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Modeling the Role of Using Information Security on Users' Satisfaction

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----------**ABSTRACT**----------
This study is aimed to present theory model of users' satisfaction in Iran Saderat Bank in terms of using information security. This descriptive research is correlation-survey. A questionnaire was prepared and standardized by the author as a measurement tool. It includes two main factors involving three and two sub-components, respectively. The first one is information system function including information quality, system quality and supportive service quality. The second is work function and work relationship. The proposed questionnaire has some items and it is scored by Liker scale (very poor (1), poor (2), average (3), strong (4), very strong (5)). Kolmogrov-Smirnov test (K-S test) results showed that data is normal. Considering KMO>0.6 as well as Bartellet significance level is less than 0.05, so the questionnaire is constructed by validity and cronbach alpha values indicating its good reliability. Fridman test results showed that there is a significant difference between factors influencing on users' satisfaction in Iran Saderat Bank in terms of using information security that they include system quality, service quality, information quality, work function, and work relationship (M= 4.51, 4.12, 3.61, 3.52, 2.72, respectively). Also, confirmatory factor test results showed that research model has goodness of fit and the relationship between variables is significant.

Keywords- I**nformation security**, **users' satisfaction**

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I. INTRODUCTION

Companies' competition has been increasing in global markets since 1990 . In order to achieve competitive power, companies are looking for satisfaction and improving their business . According to expanded use of internet, information interchange and spent the expense of information integration, it is required to develop control and information displacement management and a comprehensive system to manage information security more and more [1]. Considering developed changes in organizational business and processes, organization need to apply information technology in the field of information interchange, financial interchange and control in order to keep their retention and competitive situation [2]. Appearing the first information security management standard in 1995, it was formed an organized attitude toward safety and information interchange environment[3]. For this, it is not possible to guarantee the space security of organizations information interchange frequently and it is necessary to do this in a safety cycle including planning, implementation, evaluation, and reform. In this case, each organization should control and monitor on advent, displacement and interchange of information in its organization based on a certain and planned methodology [4]. The purpose of information security management in an organization is to keep organization investment (software, hardware, information, and communication) against each limitation (such as unallowable availability to risky information caused by environment, system, and users); and for achieving this, a coherent plan is needed [5]. The process of information security management system cannot be implemented in a managerial discipline at once. This process is continuously done through a four-step safety cycle. It includes planning containing: 1) the development of former condition of information security management system; 2) performance such as implementation and execution of information security management system; 3) evaluation and control including monitoring activities and study on conducted actions; 4) improvement such as continuous improvement and keeping on this management system [6]. Through having necessary infrastructure, managerial support and specialized manpower are the most important factors to implement information security management system.

Lack of information technology infrastructure in organization is a reason preventing this system implementation in organizations [3]. User's satisfaction is one of the most important factors on information system success. As, if a user does not satisfy a system, he/she does not use that. User's satisfaction is so practical in different studies. Some researchers know them as a structure which is studied more in the information system

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[1]. Studies show that users are the major key point of software plan success; and disregarding users' viewpoint in different steps of system planning and implementation can lead to defeat a plan completely [1]. User's satisfaction is emotional and cognitive that users can achieve them through useful experience in an information system application. The purpose of this procedure is to recognize psychological process about information system function and it changed them into different types of users' satisfaction and dissatisfaction [9]. The impact of information system on organization is indirect and it is done by human, environmental and organizational factors. According to impossible measurement of information system impact, users' satisfaction brings valuable data for productivity, applying and competitive advantage information systems [1].

Users' satisfaction is based on psychological studies and it is described as a set of interference and traits motivated against different factors in work environment of users. Users' satisfaction is more defined as a satisfaction to the users' beliefs than meeting their needs in an information system; and it is indicated that information system which meets users' needs leads to their satisfaction [2].

Hedayat [9] conducted a study as "Evaluation of users' satisfaction to accounting software on Kano model basis". After collecting 27 factors of developing satisfaction on users of prepared accounting and financial software and distributing them among experts, a questionnaire was prepared and distributed among users of those five most applicable accounting software. 64 organizations received 300 questionnaires which 100 of them were collected and analyzed. Results showed that among 27 studied factors of developing satisfaction, users dissatisfied both documentation and participation.

Sarami-Raad [10] studied "the relationship between electronic commerce quality and users' tendency scale in Rasht Parsian Bank". In this study, 6 qualities are suggested to increase the tendency to use of electronic commerce: 1) transaction speed; 2) users-admired; 3) accuracy; 4) security; 5) easiness; 6) work experience. In order to evaluate the correlation between these 6 factors with dependant variable, about 413 customers of Rasht Parsian Bank was questioned (simple random sampling method). Results show that there is a significant and positive correlation between proposed and incline-to-use variables; also, these 6 factors were questioned for their significance in present than future. These results suggest that those variables are important while research is being done, but this cannot meet the customers' satisfaction. So, there is a significant gap between present and ideal values for customers.

Shahraki [11] conducted a research as "study of electronics students' satisfaction to electronic service of Sistan-Balouchestan University". Theory model was adapted the integration of former models. Electronics service variables in this study include security, performance, design and graphic, accountability, electronic payment and electronic registration. The essence of this research is correlation-descriptive done as survey method. It was used a questionnaire, interview and documentary study as research tools (2012-2013). Statistical population involves all students of Sistan-Balouchestan University. Statistical sampling was evaluated 388 using Cochran test.

A tool used for measuring the impacts of variables is a questionnaire including 27 questions and its validity was evaluated 965.0 using Cronbach alpha, and it was obtained through statistical tests using LISREL and SPSS. Results indicate that there is a significant and positive relationship as well as a strong correlation between electronic service quality and dimensions and students' satisfaction.

Qasemi [12] studied "An analysis on users' satisfaction scale to state websites in south Khorasan Governor.

This study is aimed to investigate and recognize criteria and items evaluating users' satisfaction to government websites service and ranking them in south Khorasan Governor. In order to determine these or study the latter researches about this, above factors were recognized. Studied samples involved 25 staff (managers of different departments) of south Khorasan governor. This study was done as survey-descriptive method and data was collected through the questionnaire. Reliability was obtained 0.87 using Cronbach alpha indicating acceptable reliability. Findings showed that eight main criteria (users' links, communication and information technology infrastructure, security, content, updating, availability, user' management and Persian calligraphy appreciation) are effective on evaluating users' satisfaction to government websites using Delphi technique and all these lead to increase users' satisfaction; as updating, availability, and user's management significantly influence on them. The purpose of this study is to present theory model of users' satisfaction in Iran Saderat Bank in terms of using information security.

II. RESEARCH LITERATURE

2.1 RESEARCH OBJECTIVES

1. Determining the factors influencing on users' satisfaction in Iran Saderat Bank in terms of using information security; and

2. Presenting a theory model of users' satisfaction in Iran Saderat Bank in terms of using information security

2.2 RESEARCH QUESTION

Q1. What are the factors influencing on users' satisfaction in Iran Saderat Bank in terms of using information security?

Q2. How is theory model of users' satisfaction in Iran Saderat Bank in terms of using information security?

III. METHODOLOGY

This is a survey-correlation research. Descriptive research includes information collection in order to investigate the hypothesis or reply above questions to current study status.

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A descriptive study reports and determines how a status could be. A common descriptive research includes viewpoints or opinion evaluation towards staff, events, or processes of an organization (Khaki, 2003).

Descriptive research describes and explains it and it is considered available relationship or condition of common period of evident impacts of current processes with developed ones (Khaki, 1992)

The main aim of this study is a correlation determining if there is a relationship between two or more quantitative variables (measurable) and through this, how much its extent and size are. Correlation study was proposed to develop a relationship and apply this for prediction. This evaluates some variables which related to the issue.

3.1 STATISTICAL POPULATION

3.1.1 SAMPLE AND SAMPLING METHOD

Present study used all users (staff) of Iran Saderat Bank as statistical population that 400 subjects were selected by formula reduction and cluster sampling was applied.

3.1.2 MEASUREMENT TOOL

A questionnaire was used as a tool that designed and standardized by researcher. It involves two main factors with three and two sub factors, respectively. The first one is information system function including 1) information quality; 2) system quality; and 3) supportive service quality. Second factor is the rate of benefit attempt involving 1) work function and 2) work relationship. The questionnaire includes 26 points and it is scored by Likert (very poor=1; poor=2; average=3; strong= 4; very strong=5). Visual, content and structural viability and reliability was determined through Cronbach Alpha using SPSS.

Data analysis methods

It was used kalmogrov-smironov test, KMO-Bartellet test using software, and Fridman Test using SPSS to measure data normality, structural viability, and evaluate Q1, respectively; and in order to evaluate Q2 (theory model), it was used confirmatory-factor analysis test through Amos.

IV. DATA ANALYSIS

Kalmogrov-smironov was used to measure data normality which its results are as follow:

Table 4.1 kalmogrov-smironov test results to measure data normality

M	SD	K-S test	α
0.120	0.186	1.97	3.146

According to obtained kalmogrov-smironov test and p> 0.05, we can conclude that data is normal.

KMO and Bartellet were used to measure the viability of questionnaire and reliability was measured using cronbach alpha as follow:

Table 4.2 results of KMO, Bartellet, and Cronbach alpha to measure viability and reliability

Item	Viability		Reliability
	KMO	Bartellet	Cronbach's alpha
Informative system function	0.782	0.000	0.781
Benefit attempt ratio	0.814	0.000	0.896
total	0.787	0.000	0.884

Considering KMO>0.6 and significance level of Bartellet is less than 0.05 (α<0.05), it can be concluded that proposed questionnaire has structural viability. And Cronbach's alpha level indicates good reliability of the questionnaire.

Q1- What are the factors influencing on user satisfaction of Iran Saderat Bank in terms of using information security?

Table 4.3 Fridman test result on factors influencing on user satisfaction of Iran Saderat Bank in terms of using information security

Item	Mean	Rank
System Quality	4.51	1
Service Quality	4.12	2
Work function	3.61	3
Work relationship	3.12	4
Chi2= 225.255 α= 0.000		df=4

According to obtained Chi value and p<0.05, these differences between rankings (factors) are significant; the mean rank of factors influencing on users' satisfaction of Iran Saderat Bank are system quality (M=4.51), service quality (M=4.12), information quality (M=3.61), work function (M=3.52), work relationship (M=2.72), respectively.

Q2. How is theory model of users' satisfaction in Iran Saderat Bank in terms of using information security?

Confirmatory-factor method was used to test this research question which results are as follow:

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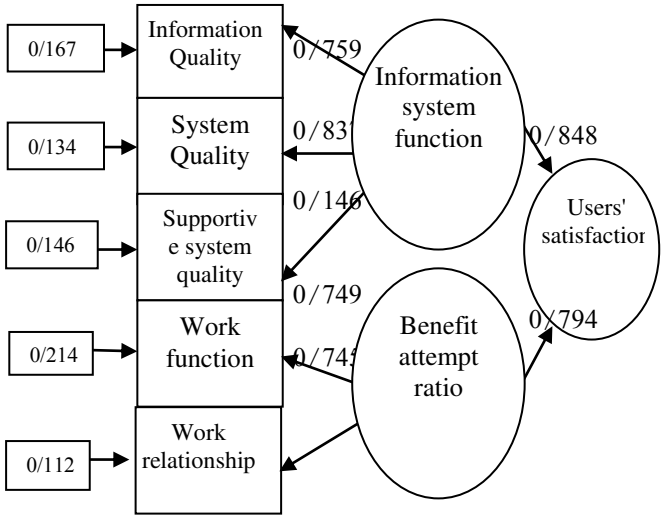
Figure 1. Conceptual Model



Obtained load factor shows that there is a significant relationship between all variables (λ>0.03 indicates the significant relationship between two variables).

Table 4.4 Model goodness of fit

Index	Confirmed	Obtained	Result
CMIN	>0.05	71.56	Confirmed
RMSEA	<0.1	0.046	Confirmed
AGFI	>0.9	0.961	Confirmed
GFI	>0.9	0.964	Confirmed
NFI	>0.9	0.984	Confirmed
CFI	>0.9	0.959	Confirmed

Due to obtained fitness in all indices, it can be concluded that model has a good fit.

Table 4.5 Regression coefficient in conceptual model and significance of load factor

Model relations		α	t CR	SEM	Estimation	Results
Users' satisfaction	Information system function	0.001	13.898	0.060	0.841	Confirmed
Users' satisfaction	Benefit attempt ratio	0.001	18.335	0.058	1.067	Confirmed
Information system function	Information quality	0.001	15.561	0.046	1	Confirmed
Information system function	System quality	0.001	12.234	0.054	0.871	Confirmed
Information system function	Service quality	0.001	14.561	0.056	0.755	Confirmed
Benefit attempt ratio	Work function	0.001	12.861	0.064	0.764	Confirmed
Benefit attempt ratio	Work relationship	0.001	15.654	0.081	0.877	Confirmed

According to t values and p<0.01, therefore, the relationship between variables are significant.

V. DISCUSSION AND CONCLUSION

Fridman test was used to evaluate Q1. The results showed that considering the obtained Chi2 and p values (p<0.05), the difference between the ranks (factors) is significant and factors influencing on Bank users' satisfaction in terms of using information security are system quality (M=4.51), service quality (M=4.12), information quality (M=3.61), work function (M=3.52), and work relationship (M=2.72), confirmatory-factor analysis method was used to test Q2.
The results showed that according to obtained loads factor, there is a significant relationship between all variables (load factor>0.3 indicating the significant relationship between all variables); also goodness of fit showed that proposed model works well.

VI. FUTURE RESEARCH AND RECOMMENDATION

1. According to results showing the positive impact on users' satisfaction, so it is suggested that necessary planning and action are done to improve information security management in Saderat Bank.

2. This study could be done in other Iranian Bank.

3. A research can be studied the factors influencing on information security improvement in Iran Saderat Bank.

4. The criteria of using information security could be compared in different banks of Iran.

5. A research can be studied the other effective factors on users' satisfaction in Iran Saderat Bank.

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