

Electronic Banking and Customer Satisfaction in Bank Melli Iran

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Abstract

Many e-commerce transactions via e-payment systems is carried out. The aim of this study is that the theory of structures, an empirical analysis about the importance and ranking key factors that may be on customer satisfaction in electronic payment systems affect the Iranian banks.

9 specific topics of the factors in e-payment systems, customer satisfaction and affect are more key, were selected and reviewed. To achieve this goal, Out of 754 questionnaires for statistical analyses was provided to respondents. A total of 548 questionnaires were coded and analyzed using LISREL 8.53 to analyze the hypotheses. The research proved that the perceived importance of the key factors was correlated through security, trust, perceived advantage, processing speed, perceived risk, usability, focusing on customer needs, responding to objections and privacy.

Important research results to help banks and other institutions providing e-payment systems in identifying key factors and their ranking for customer satisfaction and use it to better design of e-payment systems will.

Keywords: Electronic commerce, E-Payment Systems, ATM, Customer satisfaction.

1. Introduction

Electronic commerce is built upon e-payment systems. As electronic commerce becomes a major component of business operations for many companies, e-payment has become one of the most critical issues for successful business and financial services (Peha and Khamitov 2004, Stroborn et al. 2004, Linck et al. 2006, Cotteleer et al. 2007, Kousaridas et al. 2008). E-Payment is defined here as the transfer of an electronic value of payment from a payer to a payee through an e-payment mechanism. E-Payment services exist as web-based user-interfaces that allow customers to remotely access and manage their bank accounts and transactions (Weir et al. 2006, Lim 2008). In comparison to the traditional payment methods, e-payment techniques have several favorable characteristics, including security, reliability, scalability, anonymity, acceptability, privacy, efficiency, and convenience (Chou et al. 2004, Stroborn et al. 2004, Tsiakis and Sthephanides 2005, Linck et al. 2006, Cotteleer et al. 2007, Kousaridas et al. 2008).

ATM is increasingly becoming more and more widespread all over the world. In countries such as France, USA, and Germany, it is fully operational almost everywhere while in some others there is eagerness but still way ahead. In Iran (Persia) the use of ATM is rapidly becoming common even very small towns and districts. One of the major banks deploying ATM is Bank Melli Iran. This study focuses on Bank Melli Iran as it enjoys a long history since its establishment and its ATM system it operationally well-developed and sound.

Due to fast enhancement of the IT in Iran and its application in e-commerce and e-business, it is expected that within 5 years, in such areas tantamount development is attained and e-business marketing becomes quite

common and be used by people of all walks of life. Along the some lines, various brands of ATM are being deployed and some might succeed more than others. One of the major privileges of ATM systems is that transactions can occur without any prior human contact or established interpersonal relationships. To evaluate this encounter, i.e. the customer and the ATM machines, this study was carried out. Although various security measures and mechanisms have been designed for these e-payment systems, many security problems still remain (Hsieh 2001, Chou et al. 2004, Dai and Grundy 2007, Kousaridas et al. 2008).

The purpose of this investigation is to experimentally study some major customer related factors, especially the ones relevant to their affect such as the feel of security, trust, extend of risk taking and the like. Then, the major question is: what are the factors influencing customers satisfaction with respect to using ATM system of Bank Melli Iran, as a subcategory of electronic payment systems?

First, some review of literature regarding electronic payment systems is presented. Next, an enumeration of general factors influencing customer satisfaction follows. Later, the hypothesized research model and the relevant hypotheses are stated. Research Methodology, finding and their analysis fallows. Finally the conclusion discussion ends the paper.

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and complete one. In these systems, set of tools and technical, legal and social factors transfer money value between payer and receiver. This simple definition has been considered on two subjects: technological infrastructure and legal infrastructure. Technological infrastructure is set of hardware and software that provides value transferring and legal infrastructure is set of regulation and agreements which supports payment system and builds confidence and trust

Payment system is defined as follows: "Technical and legal infrastructure which facilitate value transferring between two side of transaction."

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business, it is expected that within 5 years, in such areas tantamount development is attained and e-business marketing becomes quite common and be used by people of all walks of life. Along the some lines, various brands of ATM are being deployed and some might succeed more than others. One of the major privileges of ATM systems is that transactions can occur without any prior human contact or established interpersonal relationships. To evaluate this encounter, i.e. the customer and the ATM machines, this study was carried out. Although various security measures and mechanisms have been designed for these e-payment systems, many security problems still remain (Hsieh 2001, Chou et al. 2004, Dai and Grundy 2007, Kousaridas et al. 2008).

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This paper experimentally studies factors which impact on customer satisfaction with using ATM and POS services of Melli's Bank (as a member of Shetab's Network and user of electronic payment system) and finally ranks them.

This paper continuous by revision on prior studies about commercial and electronic payment systems, therefore, basic factors which impact on customers' satisfaction with adopting online financial services will be analyzed.

Later, the hypothesized research model and the research hypotheses are stated. Research Methodology, finding and their analysis fallows. Finally the conclusion discussion ends the paper.

2. LITERATURE REVIEW

Commerce and online payment systems

E-Commerce provides the opportunity of supply and demand of various goods, information, and services through the internet. In addition, e-payments play an important role and the lack of an effective system could hinder the success of overall e-commerce development (Goldfinger and Perrin, 2001; Mehta and Sivadas, 1995; Khosrow-Pour, 2008). The exponential growth of the internet has triggered the need for novel e-payment systems which are more appropriate for the web rather than traditional payment systems (Panurach, 1996). This problem is more apparent significant is smaller scale electronic payment systems for which the introduction of electronic cash systems might be a solution to some extent. According to Heng (2004), out of 50 different cyber payments the majority have failed to gain acceptance and traditional payments are still widely used by customers. Consequently, the future of e-payment systems is hampered by many problems, most commonly noted as the lack of being "fit-for-purpose" as the reason why growth is inhibited (Abrazhevich, 2004).

Critical factors

The extent to which online businesses can build trust significantly influences the willingness of concern to make e-payment purchases (MacInnes, 2005).

Security enhances customers, trusts in the system and encourages them to use internet more. All these attitudes influence consumers to make internet purchases more viable and frequent (Tsiakis and Sthephanides, 2005) Another study demonstrated consumers perceive information security and trust in e-commerce has a Significant impact on the

intention to purchase online (Abrazhevich, 2004).

At the time of developing the hypotheses, critical factors were also concerned and controlled the result confirmed that the satisfaction level was differently/ variously affected by those factors. Hence, the attitude of users would be influenced through using these systems. Satisfaction is a term not that easy to define as satisfaction quickly and unpredictably undergoes catharsis because of individuals sometimes instantaneous change of behavior. However, this behaviour can be explained by behavioural theories such the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) ; the subsequent technology acceptance model (TAM); (Davis, 1989; Bagozzi et al., 1992) ; innovation diffusion theory (Lai & Lee, 2005; Roger, 2003)

factors that affect perceived usefulness and ease of use (Davis et al., 1989); theory of planned behavior; (Ajzen, 2006; Ajzen, 1985) and factors that affect the satisfaction of e-payment (Kuisma et al., 2007; Cheng et al., 2006).

3. RESEARCH MODEL

Based on the literature review, theories of innovation diffusion, planned behavior, satisfaction of e-payment, social influence, trust and the perceived resources are applied in this study to investigate Customer satisfaction in e-payment systems. The research model (Figure 1) combines topics of (1) Security, (2) perceived risk , (3) perceived advantage, (4) trust , (5) processing speed , (6) usability , (7) attending on customer needs (8) responding to objections and privacy (9). Details of each hypotheses are given in the followings.

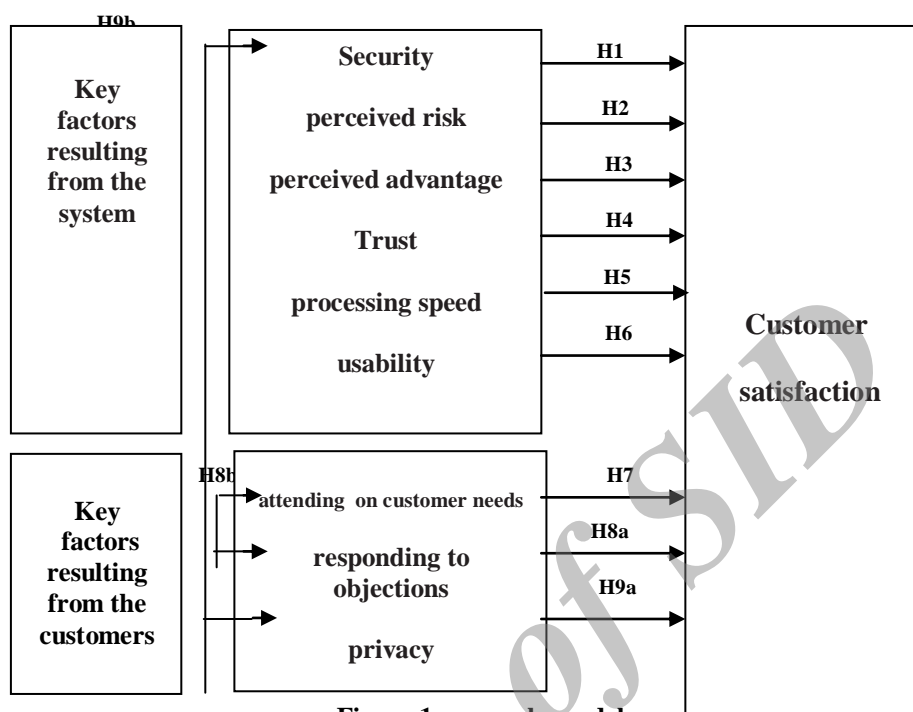


Figure 1. research model

4. FORMULATING HYPOTHESES

Based on what preceded in the literature review, two major set of factors affect customers' satisfaction:

1. Key factors resulting from the system
2. Key factors resulting from the customers.

Key factors resulting from the system are subdivided into six categories:

Security - Perceived risk - Perceived advantage - Trust - Processing speed and Usability.

Key factors resulting from the customer are subdivided into three categories:

Attending on customer needs - Responding to objection - Privacy.

Key factors resulting from the system

Key factors resulting from the system are detailed below:

H1: Security

Security can be interpreted as keeping the details of a transaction confidential, protecting customers' information in and out of the system against misuse and /or embezzlement, or any other criminal act. Otherwise, individuals might feel unsafe and be scared of online payment and interaction for fear of their personal information being robbed and misused.

Security remains one of the most crucial and well researched areas of study in payment systems (Abrazhevich, 2004). Being worried about the security of the network is quiet an obvious and normal phenomena and more

security requires more enhancement in the protocol of electronic payment in order to electronic users' trust in online payment system.

Due to the increase in bank mergers and acquisitions, customers are sceptical about the security of online payments (Abrazhevich, 2004). It is agreed that online sales are not as safe as conventional sales; people are suspicious since there is no human factor involved in the sale and it is done in a virtual setting (Whiteley, 2000). The existing literature recognizes the security concerns of users and the effect they have on the satisfaction of electronic payment systems (Kurnia and Benjamin, 2007).

H1. Security has an influence on customer satisfaction.

H2: Perceived risk

Bauer (1960) reported that perceived risk relates to uncertainty and consequences associated with a consumer's action. The level of risk is said to diminish when individuals trust others who are involved in the transactions (Featherman and Pavlov, 2003). Kim and Prabhakar (2000) ignore the link between perceived risks and trust.

However, Jarvenpaa et al. (2000) report that risk mediates the role between satisfaction and trust to purchase online. There is also research carried out indicating the influence of perceived risk on customers' decision making regarding use of online transaction activities. Such research support that customer are less agitated or less provoked only when, among other things, they observe that the risk factor involved in modern electronic systems is less than the traditional payment system.

By letting out customer's personal information, they may face serve consequences inclusive of economic risk, and risk of breaching their privacy. The customer who

attempts to pay online faces the risk of their pass word being stolen, their being hacked, robbery, and other criminal risks. Therefore, to decide whether to purchase some goods online or not would be influenced by the perceived risk.

H2. Perceived risk has an influence on customer satisfaction.

H3: Perceived advantage

The technology acceptance model (TAM) has been used to understand technology acceptance behaviour and to decide the satisfaction decisions of various e-commerce activities (Abrazhevich, 2004; Khalifa and Ning Shen, 2008).

With respect to whether to use a credit card online or not, many customers are unsure. As such, financial transaction systems have developed in order to overcome such suspicion or doubt. Such systems encourage customers to perform simple transactions. Personalized services transactions can be performed within a click of a mouse and the need to duplicate form filling has diminished (Riggins and Rhee, 1998). Convenience of usage in adopting EPS occurs when customers can pay their bills online at anytime, anywhere, regardless of location. In the traditional model, each customer is obligated to go to the bank order, and wait until the money is transferred. Such a jazz cause the customer to feel more interested in admitting electronic payment systems. Using such systems would be cheaper as there is less bureaucracy and less time would be wasted.

H3. Perceived advantage has an influence on customer satisfaction.

H4: Trust

Trust is widely recognized as a key factor in facilitating online transactions (Gifen, 2003, Xiaorui Hu 2010).

Trust is actually the customer's assurance of this matter that this money and personal information are not misused against their will and without their permission. Even if we use an imperfect system, consumers want to believe that vendors, banks and credit card companies will not misuse their personal information (Abrazhevich, 2004).

Limited control over the seller and the absence of proven guarantees that the seller will not engage in undesirable opportunistic behaviors, mean that trust is a critical aspect of online auctions. (Chao-MinChiu, 2010, Pavlou and Gefen, 2004; Pavlou and Gefen, 2005)

The other aspect of this issue is that the customer must trust in the payment system admitted by the other user. The existing literature points out that high level of user Confidence and trust in EPS is a contributing factor for the successful satisfaction of e-payment systems (Kurnia and Benjamin, 2007). In analyzing the success of the Octopus system it was found that trust in the system was the contributing factor for its wide usage.

This finding was backed by the survey conducted by Abrazhevich (2004), who found that customers will not use systems which they perceive to be less trustworthy. Similarly, another study proved that if trustworthiness is there, satisfaction of EPS is credible (Kniberg, 2002). The higher the levels of consumer trust, the higher the degree of purchase intentions of consumers, and the easier it is to retain consumers.

H4. Trust has an influence on customer satisfaction.

H5: Processing speed

Speed of processing is a critical factor in acquiring high customer satisfaction, when customer observes that the speed of processing is low, they would lose their interest in using or prospective uses of the system they currently make use of. Third party processing speed play an important role in reducing the perceived risk involved with the purchase (Dowling and Staelin, 1994). Also, high speed of processing plugs an important role in reducing customer anxieties regarding breach of their privacy and enhancing their security.

H5. Processing speed has an influence on customer satisfaction.

H6: Usability

Provided that online application and use is safe and sound, complex transactions can also be carried out. If payment process becomes time consuming and complex, the customer may lose their interest and quit to use some other web related activities and transactions. Amazon has adopted a one-click approach for payments to reduce effort on the part of customers in the authentication process. If customers perceive more convenience through searching online for information they will most probably switch to search for information online (Gao, 2005; Truong and Jitpaiboon, 2008).

H6. Usability has an influence on customer satisfaction.

Key factors resulting from the customer

Key factors resulting from the customer are detailed below:

H7: Attending on customer needs

Some of the factors such as market competition, Legal frameworks and customer's expectation trigger concentration on providing

services to customers, and its hub is customers' needs. Company have got acceptable privileges regarding serious attention to customers' need. For instance, using data resulting from customers' complaints at strategic and operation levels, has reduced the probability of legal attempts against the organization and has enhanced marketing intelligence, loyalty to the brand, and internal marketing. One of the most effective ways of enhancing answers in customers' needs is to computerize the processes and making use of MIS.

H7. Due to customer needs has an influence on customer satisfaction.

H8: Responding to objections

As a response to being more consumer oriented, many authors have investigated various consumer complaint processes instituted by retailers (Saxby et al., 2000; Singh and Widing, 1990; Stephens and Gwinner, 1998; Richens, 1987) and many others have emphasized the importance of developing a system of responding to objections of customer (Lam and Dale, 1999; Johnston, 2001).

Previous research suggests that a well-designed and well-implemented system of responding to objections of customer may highly influence customer satisfaction and hence loyalty (Berry and Parasuraman, 1991)

Improvement in responding to customers' problems regarding system deficiencies has some advantages in respect of the welfare of the company's staff; For example, if the design of the responding to objections system is easy to use by employees and if it also satisfies customers, this could result in better control of customers feeling by the staff, and to inflict less stress upon the staff in performing their duties in the company.

H8a. Responding to objections has an influence on customer satisfaction.

H8b. Responding to objections has an influence on attending on customer needs.

H9: Privacy

In general, privacy is a term related to people meaning to let people free of any disturbance to their righteous private realm, and respecting and not interfering with their personal lives intentionally or unintentionally. Today, less and less interference with one's privacy is tolerated. Personal and private information includes career and one's records, and it is to the customer to decide how much information about him/her and when can be allowed to be displayed to others. Personal rights or realm may include personal information and group or organization information. The definition of the word privacy may be quite fuzzy and variant and interpreted differently. In most organizations, top officials are quite aware that it is to them to protect large bulks, information collected from customers soundly.

H9a. Privacy has an influence on customer satisfaction.

H9b. Privacy has an influence on Security.

5. RESEARCH METHODOLOGY

Instrument Design

The questionnaire distributed amongst participants, was composed of three sections tapping their perceptions of electronic payment systems. The first section of the questionnaire touched on the relationship amongst the constituents/structures, base on the literature, and tackled customers' satisfaction in using electronic payment systems. This section was composed of 43 question items clustered according to 9 structure/ constituents. The second section included five issues measuring customers' satisfaction in seeking an electronic payment system. The last section of the

questionnaire covered personal characteristic of individuals. The first two sections of the questionnaire were in the Likert Scale format.

6. Pretest and pilot study

A professor of Business Management checked on the questionnaire with respect to the wording so that semantically and descriptively flaws are reduced. Some refinements were made accordingly. The pre-test was randomly administrated on 35 individual from the city of Esfahan who had used the ATM system quite regularly before. The Cronbach's Alpha scale was found be between 0.80 to 0.95, an index well above the common accepted 0.70. The questionnaire was redefined then and 43 items were refined based on the feedback received so that some word similarities were critically considered and certain rewording was done.

Sampling selection

Then, in a large scale, the questionnaires were distributed amongst the users in a large number of Esfahan ATM locations and were collected after they were filled out. Out of 754 questionnaires distributed, 548 were found fully answered and proper for statistical analysis.

Demographics

42 percent of the participants were female while 58 percent were male. Most of the participants were between 21-35. Almost 60 per of the participants had academic studies. Nearly half were university education. 85% of the respondents are experienced any problem using ATM services. Just one percent of the respondents are used the internet to carry out transactions before.

Data analysis

The SEM was used to validate the relationships amongst the variables in the research model. In this study, the LISREL 8.53 software was also applied to analyze the data.

Measurement model

The Measurement Model was used to estimate the validity and reliability of the items and structures/constituents in this research model. Results of the measurement model fit (Table 1). Goodness-of-fit statistics, indicating the overall acceptability of the measurement model fitting, are at a reasonably acceptable level: $\chi^2/df = 3.66$, GFI = 0.8, NFI = 0.97, NNFI = 0.97, CFI = 0.98, IFI = 0.98, RFI = 0.96 and RMSEA = 0.069. The model estimation is conducted by applying the maximum likelihood approach, with the item correlation matrix as input.

As shown in Table 1, the fit indicators also indicate a good model fit: $df = 3.62$, GFI = 0.86, AGFI = 0.83, NFI = 0.96, NNFI = 0.97, CFI = 0.97, IFI = 0.97, RFI = 0.97 and RMSEA = 0.062. Furthermore (as shown in Table 2), all the item reliability are above 0.6, and all the item loadings to the corresponding constructs are above 0.7. The composite reliabilities of the constructs range from 0.85 to 0.94. AVE ranges from 0.6 to 0.74. All the four conditions for reliability and convergent validity are met. Therefore, the reliability and convergent validity of the instrument are confirmed. Moreover, the discriminant validity of the measurement instrument is conducted. It reveals that all of the squared factor correlations (off-diagonal elements) have lower values than the corresponding AVE (Table 3). Therefore, it is concluded that the scales have construct reliability and validity.

Table 1. OVERALL Model Fit after Model Adjustment

Fit indicators	Criteria	Results
2/df	5	3.62
GFI	0.8	0.86
NFI	0.9	0.96
CFI	0.9	0.97
IFI	0.9	0.97
RMSEA	0.08	0.062

Table 2. MEASUREMENT Model Fit

Factor	Items	Item loading	AVE	Construct reliability
SE: Security	4	0.7~0.9	0.72	0.91
PR: perceived risk	3	0.82~0.87	0.72	0.89
PA: perceived advantage	3	0.71~0.88	0.68	0.85
T: trust	3	0.81~0.91	0.72	0.88
PS: processing speed	5	0.76~0.82	0.62	0.89
U: usability	4	0.76~0.92	0.74	0.92
FO: attending on customer needs	5	0.71~0.83	0.60	0.88
RT: responding to objections	5	0.75~0.81	0.63	0.89
P: privacy	5	0.82~0.86	0.72	0.94
CS: customer satisfaction	5	0.76~0.82	0.71	0.88

Table 3. DISCRIMINATE Validity

Squared Factor Correlations								
SE	PR	PA	T	PS	U	RT	P	C
0.72								
0.18	0.72							
0.29	0.20	0.68						
0.29	0.12	0.49	0.72					
0.49	0.15	0.34	0.33	0.62				
0.11	0.01	0.06	0.08	0.13	0.73			
0.28	0.11	0.18	0.16	0.38	0.02	0.60		
0.34	0.15	0.26	0.32	0.44	0.06	0.39	0.63	
0.50	0.14	0.34	0.32	0.63	0.09	0.43	0.57	0.72

Table 4. ORDER of importance of critical factors

Factor	%
SE: Security	28
PR: perceived risk	6.4
PA: perceived advantage	6.3
T: trust	18
PS: processing speed	1.8
U: usability	7
FO: attending on customer needs	13
RT: responding to objections	3.6
P: privacy	11
All	4.9

Order of importance of critical factors

The hierarchy of importance of the critical factors has been reported in Table 4 .

6. Structural Model

The structural model tests the proposed hypotheses between constructs. Results reveal that goodness-of-fit statistics are at a reasonably acceptable level: $\chi^2/df = 3.74$, GFI = 0.83, AGFI = 0.80, NFI = 0.97, NNFI = 0.98, CFI = 0.98, IFI = 0.98, RFI = 0.97 and RMSEA = 0.07. The measures of the structural model goodness-of-fit are acceptable. The squared multiple correlations (R²) for the

constructs as well as path coefficients for each Statistical significant path is calculated. Seven out of the 11 paths exhibit a p-value less than 0.05, while the remaining four are not significant at the 0.05 level of significance (Figure 2). The remaining results of research hypotheses are summarized in Table 4. Hypotheses H1, H3, H6, H7, H8a, H8b, H9a are supported. The combined effect of all factors achieves 84% of variance on customer satisfaction (R² = 84%).

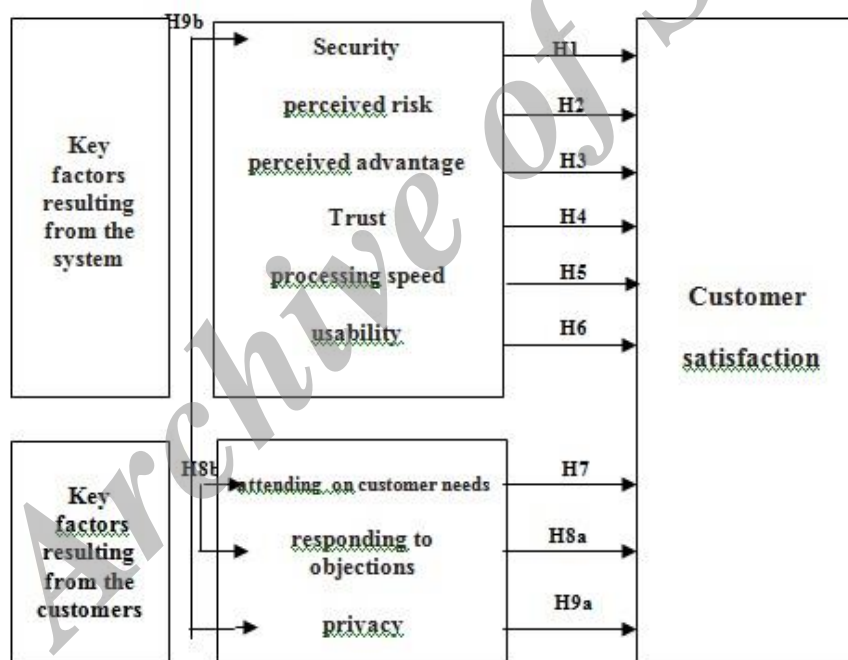


Figure 1. RESEARCH model

Table 4. RESULTS of the empirical study

Hypotheses	Results
H1. security has an influence on customer satisfaction.	Supported
H2. Perceived risk has an influence on customer satisfaction.	Rejected
H3. Perceived advantage has an influence on customer satisfaction.	Supported
H4. Trust has an influence on customer satisfaction.	Rejected
H5. processing speed has an influence on customer satisfaction.	Rejected
H6. Usability has an influence on customer satisfaction.	Supported
H7. Due to customer needs has an influence on customer satisfaction.	Supported
H8a. responding to objections has an influence on customer satisfaction.	Supported
H8b. responding to objections has an influence on attending on customer needs .	Supported
H9a. Privacy has an influence on customer satisfaction.	Supported
H9b. Privacy has an influence on Security .	Rejected

7. CONCLUSION

The aim of the study was to investigate customers' satisfaction in respect of electronic payment systems in Iran. To do so, the researchers made an analysis of the studies already carried out with respect to electronic payment systems in Iran and proposed a model. The model was later used in an experiment study to see which factors are crucially influencing the use of ATM's in Iran and directly affect customers' satisfactions. This research confirmed that security, attention to customer's needs, respect to privacy, easy usability of system, perceived benefit, response to customer objections and response rate, and system's information processing impact on customer satisfaction and trust, perceived risk have no impact. Finally, the research practically and theoretically contributes to identify and rank valuable factors from system designer view and policy-makers performance in online environment.

Identifying problems and constraints help to planners and decision makers to develop e-commerce and electronic banking in order to compose master plan.

Some of obstacles and problems of electronic payments are: cultural malaise in

using of electronic services, security holes which allow misuse of customer card data, robbing a bank bag containing electronic documents, the way to address IT violations, concerning from high liquidity in electronic transactions especially during receiving subsidies.

Finally, we propose try to reduce failure in electronic payment tools and attract mass media participation in order to build culture and facilitate using of the services. We must build culture of POS instead of receiving cash from ATM. Interbank communications network is developed on POS optimality in order to all bank cards be accepted and all banks must try to qualitative and quantitative increase of POS and enhance availability and trust of POS performance in 24 hours.

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