SRPH Journal of Interdisciplinary Studies
Volume 2, Number 1: (7-19), 2020
Available online at: http://sjis.srpub.org/

Analyzing Advantages and Benefits of Information Technologies in Organizations

Rayhon Davoudizadeh[1] and Seyed Amin Hosseini Seno[2]
[1]*Department of Management, Ferdowsi University of Mashhad, Mashhad, Iran.*
[2]*Department of Computer, Ferdowsi University of Mashhad, Mashhad, Iran.*

Article history:

Received date: 18 October, 2019
Review date: 13 December 2019
Accepted date:25 December 2019

Keywords:
technology excellence, service experience, attitude to technology, intention to use technology services.

Abstract

The aim of this research is analyzing advantages and benefits of information technologies in organizations. For this purpose, 357 customers of electronic banking services participated in the study. They replied to questionnaires of perceived ease of use, perceived usefulness, quality of system service quality, attitudes to technology, service experience, and intention to use technology services. Structural equation modeling with SMARTPLS software has been used to analyze data. The results indicate that the impact of technology excellence on service experience as well as attitude to technology on intention to use technology services is positive and significant.

Please cite this article as Davoudizadeh R., Hosseini Seno SA. 2020 Analyzing Advantages and Benefits of Information Technologies in Organizations. SRPH Journal of Interdisciplinary Studies Volume 2, Number 1: (7-19)

Introduction:

With the rapid growth of modern technology of telecommunications, Internet suggests a simple and effective way to provide e-commerce services to millions of users through wired communication (Lu et al., 2010). Man of the third millennium is trying to move away from traditional patterns and create new model adapted to requirements of the information age by accelerating the development and application of information technology in various sectors of society. Like most service providers in this regard, banking system in recent decades has turned to capitalize quickly on new technologies to provide customer service, as a way to control costs, attract new customers, and meet the customers' expectations. It has put on its agenda the use of these technologies (internet banking, telephone banking, ATM machines, etc.) as a strategic necessity (Joseph and Stone, 2003; Chen and Zhang, 2016). Development and application of information technology in various fields, especially banking, is a consequence of information technology capabilities that has been welcomed recently in the business world (Liébana-Cabanillas, 2015). Entering information technology and internet into the realm of financial transactions not only have facilitated the transactions but also have reduced financial costs very much. Hence, all the big banks in the world are going to enter faster and more seriously in the markets of electronic transactions and provide banking services via the Internet to their customers (Bagherzadeh, 2009; Chmielarz & Zborowski, 2015). Despite considerable investments in the field of information technology users, reports indicate that some users do not use them while it is available for them (Damghanian & Siah Sarani Kajoori, 2012). Although, Iran has tried much to increase providing banking services, it has a long way to reach the position of developed countries; there will be many barriers in this regard including lack of appropriate infrastructure such as communication networks, cultural problems for the acceptance and use of electronic services, or problems related to management systems. In order to increase the use of electronic banking services, bring prosperity for electronic banking, increase competitive advantages in global market, identify factors influencing the adoption of Internet banking services, and providing the necessary solutions. This research tries to study advantages and benefits of information technologies in organizations.

[DOI: 10.29252/sjis.2.1.7]

Research Background:

1. **Technology Excellence**:
Technology excellence is defined as the degree to which technology is perceived when using as high technology (Wang, 2015). Users tend to use technologies that show them more favorable, more efficient, more reliable, and more accountable (Wang, 2015; Mulfari et al., 2015; Hu et al., 2009; Cao, Zhang, Sydel, 2005). The four characteristics of perceived ease of use, perceived usefulness, system quality, and quality of superior service technology are the factors related to the users (Wang, 2015). Accordingly, this research sees technology excellence as a multi-dimensional structure.

2. Usefulness and Perceived Ease of Use

In order to study the amount of technology acceptance by users, several theoretical models have been developed and tested. The most important model is Technology Acceptance Model by Davis, 1989). The model designed by Davis (TAM) was the classic model for explaining the behavior of computer use and other variables related to technology acceptance. TAM model is founded based on theory of reasoned action. It is asserted that theory of reasoned action is the best predictor of intention to use behavior (Fishbein & Ajzen, 1975; Yang et al., 2015). The bases of this model are perceived usefulness and perceived ease of use. Perceived ease of use refers to one's belief about the idea that use of technology does not require physical and mental effort (Davis, 1989; Baran & Stock, 2015; Martins, Oliveira & Popovič, 2014). Thus, the lower effort required to learn the technologies, the higher users they will have (Klopping & McKinney, 2004). Perceived usefulness refers to the individual believe that using the technology would enhance work performance (Davis, 1989; Al-Qeisi et al., 2014; Martins, Oliveira & Popovič, 2014). In this manner, their work performance in the organizational context increases much, it is more useful, and they use more (Sheikh Shoaei, & Oloomi, 2010). Previous studies have shown that perceived usefulness and perceived ease of use influences on persons' attitude (positive or negative emotions due to evaluation of about a specific behavior) about the application of a technology help making decisions on the use of this technology (Srite, 2000; Hernández et al., 2008; Lin, 2008; Chang et al., 2008; Kuo & Lee, 2011; Oh & Yoon, 2014).

3. **Service Quality**:
Service quality is a distinctive element and the most powerful competitive weapon (Wong & Shoal l, 2003). Quality of service is defined as a universal attitude or judgment about the predominance of a service that is resulted from a comparison of customer expectations and their perception of the actual performance of services (Harrison, 2000; Dubé, 2015). Electronic service is known as web-based service that is transmitted via the Internet to customers (Muhammad et al., 2016; Zhuang & Babin, 2015). High quality of service is considered as the key to success in a competitive market of services. Quality of service depends on two factors: expected service and perceived service. Grunrus (1984) states that previous experience about a service can be effective in customer expectations while perceived service results from customer's perception of the service (Bolton & Drew, 1991; Parasuraman et al., 1988; Karjaluoto et al., 2015).
It is said that quality is a multidimensional phenomenon and its important dimensions should be understood to achieve service quality. Based on the idea of gap between expectations and perceptions, Parasuraman et al. (1988), have identified five main dimensions of service quality. In this way, they invented a scale to measure service quality in 1988; it is called SERVQUAL (service quality) (Babakus & Inhofe, 2015). This model has gained wide adoption in the world and it is used in various service industries such as medical schools, hospitals, retail and department stores, universities and higher education institutions, tourism enterprises, banks, hotels, etc. It is still the most widely used instrument to measure service quality. The dimensions of this model are reliability, responsiveness, assurance, empathy, and tangible factors. These dimensions have been identified in the following (Hall et al., 2016; Wong and Shoal, 2003; Parasuraman et al., 1988). Reliability is met when services is delivered to the customer at the right time, in the same promised form, and without any mistake (Jemmasi et al. 2011; Kao & Von, 2015). Reliability includes characteristics of competent services providing, politeness, and respect for the customer, communicating effectively with customers, and the belief in the general principle that affection and confidence of customers are the best advantage and benefit the provider (Calabrese, 2012). Responsiveness means providing services immediately; if the service is not provided well, ability to immediate compensate and skills can make customers' attitudes and beliefs about the quality of service positive (Calisir et al., 2014; Tamwatin et al., 2015). Empathy includes the features of customers' closeness to the provider (being kind and having good moral character), being sensitive to customers' needs, and efforts to understand them (Jemmasi et al. 2011).

[DOI: 10.29252/sjis.2.1.7]

Quality of tangibles refers to appearance of physical facilities, staff, and available means of communication in supply of services (Jemmasi et al. 2011).

4. System Quality:

System quality reflects interface design, easy, fast, competence, and effectiveness of loading storage of information (Wang, 2015). The correct definition of quality is to meet and surpass the expectations of users (Kelemen et al, 2014). Quality of system is one of the important factors of success of technology. System quality indicates designed systems aiming to correspond information needs and adherence to relevant standards with regard to users (Gorla, Somers, & Wong, 2010). Moreover, system quality represents information processing, providing key features and key functions for learning and easy to maintain (Wang, 2015). Fulfillment of customers' expectations by system quality is performed through attractive presentation, user-friendly interface, fun needs of users for change, and satisfaction of beneficiaries (Al-Mamary& Shamsuddin, 2015; Gorla, Somers, & Wong, 2010).

5.Service Experience:

Experience of using technology services is another variable in the history of the subject as a predictive factors related to its use (Wang, 2015). Although there are several definitions in this regard, all agree that the customer experience must include interaction with people, process, or system. Experience has been defined as a common attractive action between its creator and customer; here, the customer perceives the values and maintain them in his memory (Poulsson & Kale, 2004; Wang, 2015). In addition, in is known as understanding experience as a learning process fulfilled during the course of time while the customer reacts with its different dimensions (Gupta & Vajic, 2000). Service experience is indeed a collection of interactions among the customer, the service, and a company or an organization that the interactions increase in the following. The personal experience and customer concerns in different levels indicate that the evaluation depends on a comparison between customer expectations and incentives offered by the company (Martin et al., 2015; Jantle et al., 2007).

Venkatesh et al. (2000) found that direct experience with technology over time causes a much better evaluation of benefits and costs associated with the use of technology. Igbaria et al. (1995) showed that technology experience influences beliefs directly and indirectly through attitude, the skills, and expertise of the users. Pine and Gilmore (1999) described successful experiences as unique, memorable, and sustainable customers over time. Schmitt (1999) emphasizes that customer experience is sensory, emotional, cognitive, behavioral, and relational manifestations; it is a relationship replacing functional values. Therefore, attitudes forming due to direct experience are more powerful and they can predict behavior better than other attitudes. Besides, direct experience and personal interests makes attitudes more accessible; in increases their impacts on behavior (Shin, 2015; Wang, 2015). Moreover, previous experience grants users sense of control over system. When the users feel control, they are more likely to trust the system (Weisberg et al. 2011).

Researchers have mentioned a number of factors as components of the service experience. The components are flow, superior performance, extreme happiness, and excitement (Wang, 2015). Flow is a general feeling in people when they are involved fully with the subject. When the customers enter the sense of flow at the time of using the service, they are severely apt to be attracted by their activity because they lose the meaning of time and self. In this situation, they feel that they are only related to the assignment; thus, they disregard their thinking and perception (Wang, 2015). The superior performance is similar to peak performance; it refers to the full use of the potentials for effective behavior and achieving optimal performance. The superior performance possess two distinctive characteristic including "concept of self" in a specific process and "full concentration" used for studying range of research topics related to human performance such as productivity and creativity (Privette & Brundrick; 1991; Wang, 2015). Extreme happiness indicates the optimal level of subjective experience; it provides moments of greatest joy that are a combination of intrinsic motivation and perceived pleasure. Such experience has very high emotions that are different from typical psychological experiments in terms of intensity, meaningfulness, and richness (Privette, 1983; Wang, 2015). Excitement is one of the most important elements of experience. Previous research has shown that excitation occurs due to effect of an individual's emotional response to a location or position. Excitement resulted from interest and positive emotions are one of the essential aspects of experience to encourage continuing later motivation and conflict (Wang, 2015). Excitation creates positive emotions that lead to individuals' motivation to employ opportunities for discovery, thinking, learning, and receiving feedback in order to satisfy the curiosity as a bridge to perform other tasks (Shernoff et al., 2003).

[DOI: 10.29252/sjis.2.1.7]

6.Attitude to Technology:

Ajzen (1991) has defined attitude as a person's readiness to respond favorably and unfavorably to an object, person, event, organization, or other distinguishable aspects of the environment. In this regard, Mellon (1990) believes that this definition of attitude is suitable for attitude to technology. He defined attitude to technology as a person's readiness to respond favorably and unfavorably to technology, applications, managers, authorities of technology service sector, or a process related to the use of the system or application (Guo & Zhou, 2015). Tamar and Asmadar (1998) argue that attitude to technology has four main elements. (1) Thinking about technology as a means of learning; (2) validating technology as an important tool; (3) recognizing that technology is a means of entertainment; (4) Realization that technologies are associated with some stereotypes.

The relationship between attitude and behavior in the researches about technology are very contradictory the same as other fields. Huang & Liaw (2005) argues that the level of system power and complexity makes no difference. In fact, amount of using technology among users depends on their positive attitude. Kim, Chun, and Song (2009) studied 18 investigations on the relationship between attitude and behavior (intention to use). The results showed that five studies assert no relationship between attitude to technology and intention to use it. Seven studies showed partial and insignificant relationship. Six studies indicate a full relationship between attitude to technology and intention to use. Other investigations argue that attitude to technology influences on the intention to use technology (Ramos-de-Luna, 2014; Huang et al., 2014; Yasa, Ratnaningrum, , & Sukaatmadja, 2014).

Table 1. represents the conducted studies on the research

Researcher	Year	Title	Instrument	Results
Susanto, Chang, & Ha	2016	Determinants of continuance intention to use the smartphone banking services	Questionnaire	Perceived usefulness, user satisfaction and trust have a significant impact on the decision to use smart banking services.
Wang	2015	Determinants of mobile value-added service continuance	Questionnaire	Technology excellence has a significant positive impact on service experience and a intention to use. Service experience has significant and positive impact on the intention to use
Viscinsco et al.	2015	The impact of website dimensions on customer experience, perceptions and behavioral intention	Questionnaire	Results showed that the quality of the web site has an impact on the decision to use and the user experience in this regard has a moderator role.
Ramos-de-Luna et al.	2015	Determinants of the intention to use NFC technology as a payment system	---	Attitudes, subjective norms, and innovation are the determinants of using technology.
Ashraf, Thongpapanl, & Auh	2014	he Application of the Technology Acceptance Model Under Different Cultural Contexts	Questionnaire	Results showed that usefulness and perceived ease of use is effective in consumers' intention to use online payment in both Canada and Pakistani culture.
Huang, Liu, Huang, & Yeh	2014	Adopt Technology Acceptance Model to Analyze Factors Influencing Students' Intention on Using a Disaster Prevention Education System	Questionnaire	Perceived ease of use has positive and significant effect on intention to use and perceived usefulness. Perceived usefulness has positive and significant effect on intention to use and attitude to use.
Santouridis & Kyritsi	2014	Investigating the Determinants of Internet Banking Adoption in Greece	Questionnaire	Results showed that perceptions of customers about usefulness and ease of use of Internet banking have influences on the decision to use.
Yasa, Ratnaningrum, , & Sukaatmadja	2014	The Application of Technology Acceptance Model on Internet Banking Users	Questionnaire	Ease of use and perceived usefulness have positive and significant effects on attitudes toward the use of Internet banking. Both perceived usefulness and ease of use have a significantly positive effect on actual use. Attitude to use also has a significant impact on actual use.
Pullman & Gross	2004	Ability of experience design elements to elicit emotions and loyalty behaviors	Questionnaire	Service experience has positive effect on customer loyalty and it leads to the willingness of customers to develop a relationship with the service provider.
Abdekhoda et al.	2013	Effective factors in information technology acceptance by staffs at the department of medical records based on Technology Acceptance Model in hospitals affiliated to Tehran University of	Questionnaire	There is a positive relationship of the perception of ease of use with employees' attitude toward IT and the actual use of it. Moreover, perception of the usefulness of the information technology has significant positive impacts on staffs' attitude towards IT and their actual

[DOI: 10.29252/sjis.2.1.7]

		Medical Sciences		use of IT.
Ghorbanizadeh, Nangir, & Rood Saz	2013	Meta-analysis of effective factors in information technology acceptance	-	Variables of employee empowerment, the extent of the use of technology, perceived ease of use and perceived usefulness have respectively the highest impacts on information technology acceptance in Iranian organizations.
Moradi et al.	2011	Effective factors in information technology acceptance by police forces. Bimonthly Journal of Police Human Development	Questionnaire	Perceived usefulness, subjective norms, perceived ease of use, previous experiences and self- efficacy are the most effective factors in information technology acceptance by the police.

Overall, experimental background shows that there is no available research about advantages and benefits of information technologies in organizations, and attitude to technology on intention to use technology services in the context of a causal model, especially in Iran. Accordingly, this article increases richness of literature in this field by investigating the relationship between the variables.

Research Conceptual Model:

The research conceptual model is illustrated according to theoretical framework and research literature. In this model, technology excellence is regarded as independent variable, attitude to technology and service experience are considered as mediator variables, and intention to use technology services is dependent variable. Hence, our hypotheses of this study are as follows:

•First hypothesis: Technology excellence influences on attitude to technology.
•Second hypothesis: Technology excellence influences on service experience.
•Third hypothesis: Technology excellence influences on intention to use technology services.
•Fourth hypothesis: Attitude to technology influences on intention to use technology services.
•Fifth hypothesis: Service experience influences on intention to use technology services.
•Sixth hypothesis: Service experience influences on attitude to technology.
•Seventh hypothesis: Attitude to technology has a mediating role between technology excellence and intention to use technology services.
•Eighth hypothesis: Service experience has a mediating role between technology excellence and intention to use technology services

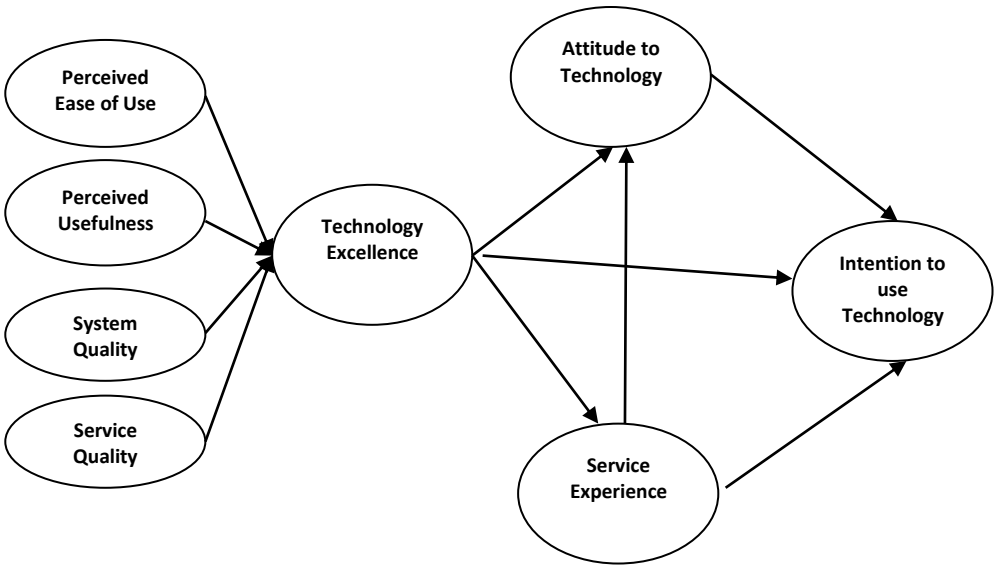

Figure 1: Research Conceptual Model

[DOI: 10.29252/sjis.2.1.7]

Method:
This is descriptive (non-experimental) research. The research plan employs correlation of structural equation by partial least squares method because the research investigates the relationship among variables in form of causal models. Chin, Marcolin, and Newsted (1996) suggest the use of this model in various management fields since data is very wide but relatively sufficient theoretical knowledge and established measurement tools are not available due to the high flexibility and having fewer restrictions compared to LISREL method. The current research uses partial least squares method due to its many advantages compared to the covariance-based approach. Moreover, since this is practical study, partial least squares method is more suitable for the investigation according to Chin, Marcolin, and Newsted (1996). SMARTPLS software has been used to analyze data.

1.Statistical Population and Samples
The research statistical population consists of customers using electronic banking services in Tehran. 400 questionnaires were delivered to them. 374 questionnaires have been filled; 17 questionnaires were eliminated from examination because many answers have been left blanked finally, 357 questionnaires have analyzed.

2. Data Gathering Tools
2-1.Perceived usefulness: Wang questionnaire (2015) has been used to measure perceived usefulness. The questionnaire has five items; items are evaluating based on Likret five-degree scale (from "strongly disagree=1" to "strongly agree=5").
2-2. Perceived ease of use: Vender Hejiden questionnaire (2004) has been used to measure perceived ease of use. The questionnaire has seven items; items are evaluating based on Likret five-degree scale (from "strongly disagree=1" to "strongly agree=5").
2-3. System quality: Ahn et al. questionnaire (2004) has been used to system quality. The questionnaire has three items; items are evaluating based on Likret five-degree scale (from "strongly disagree=1" to "strongly agree=5").
2-4. Service quality: Wang questionnaire (2015) has been used to measure service quality. The questionnaire has four items; items are evaluating based on Likret five-degree scale (from "strongly disagree=1" to "strongly agree=5").
2-5. Service experience: Wang questionnaire (2015), which has been developed based on former questionnaires, has been used to measure service experience. The questionnaire has 14 items measuring five dimensions of flow (3 items), superior performance (2 items), severe happiness (3 items), excitement (3 items), and involvement (3 items). Items are evaluating based on Likret five-degree scale (from "strongly disagree=1" to "strongly agree=5").
2-6. Intention to use technology services: Wang questionnaire (2015) has been used to measure intention to use technology services. The questionnaire has four items; items are evaluating based on Likret five-degree scale (from "strongly disagree=1" to "strongly agree=5").

Validity and Reliability of Research Tools (Testing Measurement Model):

Testing measurement model includes evaluation of reliability (internal consistency) and discriminant validity of research tools and components. In order to assess reliability, Fornell and Larcker (1981) suggested three criteria of reliability of each of the item, composite reliability of each construct, and average variance extracted. For reliability of the items, load factor of 0.6 and higher of each item in confirmatory factor analysis indicates appropriateness of any of the construct items. Moreover, load factor of items must be significant at a level of 0.01 (Gefen & Straub, 2005). In order to calculate t-statistics for determining significance of load factors, Bootstrap test (with 300 sub-samples) has been used. Dillon-Goldstein's coefficient (ρc) has been used to study composite reliability of each construct. Acceptable values ρc must be 0.7 of higher. Third criterion of investigating reliability is and average variance extracted (Fornell & Larcker, 1981). Fornell and Larcker suggested AVE values of 0.50 or higher; it signifies that the target construct explain 50 percent or higher of variance of its indicators (Chin, 1998). Load factors, ρc, and AVE for research variables have been presented in tables 2 and 3. The values indicate suitable reliability of research constructs.

[DOI: 10.29252/sjis.2.1.7]

Table 2: load factor, the composite reliability, and average variance extracted from research variables

Item	Load factor	Item	Load factor	Item	Load factor	Item	Load factor	Item	Load factor	Item	Load factor
Usefulness 1	0.67	Ease 1	0.71	System 1	0.79	Service 1	0.81	Attitude 1	0.81	Use 1	0.79
Usefulness 2	0.82	Ease 2	0.73	System 2	0.85	Service 2	0.78	Attitude 2	0.85	Use 2	0.80
Usefulness 3	0.77	Ease 3	0.77	System 3	0.83	Service 3	0.79	Attitude 3	0.76	Use 3	0.57
Usefulness 4	0.80	Ease 4	0.74			Service 4	0.74	Attitude 4	0.85	Use 4	0.71
Usefulness 5	0.83	Ease 5	0.72								
		Ease 6	0.67								
		Ease 7	0.68								
Cronbach's alpha	0.84		0.84		0.76		0.79		0.84		0.71
ρc	0.88		0.88		0.86		0.86		0.89		0.81
AVE	0.61		0.51		0.67		0.61		0.67		0.52
Note: All factor loadings are significant at the level of 0.01 and higher											

Table 3: load factor, the composite reliability, and average variance extracted from dimensions of service experience

Item	Load factor	Item	Load factor	Item	Load factor	Item	Load factor	Item	Load factor
Flow 1	0.88	Performance 1	0.88	Happiness 1	0.87	Excitation 1	0.92	Involvement 1	0.86
Flow 2	0.87	Performance 2	0.87	Happiness 2	0.89	Excitation 2	0.83	Involvement 2	0.84
Flow 3	0.85			Happiness 3	0.76	Excitation 3	0.89	Involvement 3	0.81
Cronbach 's alpha	0.84		0.71		0.79		0.85		0.78
ρ_c	0.90		0.87		0.88		0.91		0.87
AVE	0.76		0.77		0.71		0.77		0.70
Note: All factor loadings are significant at the level of 0.01 and higher									

To examine the validity of research variables, Chin (1998) proposed two criteria. First, each item must have the highest load factor on its construct; in other words, it should have low cross-sectional load on other constructs. Gefen and Straub (2005) argue that load factor of each item on the relevant construct must be at least 0.1 higher than the same item on other constructs. Second, square root of AVE of a construct must be higher than the correlation of the construct with other constructs. It indicates that correlation of the intended construct should be more correlated to its items comparing to other constructs. Table 4 reports cross-sectional load of items based on research constructs.

Table 4: Cross-sectional factor loadings to check the validity of questionnaires

	Usefulness	Ease	System	Services	Experience	Attitude	Use
Excellence 1	0.67	0.44	0.39	0.27	0.22	0.18	0.26
Excellence 2	0.82	0.61	0.47	0.43	0.36	0.30	0.39
Excellence 3	0.77	0.58	0.39	0.41	0.38	0.34	0.38
Excellence 4	0.80	0.56	0.57	0.56	0.48	0.37	0.49
Excellence 5	0.83	0.55	0.52	0.53	0.36	0.30	0.44
Excellence 6	0.44	0.74	0.52	0.50	0.39	0.34	0.44
Excellence 7	0.52	0.72	0.44	0.41	0.31	0.26	0.36
Excellence 8	0.41	0.67	0.56	0.44	0.37	0.28	0.42
Excellence 9	0.47	0.68	0.48	0.38	0.33	0.29	0.29

[DOI: 10.29252/sjis.2.1.7]

Excellence 10	0.34	0.71	0.52	0.40	0.28	0.27	0.32
Excellence 11	0.51	0.73	0.48	0.44	0.50	0.45	0.42
Excellence 12	0.47	0.77	0.52	0.52	0.44	0.31	0.41
Excellence 13	0.42	0.52	0.79	0.48	0.42	0.33	0.40
Excellence 14	0.49	0.55	0.85	0.39	0.49	0.33	0.40
Excellence 15	0.56	0.60	0.83	0.55	0.46	0.29	0.50
Excellence 16	0.46	0.49	0.53	0.81	0.33	0.28	0.46
Excellence 17	0.39	0.49	0.45	0.78	0.36	0.26	0.43
Excellence 18	0.48	0.50	0.41	0.79	0.45	0.37	0.49
Excellence 19	0.47	0.46	0.43	0.74	0.31	0.31	0.51
Experience 1	0.40	0.47	0.51	0.38	0.84	0.46	0.43
Experience 2	0.39	0.38	0.34	0.32	0.77	0.54	0.50
Experience 3	0.34	0.41	0.46	0.32	0.79	0.50	0.53
Experience 4	0.40	0.44	0.45	0.41	0.87	0.56	0.52
Experience 5	0.38	0.46	0.50	0.47	0.82	0.43	0.51
Attitude 1	0.34	0.40	0.32	0.28	0.51	0.81	0.43
Attitude 2	0.32	0.40	0.34	0.26	0.55	0.85	0.47
Attitude 3	0.29	0.31	0.29	0.37	0.41	0.76	0.41
Attitude 4	0.33	0.34	0.30	0.36	0.51	0.85	0.51
Technology 1	0.36	0.37	0.41	0.37	0.56	0.43	0.79
Technology 2	0.31	0.35	0.37	0.38	0.56	0.44	0.80
Technology 3	0.40	0.37	0.32	0.38	0.26	0.30	0.57
Technology 4	0.42	0.46	0.43	0.54	0.41	0.41	0.71

According to Table 3, all dimensions have the highest load factor on their own construct and the least distance between the relevant load factor to themselves is higher than 0.1; it shows that research variables have a proper validity. Table 5 reports correlation and second standard of validity (root square of AVE).

Table 5: Matrix of correlation and root-square average variance extracted from research variables

Variable	1	2	3	4	5	6	7
1. Perceived usefulness	0.78						
2. Perceived Ease of Use	0.64**	0.71					
3. System Quality	0.59**	0.62**	0.82				
4. Service quality	0.57**	0.62**	0.58**	0.78			
5. Service experience	0.39**	0.44**	0.38**	0.39**	0.82		
6. Attitude to technology	0.46**	0.52**	0.55**	0.46**	0.61**	0.82	
7. Intention to use the service	0.51**	0.53**	0.53**	0.62**	0.55**	0.62**	0.72

Note: The numbers on the diameter of the correlation matrix are the square root of the average extracted variance.

According to Table 5, square root of average variance extracted for all research variables is higher than their correlations with other variables. Thus, the second criterion for validity of variables is met. Moreover, the following values report the diameter of the correlation matrix for evaluating the relationship among variables. As observed, correlation coefficient of all variables is positive and significant at the level of $P<0.01$.

[DOI: 10.29252/sjis.2.1.7]

Findings:

Descriptive indicators (mean, standard deviation) of variables are reported in Table 6.

Table 6: Mean and standard deviation of research variables

Variable	Mean	Standard Deviation
Perceived usefulness	3.19	0.83
Perceived Ease of Use	3.05	0.78
System Quality	2.99	0.93
Service quality	2.69	0.87
Service experience	2.94	0.96
Attitude to technology	2.94	0.79
Intention to use the service	2.84	0.79

In order to predict the intention to use technology services, the proposed conceptual model has been examined by structural equation modeling method with respect to the research variables through partial least squares method. In addition, Bootstrap method (with 500 sub-samples) has been used to calculate the values of T-statistics for determining significance of path coefficients. Figure 2 shows the tested model of the relationship among variables. According to the figure, all path coefficients are significant. The numbers inside the circles are the explained variances for research variables.

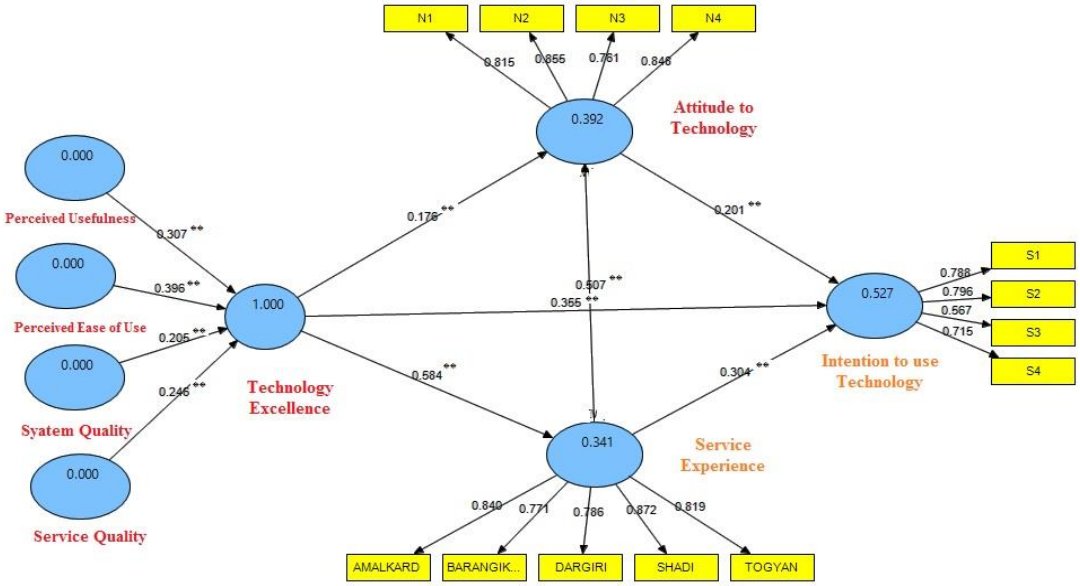

Figure 2: Tested model of intention to use technology

Table 7 represents estimation of path coefficients and explained variances for research variables.

Table 7: path coefficient and explained variance:

Variables	Direct impact	Explained variance
On intention to use technology from:		
Attitude to technology	0.020**	
Service experience	0.30**	0.53
Technology excellence	0.35**	
On attitude to technology from:		

[DOI: 10.29252/sjis.2.1.7]

Service experience	0.51**	0.39
Technology excellence	0.18**	
On service experience from:		
Technology excellence	0.58**	0.34
Indirect impact of technology excellence on intention to use through:		
Attitude to technology	0.04*	----
Service experience	0.17**	

*p<0.05, **p<0.01

As seen in Table 7, the impacts of technology excellence on service experience (β=0.58), attitude to technology (β=0.18), and intention to use technology (β=0.35) are significant and positive at the level of P<0.01). The impacts of service experience on attitude to technology (β=0.0.51), and intention to use technology (β=0.0.30) are significant and positive at the level of P<0.01). The indirect impact of technology excellence on intention to use technology through attitude to technology and service experience is positive and significant. According to Table 7, 53 percent of variance of intention to use technology, 39 percent of variance of attitude to technology, and 34 percent of variance of service experience are explained by variables of research model.

There are some approaches to evaluate the validity of a model in PLS. the approaches, called cross-validation, includes studying indexes of CV- Communality and CV-Redundancy. Communality index measures quality of measurement model of each block. Redundancy index, which is called aston-glycerate Q2, evaluates quality of structural models for each endogenous block with respect to measurement model. Positive value of the index indicates appropriate and acceptable quality for measurement and structural model (Tenenhaus et al., 2005). As seen in Table 8, positive values of CV- Communality and CV-Redundancy for all research variables indicate appropriate and acceptable quality for measurement and structural model.

Table 8: explained variance, communality reliability, and redundancy of variables

Research Variables	Q^2 (CV-Redundancy)	CV- Communality
Perceived usefulness	-	0.607
Perceived Ease of Use	-	0.514
System Quality	-	0.673
Service quality	-	0.610
Service experience	0.091	0.672
Attitude to technology	0.229	0.670
Intention to use the service	0.165	0.521

In addition to aforementioned indicators, the overall model fit index is in PLS of GOF (Goodness of Fit) index. It can be used to check the validity or the quality of PLS model. The index examines the model's ability to predict such as Seyyed Abbaszadeh et at. (2012) model; it also evaluates whether the testing model has been successful in predicting endogenous latent variables or not. The GOF index for the research model is 0.51; it shows that the obtained value for the index is suitable.

Discussion and Conclusion:

This research aims to study advantages and benefits of information technologies in organizations by structural equation. The structural equation modeling results showed that the proposed model is fitted with

[DOI: 10.29252/sjis.2.1.7]

the data for this study and it can explain 53 percent of variance of intention to use technology. Structural equation modeling results indicate that technology excellence has a positive and significant impact on attitude to used technology. This finding is in line with the results obtained by Wang (2015), Susanto, Chang, and Ha (2016), Ashraf, Thongpapanl, and Auh (2014), Abdekhoda et al. (2013). Articulating these findings, one can argue that persons believing in the enhancing role of using technology in their efficacy, its positive role in their occupation, and its improving role in their function will have a more positive attitude to the use of new technologies; they accept it better. Moreover, they will have more positive attitude to use technology if they find easy obtaining the skills to use technology, its application in their occupations, and its learning, its effectiveness in their works, and its usefulness in their life. Therefore, new technologies are welcomed and accepted by them. Besides, perceived ease of use enhances confidence and self-efficacy. It causes formation of positive attitude to the use of new technologies of electronic banking and accepting them. Finally, users feel safe and secure when using technology if the technology possesses sufficient merit in the exchanges and the speed of processing; it should have the speed required for solving problems and system staffs to respond the needs of clients to bring positive attitude. It can be concluded that perceived ease of use, perceived usefulness, quality of system and quality of service will create positive attitude towards technology in users as constituent elements of technology.

The research also finds that technology excellence has a positive and significant impact on service experience. This finding is consistent with the results of Wang (2015), Susanto, Chang, and Ha (2016), Abdekhoda et al. (2013). Thus, users will have a more positive service experience if they know technology user-friendly, with better performance, more reliable, and more responsive. Consequently, four features of perceived ease of use, perceived usefulness, quality of system, and technology superior service quality leads to creation of positive service experience in technology users.

Structural equation modeling results show that technology excellence has a positive and significant impact on intention to used technology services. This finding is confirms the results obtained by Wang (2015), Susanto, Chang, and Ha (2016), Ashraf, Thongpapanl, and Auh (2014), Abdekhoda et al. (2013). In explanation of this finding, one can state that technology excellence is users' perception of the technology usefulness, efficiency, and performance of technology, ease of learning, and ease of using technology. Speed of responsiveness to requests, performing safe interactions and providing high-quality and acceptable services will lead to intention to use technology services.

Structural equation modeling results also represents that attitude to technology has a positive significant influence on intention to use technology services. In this regard, it is reasonable to assert that persons who like using technology, know using technology entertaining, are interested in using technology, and see technology applications attractive are more likely to use technology services. Thus, creating and keeping positive attitude to technology are main elements for progress and success in using these tools. In addition, studies have shown that having negative attitudes causes one's far distance from technology and lack of his success in the use of technology. Attitude to technology prepares a person for favorable or unfavorable response to technology devices.

The research also shows that service experience has positive and significant impact on attitude to technology. This finding is in line with the results of Wang (2015) as well as Pullman and Gross (2014). Hence, banks can create positive attitude if they bring an experience of high quality services, experience of the perfect time of service, experience of staffs' commitment necessary to meet the needs of customers, experience of skills needed to solve customer problems, and experience of responsibility for incomplete services. Accordingly, one's direct experience with technology during a course of time causes better evaluation of advantages and costs of technology; it creates a positive intention to the use of technology services.

Results indicate that service experience has a significant positive impact on intention to use technology services. This finding is in line with the results of Wang (2015) as well as Pullman and Gross (2014). In this manner, purchase experience increases users' emotions about control over the system; it is hidden for users as long as they have no objective experience. The users trust more on the system if they find that they can control the system; thus, they will have more intention to use technology services. Experience of using the service makes a person familiar with the convenience, ease of use, and access to the electronic environment easy. In addition, people use their own experiences to assess the value of the goods and services and they decide to use it again based on their experience. Weisberg et al (2011) state that past experience of a person reduces the anxiety of an unknown environment and leads him to use technology services.

The results indicate that attitude to technology as well as service experience has a mediating role in relationships between technology excellence and the intention to use technology services. Accordingly,

[DOI: 10.29252/sjis.2.1.7]

technology excellence creates intention to use technology service through creating a positive attitude towards technology and service experience. This is consistent with the findings by Wang (2015).

In general, one can conclude that the results emphasize on advantages and benefits of information technologies in organizations. Variables of technology excellence, including perceived usefulness and ease, system quality, and quality of service, cause the fact that users see technology more user-friendly, better performing, more reliable, and more responsive. In this way, they will have better service experience and more favorable attitude to technology. Therefore, they will have more intention to use technology services. This research considers only samples from customers and users of technology services in Tehran; hence, generalizing it to other cities will encounter some limitations. Besides, the results are gathered based on self-reports. It is suggested for other researchers to employ qualitative and combined methods to identify effective factors on use of technology services.

References:

Abdekhoda, Muhammad Hiva, Ahmadi, Maryam, Hossein, Aghafatemeh, Parikhani, Ismail, & Akram Farhadi (2013). Effective factors in information technology acceptance by staffs at the department of medical records based on Technology Acceptance Model in hospitals affiliated to Tehran University of Medical Sciences. Journal of Faculty of Paramedical in University of Medical Sciences, Tehran, 7, 4, 287298.

Ahn, T., Ryu, S., & Han, I. (2007). The impact of Web quality and playfulness on user acceptance of online retailing. Information & management, 44(3), 263-275.

Ajzen, I. (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50(2), 179-211.

Al-Mamary, Y., & Shamsuddin, A. (2015). The Impact of System Quality, Information Quality, Service Quality, and Computer Self-Efficacy in User Satisfaction: Structural Equation Modeling Approach. Modern Applied Science, 9(13), p22.

Al-Qeisi, K., Dennis, C., Alamanos, E., & Jayawardhena, C. (2014). Website design quality and usage behavior: Unified theory of acceptance and use of technology. Journal of Business Research, 67(11), 2282-2290.

Ashraf, A. R., Thongpapanl, N., & Auh, S. (2014). The Application of the Technology Acceptance Model Under Different Cultural Contexts: The Case of Online Shopping Adoption. Journal of International Marketing, 22(3), 68-93.

Babakus, E., & Inhofe, M. (2015). Measuring perceived service quality as a multi-attribute attitude. In Proceedings of the 1993 Academy of Marketing Science (AMS) Annual Conference (pp. 376-380). Springer International Publishing.

Bagherzadeh, Muhammad (2009). Analysis of barriers to the development of sales terminals at Keshavarzi Bank in Yazd province. M.A. thesis, Yazd University, Department of Management.

Baran, K. S., & Stock, W. G. (2015, July). Interdependencies between acceptance and quality perceptions of social network services: the standard-dependent user blindness. In Proceedings of the 9th International Multi-Conference on Society, Cybernetics and Informatics (IMSCI 2015) (pp. 12-15).

Calabrese, A. (2012). Service productivity and service quality: A necessary trade-off? International Journal of Production Economics, 135(2), 800-812.

Calisir, F., Bayraktaroglu, A. E., Gumussoy, C. A., & Kaya, B. (2014). Effects of service quality dimensions including usability on perceived overall quality, customer satisfaction, and return intention in different hospital types. International Journal of Advanced Operations Management, 6(4), 309-323.

Cao, M., Zhang, Q., & Seydel, J. (2005). B2C e-commerce web site quality: an empirical examination. Industrial Management & Data Systems, 105(5), 645-661.

Cao, T. K., & Phan, T. T. H. (2015). Cultural Influences on Overall Service Quality Expectations: Evidence from Vietnamese Customers. Asian Social Science, 11(25), 151.

Chang, S. C., & Tung, F. C. (2008). An empirical investigation of students' behavioural intentions to use the online learning course websites. British Journal of Educational Technology, 39(1), 71-83.

Chen, W., Li, W., & Zhang, J. (2016). Dynamic Evolution of the Influence Factors of the Development of Electronic Banking Business in Local Commercial Banks of Underdeveloped Areas. In Proceedings of 2015 2nd International Conference on Industrial Economics System and Industrial Security Engineering (pp. 383-388). Springer Singapore.

[DOI: 10.29252/sjis.2.1.7]

Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (1996). A partial least squares latent variable modelling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. Information Systems Research, 14, 189–217.

Chmielarz, W., & Zborowski, M. (2015, September). Comparative analysis of electronic banking websites in selected banks in Poland in 2014. In Computer Science and Information Systems (FedCSIS), 2015 Federated Conference on (pp. 1499-1504). IEEE.

Csikszentmihalyi, M. (1997). Finding flow: The psychology of engagement with everyday life. Basic Books.

Damghanian, Hossein, & Muhammad Ali Siah Sarani Kajoori (2012). The impact of perceived security on confidence of female custermers of internet banking (A survey on Saderat Bank in Semnan. Information Technology Management, 4 (13): 71-88.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 319-340.

Ghorbanizadeh, Vajhollah, Nangir, Seyyed Taha, & Habib Rood Saz (2013). Meta-analysis of effective factors in information technology acceptance in Iran. Management Studies in Iran, 17, 2, 177 -196.

Moradi, M. Mehrani, K. & M. boroomand (2011). Effective factors in information technology acceptance by police forces. Bimonthly Journal of Police Human Development, issue 7, No. 28, pp. 77-93.

Seyyed Abbaszadeh, Mir Muhammad, Amani Sari Behgaloo, Javad, Himan Khezri, Azar, & Ghasem Pashooei (2012). An introduction to structural equation modeling by PLS method and its application in behavioral sciences. Orumieh, Orumieh University Press.

Sheikh Shoaei, Fatemeh, & Tahereh Oloomi (2010). Effective factors in information technology acceptance by Librarians at Library of the Faculty of Engineering, University of Tehran. Library and Information Science, Volume 10, No. 3, 33-9.

[DOI: 10.29252/sjis.2.1.7]