI	NNFI	AGFI	GFI	χ2/df	Index Name
0/044	0. 694	0.941	0.967	0.913	0.951	0.914	0.923	2.78	**Final Model**
<10٪	**>٪50**	**>٪90**	**>٪90**	**>٪90**	**>٪90**	**>٪90**	**>٪90**	**3<**	**Acceptable Fit**

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References
[1]. Ajzen, I., 1985. From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), Action-control: From cognition to behavior (pp. 11-39), Heidelberg: Springer.
[2]. Al-Gahtani, s. s., 2011. Modeling the Electronic Transactions Acceptance Using

an Extended Technology Acceptance Model. Applied Computing and Informatics, 9: 47-77.

[3]. Al-Majali, M., N.M. Nik, 2010. Application of Decomposed Theory of Planned Behavior on Internet Banking Adoption in Jordan. Journal of Internet Banking and Commerce. 15 (2): 1-10.

[4]. Bagozzi, R.P., 2007. The Legacy of the Technology Acceptance Model and a Proposal for a Paradigm Shift. Journal of the Association for Information Systems, 8 (4): 244-254.

[5]. Benbasat, I., H. Barki, 2007. Quo vadis, TAM?, Journal of the Association for Information Systems, 8 (4): 211-218.

[6]. Benedicktus, R.L., M.L. Andrews, 2006. Building Trust with Consensus Information: The Effects of Valence and Sequence Direction. Journal of Interactive Advertising, 6 (2): 15-25.

[7]. Bensaou, M., N. Venkataman, 1996. Inter-organizational Relationships and Information Technology: A Conceptual Synthesis and a Research Framework. European Journal of Information Systems, 5: 84-91.

[8]. Brynjolfsson, E., M. Smith, 2000. Frictionless Commerce?. A Comparison of Internet and Conventional Retailers. Management Science, 46 (4): 563-585.

[9]. Cassell, J., T. Bickmore, 2000. External Manifestations of Trustworthiness of the Interface. Communications of the ACM, 43 (12): 50-59.

[10]. Chen, L., M.L. Gillenson, and D.L. Sherrell, 2002. Enticing Online Consumers: An Extended Technology Acceptance Perspective. Information & Management, 39: 705-719.

[11]. Conner, M., C.J. Armitage, 1998. Extending the Theory of Planned Behavior: A Review and Avenues for Further Research. Journal of Applied Social Psychology, 28 (15): 1429-1464.

[12]. Corritore, C.L., B. Kracher, S. Wiedenbeck, 2003. On-line Trust: Concepts, Evolving Themes, a Model. International Journal of Human Computer Studies, 58 (6): 737-758.

[13]. Culnan, M.J., P.K. Armstrong, 1999. Information Privacy Concerns, Procedural Fairness, and Impersonal Trust: An Empirical Investigation. Organization Science, 10 (1): 104-115.

[14]. Davis, F.D., 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13 (3): 319-340.

[15]. Davis, F.D., R.P. Bagozzi, and P.R. Warshaw, 1989. User Acceptance of Computer Technology: A Comparison of Tow Theoretical Models. Management Science, 35 (8): 982-1003.

[16]. Fishbein, M., I. Ajzen, 1975. Belief, attitudes, intention and behavior: An introduction to theory and research", Reading, MA: Addison-Wesley.

[17]. Fogg, B.J., H. Tseng, 1999. The elements of computer credibility. In: Proceedings of the Conference on Human Factors in Computing Systems, CHI 99, Pittsburg, PA, USA, May 15-20, ACM Press, New York, NY, pp. 80-86.

[18]. Ganesan, S., 1994. Determinants of Long-Term Orientation in Buyer–Seller Relationships. Journal of Marketing, 58: 1-19.

[19]. George, J.F., 2004. The Theory of Planned Behavior and Internet Purchasing. Internet Research, 14(3): 198-212.

[20]. Geyskens, I., J-B.E.M. Steenkamp, N. Kumar, 1998. Generalizations about Trust in Marketing Channel Relationships Using Meta-Analysis. International Journal of Research in Marketing, 15: 223-248.

[21]. Hernandez, B., J. Jimenez, M. Jose-Martin, 2008. Extending the Technology Acceptance Model to Include the IT Decision-Maker: A Study of Business Management Software. Technovation, 28: 112-121.

[22]. Hoffman, D.L., T.P. Novak, M. Peralta, 1999. Building Consumer Trust Online. Communications of the ACM, 42 (4): 80-85.

[23]. Ifinedo, P., (2006). Acceptance and Continuance Intention of Web based Learning Technologies (WLT) among University Students in a Baltic Country. The Journal of Information Systems in Developing Countries, 23 (6): 1-20.

[24]. Jiang, Z., I. Benbasat, 2004. Virtual Product Experience: Effects of Visual & Functional Control of Products on Perceived Diagnosticity and Flow in Electronic Shopping. Journal of Management Information Systems, 21 (3): 111-147.

[25]. Johnson J., Wesley, 2000. Electronic Marketing and purchasing, 2000. Georgia state university, Department of marketing U.S.A.

[26]. Jarvenpaa, S.L., N. Tractinsky, 1999. Consumer Trust in an Internet Store: a Cross-Cultural validation. Journal of Computer-Mediated Communication 5 (2).

[27]. Kampen, J., S. Walle, G. Bouckaert, 2006. Assessing the Relation between Satisfaction with Public Service Delivery and Trust in Government, The impact of the Predisposition of Citizens toward Government on Evaluations of its Performance. Public Performance & Management Review, 29 (4): 387-404.

[28]. Karahanna, E., D.W. Straub, N.L. Chervany, 1999. Information Technology Adoption across Time: A Cross-Sectional Comparison of Pre-Adoption and Post-Adoption Beliefs. MIS Quarterly, 23 (2), 183-213.

[29]. Kim, T.G., J.H. Lee, R. Law, 2008. An Empirical Examination of the Acceptance Behavior of Hotel front office Systems: An Extended Technology Acceptance Model. Tourism Management, 29: 500-513.

[30]. Klopping, I.M., E. McKinney, 2004. Extending the Technology Acceptance Model and the Task-Technology Fit Model to Consumer E-Commerce. Information Technology, Learning, and Performance Journal, 22 (1): 35-48.

[31]. Lederer, A.L., D.J. Maupin, M.P. Sena, and Y. Zhaung, 2000. The Technology Acceptance Model and the World Wide Web. Decision Support Systems, 29 (3): 269-282.

[32]. Lee, K.C, N. Chung, 2008. Empirical Analysis of Consumer Reaction to the Virtual Reality Shopping Mall. Computers in Human Behavior, 24: 88-104.

[33]. Lee, Y. C., 2006. An Empirical Investigation into Factors Influencing the Adoption of an E-Learning System. Online Information Review, 30 (5), 517-541.

[34]. Lichtenstein, S., K. Williamson, 2006, Understanding Consumer Adoption of Internet Banking: An Interpretive Study in the Australian Banking Context. Journal of Electronic Commerce Research, 7 (2): 50-66.

[35]. Limayem, M., M. Khalifa, A. Frini, 2000. What Makes Consumers buy from Internet? A Longitudinal Study of Online Shopping. IEEE Transactions on Systems, Man, and Cybernetics-part A: Systems and Humans, 30 (4): 421-432.

[36]. Lin, H.F., 2007. Predicting Consumer Intentions to shop online: An Empirical Test of Competing Theories. Electronic Commerce Research and Applications, 6 (4): 433-442.

[37]. Madden, T.J., P.S. Ellen, I. Ajzen, 1992. A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action. Personality and Social Psychology Bulletin, 18 (3): 3-9.

[38]. Mathieson, K., 1991. Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory Of Plane Behavior. Information Systems Research, 2 (3): 173-191.

[39]. Meuter M.L., M.J. Bitner, A.L Ostorm, and W.B. Stephen, 2005. Choosing among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies, Journal of Marketing, 69: 61-83.

[40]. McKnight, D.H., N.L. Chervany, 2002. What Trust Means in E-Commerce Customer Relationships: an Interdisciplinary Conceptual Typology. International Journal of Electronic Commerce, 6 (2), 35-60.

[41]. McGill, T., S. Bax, 2007. From Beliefs To Success: Utilizing an Expanded TAM to Predict Web Page Development Success. International Journal of Technology and Human Interaction, 3 (3): 36-53.

[42]. Moon, J.W., Y.G. Kim, 2001. Extending the TAM for a World Wide Web context. Information & Management, 38 (4): 217-230.

[43]. Pavlou, P.A., 2003. Consumer Acceptance of Electronic Commerce. Integrating Trust and Risk with the Technology Acceptance Model. International Journal of Electronic Commerce, 7 (3): 101-134.

[44]. Pikkarainen, T., K. Pikkarainen, H. Karjaluoto, and S. Pahnila, 2004. Consumer Acceptance of Online Banking: An Extension of the Technology Acceptance Model. Internet Research, 14 (3): 224-235.

[45]. Saadé, R.G., D. Kira, 2006. The Emotional State of Technology Acceptance. Issues in Informing Science and Information Technology, 3: 229-239.

[46]. Svantesson D., R. Clarke, 2010. A Best Practice Model for E-Consumer Protection. Computer Law & Security Review, 26: 31-37.

[47]. Savitskie, K., M.B. Royne, E.S. Persinger, M. Grunhagen, and C.L. Witt, 2007.

Norwegian Internet Shopping Sites: An Application & Extension of the Technology Acceptance Model. Journal of Global Information Technology Management, 10 (4): 54-73.

[48]. Schoorman, F.D., R.C. Mayer, J.H. Davis, 1995. Organizational Trust: Philosophical Perspectives and Conceptual Definitions. Academy of Management Review 21: 337340.

[49]. Sheppard, B.H., J. Hartwirk, P.R. Warshaw, 1988. The Theory of Reasoned Action: A Meta-Analysis of Past Research. Journal of Consumer Research 15 (3), 325–343.

[50]. Taylor, S., P. Todd, 1995. Understanding Information Technology Usage: A Test of Competing Models. Information Systems Research, 6 (2): 144-176.

[51]. Venkatesh, V., F.D. Davis, 2000. A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. Management Science, 46 (2), 186-204.

[52]. Vijayasarathy, L.R., 2004, Predicting Consumer Intentions to Use On-Line Shopping: The Case for an Augmented Technology Acceptance Model, Information & Management 41 (6), 747-762.

[53]. Li, J., J.Z. Wang, 2003. Automatic Linguistic Indexing of Pictures by a Statistical Modeling Approach. IEEE Transactions on Pattern Analysis and Machine Intelligence, 25 (9): 1075-1088.

[54]. Warkentin, M., D. Gefen, P. Pavlou, and G. Rose, 2002. Encouraging Citizen Adoption of E-Government by Building Trust. Electronic Markets 12 (3): 157-162.

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