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Developing a Framework for Electronic Payment Systems, Trust and Security in Iraq

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Abstract: e-Payment system is increasingly becoming a daring means of payments in today's business world. This is due to its efficiency, convenience and timeliness. It is a payment system that is continuously being embraced and adopted in the financial system of both developed and developing countries with a view to simplify and ease payments in business transactions. Customer's trust of Electronic Payment System (EPS) use in Iraq is the subject of this study. In accordance to the results of the mean score analysis, it proved that the majority of people agree with all considered aspects of EPS in Iraq. Specifically, if perceived trust and security increases among customers, it will lead to higher EPS adoption. Respondents, think EPSs are efficient enough systems for them to fulfil their payments and it provides an appropriate channel to follow up the payment process.

Key words: Electronic payment systems, perceived trust, perceived security, transaction procedure, technical protection, perceived privacy, perceived ease of use, perceived usefulness

INTRODUCTION

As a developing country, Iraq is a post-conflict society, there is a limited use of internet and a wide mobile phone devices use among younger generation in urban areas but there is little penetration of these technologies into the e-Commerce. Bagdad is a federal region of Iraq that exercises executive power according to the laws as legislated by the Iraqi Parliament. Due to the political and economic situation in the country, e-Communication infrastructure is not well established and this has caused real problems to many e-Services including e-Payment. e-Payment is the money transfer in an electronic form from payer to a payee using e-Payment mechanisms in the way that customers can manage their transaction and account remotely through using technologies such as web-based application. Trust characteristic of Electronic Payment System (EPS) with security are the main ones that always concern people of all countries about using EPS for online banking. The lack of perceived security and trust has been identified as one of the most vital factors slowing the development of e-Commerce (Centeno, 2002). However, e-Commerce lacks these two mandatory elements in its nature, thus, it is problematic to establish and retain trust for this particular system. This is why it is particularly important to have secure EPS and inspect technical protections that are developed to reduce the risk of e-Commerce before addressing the issue of user trust. Iraq as a developing country is one of those territories that the rate of trust of electronic payment systems from people is almost indistinctive. In this study, investigate the main challenges and obstacles facing e-Payment service provision in Iraq and propose a design solution that will help the Government to overcome some of these challenges. Provision of e-Payment services is directly affected by the state of banking infrastructure, i.e., well established banking system can facilitate the provision of e-payment service more efficiently. The state of banking infrastructure is not well established in Iraq, currently there are few branches of Central Bank of Iraq (CBI) in Iraq. The CBI offices are responsible for bank regulations in their respective governorates. According to the official CBI website there are more than 56 banks in Iraq which are categorized into four categories, State Banks, private banks Islamic private banks and Foreign banks.

For the purpose of e-Payment there are currently some systems that have been established by CBI such as Real Time Gross Settlement system (RTGS), Automatic Clearing House (ACH) and Government Securities Registration system (GSRS). Although, there are 44 banks registered RTGS system, 17 banks registered ACH, 11 banks registered CEP, 25 banks registered GSRS among all the banks in Iraq, RTGS is the only actively used payment system in Iraq. It is important to mention that RTGS

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system is for managing settlements between CBI and other banks in Iraq not for public use. The primary purposes of this study is to explore the perceptions of Iraq's citizen for e-Commerce and the factors that effect trust and security aspect of electronic payment systems and attempt to identify the barriers that hamper the diffusion of electronic payment systems which are often underestimated in developing countries. This study contributes to the body of knowledge in the area of e-Commerce with particular interest on Iraq. The findings of this reserach are limited by the sample surveyed and the geographical limits, however, the findings reached carry many implications for policy-makers in Iraq.

Electronic banking: Electronic banking is considered the strategic tool which is used by the banks to obtain a competitive advantage inside and outside the Iraqi borders. According by Kamakodi and Khan (2008), the importance of e-Banking is in six different aspects, higher profits, customer service, improve operational efficiency, distribution and access, product innovation and settlement efficient payment. Different scholars have different e-Banking concept. This is because e-Banking involve a variety of services offered throughout the electronic devices by using the internet. It is considered one of the most recent delivery channels for banking services which is used in transactions in B2B and B2C. e-Banking is a e-Connection between the banks and the clients for the preparation and the management and controlling of the financial transactions. Moreover, e-Banking also mean the usage of ICT by banks in order to offer services and to improve the management of customer's relationships in a more quickly and most satisfying way.

Salehi and Alipour (2010) states that the electronic banking system allows clients to include finance an individual or a business for account access, business transactions or to get information about financial services and products by using mobile or public phone. Moreover, e-Banking offers lower cost per transaction compared to the conventional methods cost. In conclusion, the definition is widely accepted for electronic banking following the report of basel committee which is on banking supervision 1998 which states such as electronic banking and minor value banking services and products by using electronic channels. e-Banking services and products including granting account management, deposit taking, the provision of financial advice, provision of electronic payment products and electronic bill payment and other services.

Electronic payment systems: The most popular definition of e-Commerce is based on the online perspective of the conducted business. e-Commerce provides the capability of buying and selling products, information and services on the internet and other online environments. As for any trading activity, the issue of safe and reliable money exchange between transacting parties is essential. In an e-Commerce environment, payments take the form of money exchange in an electronic form and are therefore called electronic payments. Electronic payments are an integral part of e-Commerce and are one of its most critical aspects. Generally defined, electronic payment is a form of a financial exchange that takes place between the buyer and seller facilitated by means of electronic communications. An e-Commerce electronic payment is a financial exchange that takes place in an online environment (Kalakota and Whinston, 1997).

Electronic Payment Systems (EPS) are summoned to facilitate the most important action after the customer's decision to pay for a product or service to deliver payments from customers to vendors in a most effective, efficient and problem-free way. The role of e-Commerce electronic payment systems is pivotal for future of e-Commerce whose further growth depends on the timely development of EPS. The development of new types of e-Commerce purchasing relationships and business models has created the need for new ways of money exchange and new EPS. For instance, online auctions has spurred the necessity for person-to-person payment systems to allow online money exchange between individuals. Certain types of information products and services require small payments and micropayments. Businesses would like to sell information content that costs very little, accumulating revenues with high turnover. e-Commerce EPS can be designed for selling specific types of products for example for trading copyrighted online content such as music. Another unforeseen earlier requirement is conducting e-Commerce using wireless mobile devices such as mobile phones or Personal Digital Assistants (PDA). The need for paying with mobile devices has urged the development of payment systems for mobile electronic commerce (Laudon and Traver, 2009).

In addition, e-Commerce provides the possibility to enhance current payment systems or substitute them with online variants. The need for online payments was first addressed by using extant payment methods of the offline world for online payments. For example, credit cards originally intended as an offline credit instrument have become the major payment instrument for ecommerce. As e-Commerce and online purchasing grows, the weaknesses of credit and debit cards and cheques are becoming more apparent. Abrazhevich (2001) divided EPS into two groups. From his points of view these are two "account-based" and "token-based" systems which respectively correspond to electronic currency and credit-debit systems (Abrazhevich, 2001) (Fig. 1).

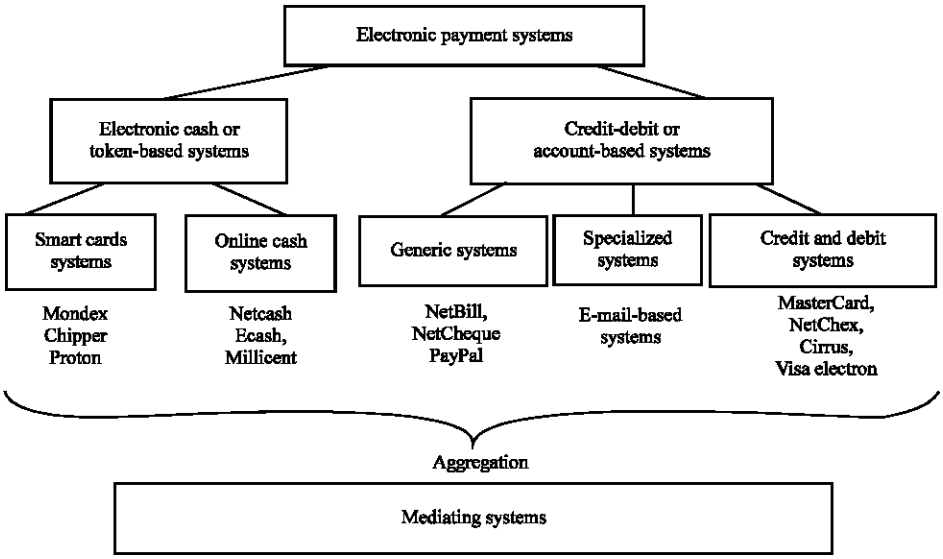

Fig. 1: Classifications of electronic payment systems (Abrazhevich, 2001)

MATERIALS AND METHODS

Security and trust in electronic payment system: The purposes of this study a customer's trust in an electronic payment instrument is defined as a psychological state which leads to the willingness of the customer to use an EPI for the purposes of finalizing an online purchase with the expectation that all the parties concerned with the transaction (merchant, financial institutions, payment service providers, etc.) will fulfil their contractual obligations and that all the necessary payment infrastructure and control and security mechanisms are in place, irrespective of the customer's ability to completely monitor or control the payment process. According to Yousafzai *et al*., this definition captures two discrete but non-separable aspects of trust in the context of online purchasing. Firstly, it involves the traditional view of trust in a specific party or parties, i.e., the organisations involved in the transaction process and secondly, it implicitly encompasses trust in the integrity of the payment instrument. Two of the dimensions of trust proposed by McKnight and Chervany have particular import in this study. One of the dimensions 'institution based trust's represents the beliefs held by an individual that the necessary conditions (structures and situations) are in place to be able to confidently anticipate a trusting outcome from an endeavour. It represents an environment in which "one feels safe, assured and comfortable (not distressed or fearful) about the prospect of depending on another". This trust in control mechanisms (control trust), refers to embedded protocols, policies and procedures in e-Commerce that help to reduce the risk of opportunistic behaviours among consumers and web retailers. The other dimension of trust that can lead to a person's trusting intention is that of 'trusting belief's which embodies the perception of the competence, integrity and benevolence of (in this case) the payment instrument. Their third trust dimension, namely, a person's 'disposition to trust' is not considered in our model. While the institutions have the ability to influence their customer's trusting beliefs (trust in the payment security mechanisms) as well as their institution based trust (perception of trust worthiness in the EPI), this aspect of trust cannot be sinfluenced by the merchant or the EPI itself in any direct way to help encourage customers develop confidence in the instrument and to believe that it is safe to use it. Various attributes that impact on the level of trust in an online environment have been identified over recent years. In particular, Hoffman *et al*. focus on security and privacy as the key drivers of online trust with others also asserting that only after security and privacy have been addressed will a consumer consider other web features to determine the extent to which they can trust and feel safe transacting with the web merchant.

However, while perceived security is a subjective belief, the mechanisms that serve as the antecedents are built upon the self-assessment of various objective technological solutions (Chellappa and Pavlou, 2002). Therefore, the perceptions of security are influenced by implementation of such security measures as privacy, transaction integrity, authentication, confidentiality, non-repudiation, etc. In addition, the way and the extent to which this security information is presented to the

potential customer is likely to impact on the customer's understanding and confidence in the payment security being provided by the merchant. According to Furnell and Karweni consumers who have a greater awareness of security are more likely to use internet-based services, implying that awareness is fundamental to increasing consumer confidence.

Technology Acceptance Model (TAM): TAM was developed by Davis *et al*. (1989) to theorize the usage behavior of computer technology. The TAM was adopted from another popular theory called Theory of Reasoned Action (TRA) from field of social psychology which explains a person's behavior through their intentions. Intention in turn is determined by two constructs, individual attitudes toward the behavior and social norms or the belief that specific individuals or a specific group would approve or disprove of the behavior. While TRA was theorized to explain general human behavior, TAM specifically, explained the determinants of computer acceptance that are general and capable of explaining user behavior across a broad range of end-user computing technologies and the user population (Davis *et al*., 1989). TAM breaks down the TRA's attitude construct into two constructs, Perceived Usefulness (PU) and perceived Ease of Use (EU) to explain computer usage behavior. In fact, TAM proposes specifically to explain the determinants of information technology end-user's behavior towards information technology. In TAM, Davis *et al*. (1989) proposes that the influence of external variables on intention is mediated by Perceived Ease of Use (PEU) and Perceived Usefulness (PU). TAM also suggests that, intention is directly related to actual usage behavior (Davis *et al*., 1989).

TAM aimed at providing "an explanation of the determinants of computer acceptance that is in general, capable of explaining user behaviour across a broad range of end-user computing technologies and user populations while at the same time being both parsimonious and theoretically justified" (Davis *et al*., 1989). That is TAM is used mainly to explain the impact of system characteristics and end-user behaviour on actual system use. Burton-Jones and Hubona argued that TAM explains IT usage as the function of a four-stage process (external variables influences user beliefs about using the system user beliefs influence their attitudes about using a system user attitudes influence their intentions to use a system and user intentions determine the level of usage on the system.

Researchers have adopted various forms of TAM in order to investigate e-Government adoption in different perspectives. Schaupp and Carter for example, examined

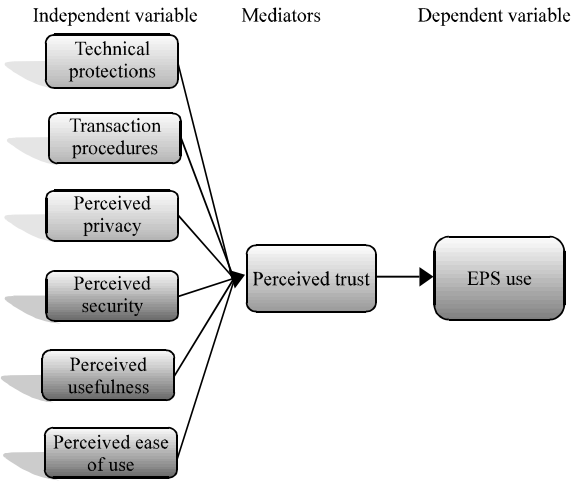

Fig. 2: Proposed research framework

the adoption of an e-Voting system in the USA and found only trust (in the internet and in the government) having a direct effect on the intention to use the system. Also, Sahu and Gupta investigated the adoption of an e-Government application in the Indian Central Excise. With the exception of self-efficacy, top management support and voluntariness of use, the model factors were found to be significant predictors of the intention to use the investigated system.

Research framework: Much of the research related to perceived trust and perceived security is rooted in the Technology Acceptance Model (TAM) which is an information systems theory that predicts how users respond to new technology. The premise is that external variables such as perceived security influence how and when users will use new technology. The result of their study shows that perceived trust, together with other factors is an important antecedent of both trust and risk. This study borrows (Kim *et al*., 2010a) research model which is designed to test the influence of perceived rust on consumer EPS use (Kim *et al*., 2010b). As mentioned previously both perceived security and trust are important concerns for EPS use. Lack of perceived security and trust may erode consumer's willingness to use EPS (Linck *et al*., 2006; Mukherjee and Nath, 2003). Thus, it is vital to study the factors influencing perceived trust. Figure 2 summarises the research model, based on the research hypotheses developed. Although, some of the factors identified in this model have been used in previous studies (Kim *et al*., 2010a, b). Earle (2009) described trust as 'the willingness in the expectation of beneficial out-comes to make oneself vulnerable to another based on judgement of similarity of intentions or

value's. Correspondingly, Tsiakis and Sthephanides (2005) have defined perceived trust as consumer's belief that electronic payment transactions will be proceed in accordance with their expectations (Tsiakis and Sthephanides, 2005). Trust has been identified as one of the most important factors influencing consumer's use of EPS and consumers with higher levels of trust have been found to be more prone to use EPS (Kim *et al*., 2010a, b; Tsiakis and Sthephanides, 2005).

As shown in the model, technical protections have been accepted as important antecedents for EPS security (Kim *et al*., 2010a, b). Numerous technical protections have been developed and utilised in order to ensure the safety of electronic payment (Linck *et al*., 2006). Transaction procedures are critical for individuals to be able to use EPS safely and efficiently. According to Hwang *et al*. (2006, 2007) and Kim *et al*. (2010), well-defined transaction procedures assist individuals to eliminate their security concerns.

Kim *et al*. (2010) have defined perceived security as the consumer's subjective evaluation of the e-Payment system's security. Consumers can analyse and judge the security of EPS differently. Thus, the perceived security of EPS may vary across individuals. The level of perceived security has a great impact on consumer's decisions regarding the use of EPS. If the level of perceived security in an EPS is too low, consumers are unlikely to engage in a transaction (Kim *et al*., 2010; Tsiakis and Sthephanides, 2005).

Perceived ease of use and perceived usefulness will lead to the faster adoption and consumption of new technologies (i.e., EPS) (Wu and Wang, 2005). Similarly, Hackbarth *et al*. (2003) mentioned that individuals are more comfortable using new technology innovations when they have prior experience (Hackbarth *et al*., 2003). The reason for this happening is that ease of use and usefulness builds trust (Eastin, 2002).

Technical protections: Technical protections have been accepted as important antecedents for EPS security (Kim *et al*., 2010). Numerous technical protections have been developed and utilised in order to ensure the safety of electronic payment (Linck *et al*., 2006). Likewise, Kim *et al*. (2010) and Chellappa and Pavlou (2002) mentioned that technical protections (including privacy, integrity and stability) have a positive effect on perceived security and trust. In other words, providing sufficient technical protection will enhance consumer's perceived security and trust in EPS. Based on these findings, it is proposed that:

- H_1: technical protection has a significant and positive effect on EPS use
- H_2: technical protection has a significant and positive effect on perceived trust

Transaction procedures: Transaction procedures are critical for individuals to be able to use EPS safely and efficiently. According to Hwang *et al*. (2007) and Kim *et al*. (2010) well-defined transaction procedures assist individuals to eliminate their security concerns. Generally, three main transaction procedures are employed during the electronic monetary transactions. These procedures are authenticating each participant prior to the transaction providing consumers with several separate steps toward the completion of the payment sending acknowledgement messages to each participant after the completion of the payment (Hwang *et al*., 2007). It is believed that transaction procedures will have an effect on perceived security and trust. It has been hypothesised that:

- H_3: transaction procedure has a significant and positive effect on EPS use
- H_4: transaction procedure has a significant and positive effect on perceived trust

Perceived privacy: Concerns regarding online privacy have increased considerably and are a major impediment to e-Commerce (Teltzrow and Kobsa, 2004). Consumer privacy concerns are particularly elevated on the internet. A measurement scale for perceived privacy towards an EPS has been suggested by Chellappa and Pavlou (2002) where privacy has been described as the anticipation of how data is collected and used by a marketer. The reseracher also found empirical support that perceived online privacy towards an EPS is significantly related to consumer trust:

- H_5: perceived privacy has a significant and positive effect on EPS use
- H_6: perceived privacy has a significant and positive effect on perceived trust

Perceived security: Perceived security on EPS has been found to be a vital factor influencing consumer's perceived trust in EPS (Kim *et al*., 2010; Mukherjee and Nath, 2003). According to Kim *et al*. (2010), consumer's decision to use an EPS will heavily depend on the security statements posted, since, these statements can boost the consumer's perceived security and trust in EPS. Similarly,

Miyazaki and Fernandez (2001) stated that security statements posted on EPS will increase the likelihood of consumers purchase over the internet.

Kim *et al.* (2010) have defined perceived security as the consumer's subjective evaluation of the e-payment system's security. Consumers can analyse and judge the security of EPS differently. Thus, the perceived security of EPS may vary across individuals. The level of perceived security has a great impact on consumer's decisions regarding the use of EPS. If the level of perceived security in an EPS is too low, consumers are unlikely to engage in a transaction (Tsiakis and Sthephanides, 2005; Kim *et al.*, 2010). Security is one of the important triggers of EPS use. Based on these findings, it has been hypothesised that:

- H_7: perceived security has a significant and positive effect on EPS use
- H_8: perceived security has a significant and positive effect on perceived trust

Perceived usefulness: Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. Davis *et al.* (1989) claim that perceived usefulness of a system is the primary determinant of user's technology acceptance, mainly because end users are more willing to deal with the challenges of use if they believe that the system is useful and can improve their job performance. Hu *et al.* (1999) examined physician's decision to accept telemedicine technology, the study found that perceived usefulness was the main factor that determined the attitude and acceptance.

Chang *et al.* (2006) argued that trust and trust technology have come into the picture of the virtual environment recently to give an online user the sensation for providing opinion and assessments before a decision is made. They also indicated that the dynamic, open and convenient Web environment while boosting business potentials and the economy have created concerns with security, trust, privacy and risks. If these issues are not dealt with in a timely fashion, they could hamper the use of Webs. Trust has been found to be a determinant of perceived usefulness, especially in an online environment because part of the guarantee that consumers will obtain on the usefulness of a web interface depends on the people behind the website.

Sambasivan *et al.* (2010) found that perceived usefulness had a significant effect on the intention to use EPS. Guriting and Ndubisi (2006) suggested that perceived usefulness determines significant behavioral intention:

- H_9: perceived usefulness has a significant and positive effect on EPS use
- H_{10}: perceived usefulness has a significant and positive effect on perceived trust

Perceived ease of use: Lin (2007) states that perceived ease of use shows the degree to which a website is considered easy to understand, learn or operate. Meanwhile, according to Ndubisi and Jantan (2003), perceived ease of use relates to individual assessment of the effort involved in the process of using technology. Based on TAM's theory Chong *et al.* (2010) states that perceived ease of use is the extent to which prospective adopters expect newly adopted technologies to be free from any effort with respect to transfer and utilization. Jayasingh and Eze (2009) states that perceived ease of use has a positive effect on consumer's intentions to use. Jayasingh and Eze (2009) found that behavioral intention toward trust is directly affected by perceived ease of use. While, Sambasivan *et al.* (2010) found that the adoption of ease of use had a significant effect on the intention to use EPS:

- H_{11}: perceived ease of use has a significant and positive effect on EPS use
- H_{12}: perceived ease of use has a significant and positive effect on perceived trust

Perceived trust: Earle (2009) described trust as 'the willingness in the expectation of beneficial outcomes to make oneself vulnerable to another based on judgement of similarity of intentions or value's. Correspondingly, Tsiakis and Sthephanides (2005) have defined perceived trust as consumer's belief that electronic payment transactions will be proceed in accordance with their expectations. Trust has been identified as one of the most important factors influencing consumer's use of EPS and consumers with higher levels of trust have been found to be more prone to use EPS (Tsiakis and Sthephanides, 2005; Kim *et al.*, 2010). Similarly, Kim *et al.* (2010) mentioned that it is impossible for an EPS to gain widespread usage without trust. Furthermore, it has been found out that trust is more important than security and without trust consumers will not use EPS to complete their transactions. Thus, it has been hypothesised that Kim *et al.* (2010) conducts research that is an empirical study of customer's perceptions of security and trust in e-Payment systems.

This study examines issues related to e-Payment security from the viewpoint of customers. This study

proposes a conceptual model that delineates the determinants of consumer's perceived security and perceived trust as well as the effects of perceived security and perceived trust on the use of e-Payment systems. To test the model, structural equation modeling is employed to analyze data collected from 219 respondents in Korea. The result show that technical protections and security statements are significant factors for improving consumer's perceived security. Tsiakis and Stephanides (2005) conduct research that is the concept of security and trust in electronic payments. The goal of this research is to show the security and trust in electronic payment system to give solution in the usage of this payment method. Building up a new payment system or an infrastructure of trust for secure transaction is escorted with a significant amount of investments. These investments will compose a worthy return only and if only the new infrastructure is widely used. Meaning that the hazards of security and trust have been confronted with a high level of success. For public key systems to work properly in the public domain the public key must be freely accessible and also both senders and receivers must have a reliable way of designating that public keys are the keys of parties with whom they wish to transact. Implicates the security and trust issues that are essential for every electronic payment mechanism in order to be accepted and established as a common medium of financial transactions. Tsiakis and Stephanides (2005) conduct research that is survey of customer's conceptions of security and trust in e-Payment system. This research shows that both technical contribution and security declaration are significant factors for improving consumers observed security. Consumers observed security is positively related to consumers observed trust and EPS use. The results clearly delineate the role of consumers observed security in building the trust of consumers and the positive impact of both observed security and observed trust on EPS use:

- H_{13}: perceived trust has a significant and positive effect on EPS use
- H_{14}: perceived trust mediate the relationship between technical protections and EPS use
- H_{15}: perceived trust mediate the relationship between transaction procedures and EPS use
- H_{16}: perceived trust mediate the relationship between perceived privacy and EPS use
- H_{17}: perceived trust mediate the relationship between perceived security and EPS use
- H_{18}: perceived trust mediate the relationship between perceived usefulness and EPS use
- H_{19}: perceived trust mediate the relationship between perceived ease of use and EPS use

RESULTS AND DISCUSSION

Data collection technique and sampling method: This study employs questionnaire survey, a set of questionnaires is used as the research instrument. The questionnaire is developed primarily by integrating the measurement scales developed by past researchers. These scales are adopted, validated, translated, field tested and modified to suit the purpose of this study. The measurement scales are used to measure both the dependent and independent variables been carefully selected by the researcher. The questionnaire is designed in bilingual, Arabic and English where the respondents are given choice to choose the language they are comfortable with. The questionnaire covers background of the respondents, questions on independent, dependent and mediator variables.

Personal details (A) will be placed at the beginning of the questionnaire (Sekaran, 2005) because personal questions can encourage respondents to share their personal history, relate to the study and complete the questionnaire. Participants will be asked to provide information age range, gender, level of expertise on EPS, etc. This information represented the data obtained. Part B will be measured the effects of the constructs hypothesized. To collect the data needed to test the effects of the hypothesized constructs, this study adopted relevant items from previous studies.

Iraq has 5 cities with more than a million people, 22 cities with between 100,000 and 1 million people and 42 cities with between 10,000 and 100,000 people. The largest city in Iraq is Baghdad with a population of 7,665,000 people. For this study, data was collected from Baghdad, Iraq. Baghdad is the capital of Iraq and represents the whole population. The total number of Baghdad population is 7,665,000 which are 21% of the whole country population. The sample size calculated using the formula derived from Cohen's statistical power analysis is accepted in this study. Based by Cohen (1988) and cross checked using raosoft sample size calculator for a given population of 7,665,000 at Bagdad, a total of 385 samples are required to represent a cross-sectional of 7,665,000 in Iraq. Unit of analysis of this study is the individual using EPS and willing to use EPS in Iraq.

Table 1: Demographic questions

Questions	Frequency	Percentage
Gender		
Male	315	75
Female	107	25
Age (years)		
20-30	55	13
31-40	113	27
41-50	182	43
Above 50	72	17
Qualification		
PhD	49	12
Masters	167	40
Bachelor	156	37
Diploma	50	11

Respondent's profile: Six demographic factors were involved in the data collection, gender, age, ethnicity, nationality, qualification and salary range. The main goal of using demographic was to check the validity of collected data. Table 1 shows the descriptive statistics for each demographic factor in this study.

The results found that (75%) of the respondents are males while (25%) of the respondents are females. Most of the respondent age between 41-50 years (43%), followed by age between 31-40 years (27%). Only (13%) The respondent age between 20-30 years was recorded. Therefore, the survey conducted in the present study has received feedback from age above 30 years. Most respondents have master degree (40%) followed by Bachelor degree (37%).

Factor loading: Data were analyzed by utilizing principal component factor analysis using Varimax rotation with Kaiser Normalization technique. Kaiser-Guttman Rule (Eigenvalues greater than one) and scree plot were utilized in order to find the proper loading for the items (Chin *et al*., 1997), table illustrates the results of the factor analysis of the principal component. In order to provide the best solution, the analysis should be based upon both convergent validity and discriminant validity. Therefore, the convergent validity was established depending on all the strong loaded instruments according to their respective factors (loading >0.50) (Chau and Tam, 1997) or (loading >0.40) (Guadagnoli and Velicer, 1988). However, any particular factor loaded strongly on its respective factor instead of another factors (Chau and Tam, 1997). The factor solution provides the summary of variance, cumulative variance and eigenvalues in Table 1 information about the extracted constructs or components are obtained from the extorted summation of squared loadings groups. The values of principal components extraction will be similar to those stated under initial eigenvalues. A grouping of constructs of total variance should be 60% or more in order to consider suitable in social sciences (Hair *et al*., 2013). The results of this study displayed in Table 2 above reveal that the first constructs provide large value of the total variance, the 12 constructs

Table 2: Factor loading

	Component							
Variables	1	2	3	4	5	6	7	8
TP1	-	0.734	-	-	-	-	-	-
TP2	-	0.715	-	-	-	-	-	-
TP3	-	0.764	-	-	-	-	-	-
TP4	-	0.780	-	-	-	-	-	-
TP5	-	0.837	-	-	-	-	-	-
TP6	-	0.788	-	-	-	-	-	-
TEP1	0.704	-	-	-	-		-	-
TEP2	0.794	-	-	-	-	-	-	-
TEP3	0.704	-	-	-	-	-	-	-
TEP4	0.753	-	-	-	-	-	-	
TEP5	0.749	-	-	-	-	-	-	-
TEP6	0.755	-	-	-		-	-	-
TEP7	0.767	-	-	-	-	-	-	-
PP1	-	-	-	0.639	-	-	-	-
PP2	-	-	-	0.814	-	-	-	-
PP3	-	-	-	0.864	-	-	-	-
PP4	-	-	-	0.842	-	-	-	-
PS1	-	-	0.728	-	-	-	-	-
PS2	-	-	0.828	-	-	-	-	-
PS3	-	-	0.800	-	-	-	-	-
PS4	-	-	0.796	-	-	-	-	-
PU1	-	-	-	-	-	-	0.779	-
PU2	-	-	-	-	-	-	0.771	-
PU3	-	-	-	-	-	-	0.799	-
PEU1	-	-	-	-	-	0.722	-	-
PEU2	-	-	-	-	-	0.805	-	-
PEU3	-	-	-	-	-	0.810	-	-
PEU4	-	-	-	-	-	0.740	-	-
PT1	-	-	-	-	0.807	-	-	-
PT2	-	-	-	-	0.775	-	-	-
PT3	-	-	-	-	0.798	-	-	-
PT4	-	-	-	-	0.773	-	-	-
EU1	-	-	-	-	-	-	-	0.633
EU2	-	-	-	-	-	-	-	0.736
EU3	-	-	-	-	-	-	-	0.771

TP = Transaction Procedure, TEP = Technical Protection, PP = Perceived Privacy, PS = Perceived Security, PU = Perceived Usefulness, PEU = Perceived Ease of Use, PT = Perceived Trust, EU = EPS use

that are extorted value for the total variance is 69.936%. Therefore, the constructs can be applied in the investigation of the questions of the study.

Structural Equation Modeling (SEM): Model fit statistics were analyzed to determine the strengths of relationships between the independent variables and dependent variable. Regarding the model fit in SEM asserted that "the primary task is to determine the goodness of fit between the hypothesized model and the sample data".

The model fit with RMR (Root Mean Square Residual), GFI (Goodness of Fit Index), NFI (Normal Fit Index), CFI (Comparative Fit Index), TLI (Turker-Lewis Index) and RMSEA (Root Mean Square Error of Approximation). All the test statistics demonstrate that the model fits the data very well (RMR = 0.038, GFI = 0.925, NFI = 0.945, CFI = 0.980, TLI = 0.978 and

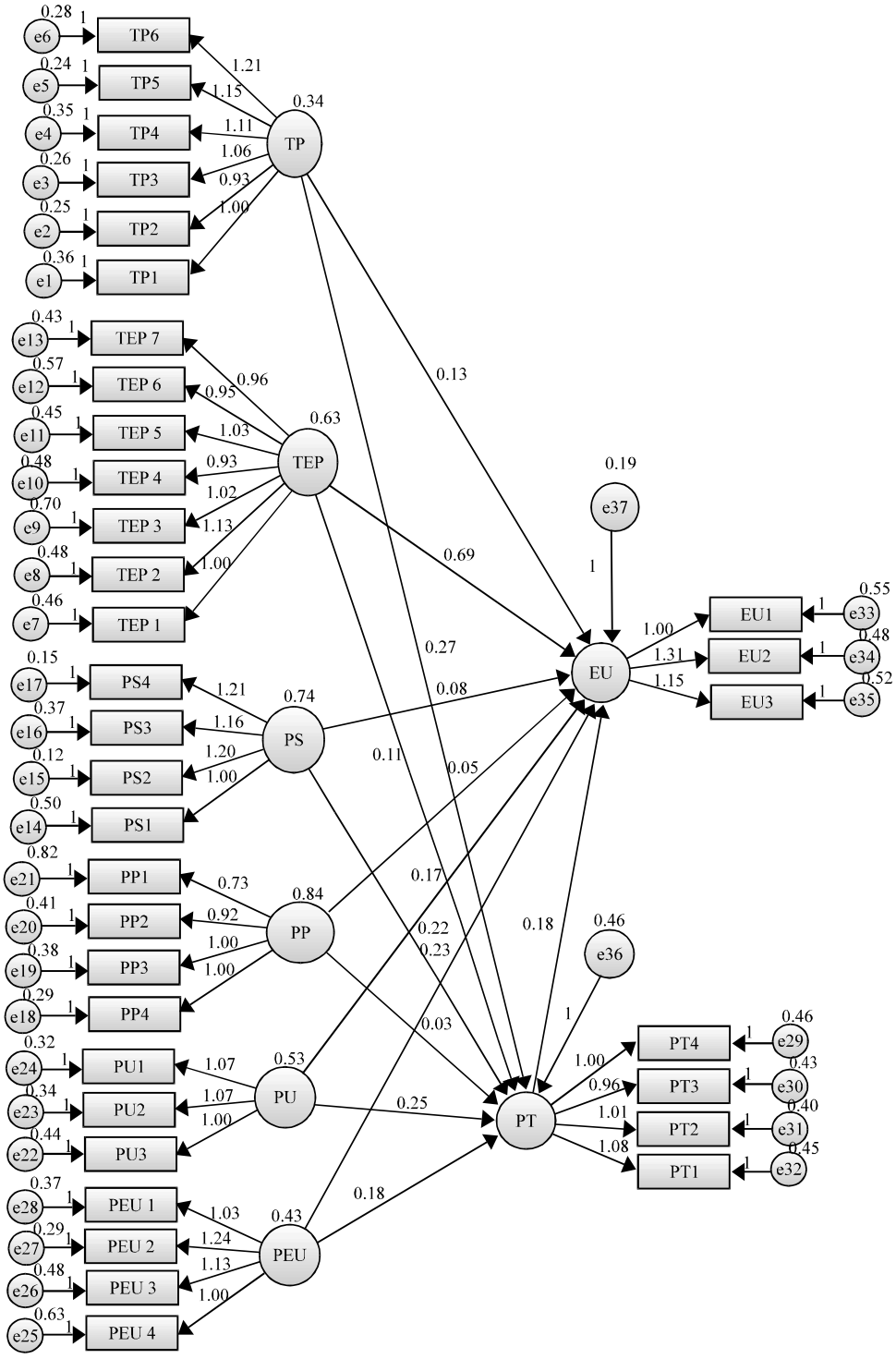

Fig. 3: Structural Equation Modeling (SEM) TEP = Transaction Procedure, TEP = Technical Protection, PP = Perceived Privacy, PS = Perceived Security, PU = Perceived Usefulness, PEU = Perceived Ese of Use, PT = Perceived Trust, EU = EPS Use

RMSEA = 0.034). Nevertheless all the indicator variables loaded highly and significantly onto their respective factors. In addition, all the constructs were significantly correlated with each other (Fig. 3).

CONCLUSION

The purpose of this research is to propose an extension of trust, security and TAM Model with EPS in a more comprehensive manner that jointly predicts user acceptance of electronic payment system. This study has extended the TAM by considering the characteristics of the Internet banking environment. This study has verified that an additional belief, trust and security are the most important determinants of customer acceptance of Internet banking. A large sample survey from one-time users of internet banking was conducted to empirically examine this research proposed model. Fundamentally, while trust is empirically identified as an antecedent of technical protection, transaction procedure, perceived privacy, perceived security, perceived usefulness, perceived ease of use, this has some practical implications in enhancing the attitude toward using Internet banking. Internet banking provider should first develop trust building mechanisms for customers in order to attract novice users to accept on-line banking.

SUGGESTIONS

For IS practitioners, the results of this study suggest that perceived trust and EPS are important facets of perceived security and that they play an important role in customer's decision to use a B2C e-Commerce payment system. Collectively, they have significant impact on technical protection, transaction procedure, perceived privacy, perceived usefulness and perceived ease of use to use B2C payment system. Compared to prior studies which use measures of perceived security that tend to capture only one dimension or are dominated by only one dimension, the inclusion of these dimensions in the measure of perceived security provides e-Commerce payment system managers with a more comprehensive metric of perceived security. Such metric allows them to develop a richer understanding of how perceived security impacts their customer's willingness to use their payment system for online purchases. Such understanding will help them pinpoint where problems with perceived security might exist and, subsequently, make strategic decisions to enhance customer's perceived security.

Awareness of internet banking services is essential in the early adoption stages. As internet banking services are still new in Iraq, effective presentations using all forms of media advertising such as leaflets, brochures, web pages, etc. will be useful to introduce the services to a wider audience and educate potential customers about the benefits of internet banking. To access more potential adopters, information about internet banking should be provided by bank tellers and bank assistants at branches. The information should include references to "time saving", "convenience" at anywhere any time, "low costs" and "information availability". In addition, banks should design their Websites as effective delivery channels and offer information beyond banking services. It is essential to provide a well-designed and user-friendly Website to attract potential adopter's attention. The customer should not be required to expend a lot of effort or time or undergo too great a change in behavior to adopt internet banking services.

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