

## The Effect of Awareness Factors as a Mediating On the Behavioural Intention to Use for E-Commerce Services of Jordanian Students

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### Abstract

This study aims to identify and understand factors that affect to acceptance E-commerce among Jordanian students. This study integrates technology acceptance model (TAM) Innovation Diffusion theory (IDT), Trust and Technology Factor with awareness factor as mediating. The primary data were collected from 384 valid questionnaires, which were distributed, to random Jordanian students in five universities. The analyses of the gathered data employed the Partial Least Squares Structural Equation Modeling (PLS-SEM). The validity of the final overall model was evaluated using the statistics and acceptable fit of the measurement model to the data has been demonstrated. Based on the outcomes, the factors with the highest direct effect on Intention to use E-commerce appeared to be Attitude toward using E-commerce, while the factor with the highest indirect effect on Intention to use E-commerce appeared to be Compatibility. The main findings of the study are: perceived ease of use and perceived usefulness, compatibility, trust and technology factor with awareness factor as mediating has a positive and significant impact on behavioral intention.

**Keywords:** Perceived ease of use and perceived usefulness, compatibility, trust and technology factor with awareness and behavioral intention.

## 1.1 RESEARCH BACKGROUND

Awareness and trust have been reported to impede people's involvement in online shopping (alzubi et al., 2017; Shia et al., 2015; Al Ziadat<sup>[1]</sup> et al., 2013; Al-Azzam, 2014). Thus, the factors deemed crucial in the acceptance of E-commerce from the perspective of the customer performing online shopping should be identified. It is also clear, as evidenced by the past studies, that there are issues surrounding E-commerce implementation. Thus, factors impacting the acceptance of E-commerce among customers to shop online need to be examined. Therefore, the present study will identify the factors that underpin or the dimensions impacting the acceptance of customer towards E-commerce. Accordingly, a model of E-commerce acceptance is formulated in this study. Meanwhile, the factors of awareness and trust have been found to be impacting the acceptance of customers towards E-commerce. Most of the models and theories still need to achieve a fully emphasis on the integration between the level of Awareness (AF) mediator the relationship between the perceived Usefulness (PU), Perceived Ease Of Use (PEOU), the Trust Factor (TF), Technology Factor (TECF) and compatibility with the Behavior Intention to use of users from Jordan through the use of E-commerce services in developing countries. The significance of context in the creation of meaning, and the transformative impact of digital networks in providing support to virtual communities that surpass obstacle of awareness and trust that influence the acceptance of E-commerce should be ascertained. Thus, the existing models still have to be improved in terms of effectiveness. For this purpose, certain factors have been ascertained in particular, the factors of awareness and trust. As such, with this study, a gap that exists in the development of more effective and more meaningful online shopping services can be bridged. For this purpose, this study expands the utilization of technology acceptance model (TAM) and the innovation diffusion theory (IDT). Also, in the context of developing countries, nearly all

past researches did not comprehensively test the models of adoption while those that did had generated conflicting outcomes (e.g., alzubi et al., 2017; Al-Azzam, 2014; Hansen, 2013; Mohamed et al., 2012) Also, even among developing countries within the same region, differences can also occur particularly with respect to the demographic, cultural, economic, and political attributes. In order to understand the wishes and desires of the customers, there has to be an interaction. Interaction is thus an important tool. Alzubi et al. (2017) and Slyke et al. (2010) stated that customer views consumer interaction as a more personalized marketing method. The study is carried out to fulfil the need to empirically evaluate the E-commerce adoption in Jordan in terms of adoption and its prospective applications and benefits (Kabango & Asa, 2015). The adoption level is unclear at present time and the issue has also not been sufficiently documented. Thus, the effect of E-commerce on selected sample students will be examined in this study. In particular, the factors impacting the attitudes of students towards E-commerce and perceived barriers and benefits for the adoption of E-commerce will be identified. This study brings awareness of the ever changing factors impacting the customers. This brings to a need of a research model that will increase the level of adoption of E-commerce services in the context of developing countries. The model will assist in the comprehension of how factors impact the E-commerce adoption level in the context of Jordan, which will also contribute to the increased level of E-commerce adoption in developing countries.

Based on the discussions in the previous section, three research questions will be addressed in the current study. The questions are as follows:

1. Dose the effect of the trust and technology factors on the acceptance of E-commerce services among the users?
2. Dose the effect of the compatibility and perceived ease of use on the usefulness of E-commerce services?

3. Dose the effect of Awareness Mediator by Compatibility, Perceived Ease of Use, Usefulness, Trust and Technology variables with E-commerce services Mediator in Jordan E-commerce services?

## 1.2 LITERATURE REVIEW

The definition of E-commerce is dictated by usage and interpretation. Therefore, a universal E-commerce definition is not easy to find (Duffy & Dale, 2002). Kim and Moon (1998) for instance, refers the Electronic Commerce (EC) term as the information delivery of products and services, or payments using computer networks, telephone links, or any other methods that utilise electronic contraptions.

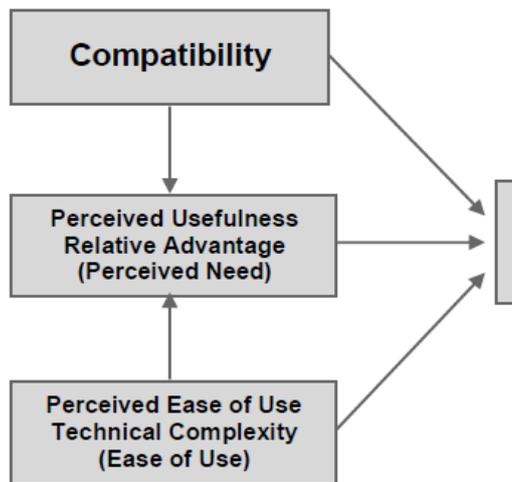
Meanwhile, in the work of Zwass (1996), EC comprises an administrative and communications instrument. Accordingly, the author refers EC as the sharing of information, the preservation of relationships, and the performance of transactions, in the context of business, via networks of telecommunications. In the work of Treese and Stewart (1998), EC is viewed as the global Internet usage to buy and sell goods and services, alongside the after the sale support. Further, Baourakis et al. (2002) describe EC as goods and information trading via the Internet, while Chaffey (2007) illustrates EC as every electronically mediated information exchange that takes place between an organization and its outside stakeholders. There are many forms of E-commerce including Internet, Intranet, electronic data exchange (EDI), electronic catalogue ordering, mobile telephone, direct links-up with suppliers, E-mail as well as Extranet (Quayle, 2002). Albeit the numerous definitions of E-commerce available, to ease the information exchange and transaction performances remains the key reason for the establishment of E-commerce (Tetteh & Burn, 2001). As mentioned by Tetteh and Burn (2001), numerous opportunities have been presented by E-commerce businesses of all sizes for the improvement of their performance. E-commerce has been generally deemed similar to procuring and selling of products as well as services online. However, E-commerce specifically revolves around the

online transaction performances between diverse parties via the Internet.

## 1.3 RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

The application of both TAM and IDT is common in describing and predicting adoption of innovation as well as in the application of a system. Examples of such usage can be referred in Igbaria et al. (1995), Taylor and Todd (1995), Moore and Benbasat (1996), Igbaria et al. (1997) as well as in Karahanna et al. (1999). For that reason, this study will use both TAM and IDT as the underpinning theories. The use of TAM is frequently seen in studies that look into the acceptance of Internet application (e.g., David et al., 1997; Gefen & Straub (2000)). For that reason, TAM and IDT have the capacity to effectively scrutinise the Electronic Commerce (EC) adoption as well as the Internet application. Correspondingly, both TAM and IDT could be a solid theoretical foundation for this study. It is interesting that although coming from different domains, TAM and IDT share some perceptible resemblances. It is common for the construct of relative advantage of IDT to be viewed as identical to the construct of PU in TAM, whereas the construct of complexity in IDT has been viewed to be identical to the construct of PEOU in TAM (Wu & Wang, 2005; Tung et al., 2014).

In fact, some scholars have employed TAM and IDT in combined form. For instance, in evaluating and explaining the behaviour of consumer within a virtual store, Lee and Suh (2013) merged TAM with the construct of compatibility of IDT. Tung et al. (2014) also merged TAM with IDT in their work. Correspondingly, Figure 1 highlights the ground model of the E-commerce acceptance examination.



**Figure 1** Basic Model for Acceptance of E-commerce

The use of TAM combined with other theories of acceptance and diffusion has been proposed by several studies (e.g., Hu et al., 1999; Wu & Wang, 2005; Lee & Suh, 2013; Wu, Weng & Kao, 2014; Tung et al., 2014) in order that the model's predictive and explanatory capabilities could be improved. Moreover, with the inclusion of the construct of compatibility (C) of IDT, the model could address the social environment. Compatibility is determined using the assessment of innovation compatibility with the already present values and beliefs, ideas formerly brought forth, and the needs of the prospective adopter (Rogers, 2003). Theoretically, C would affect PU considerably, exactly like PEOU.

The aforementioned supposition is supported by the ratiocination that the services of E-commerce will be deemed to be of value to the users providing that their E-commerce adoption is not encroaching their lifestyle and requirements. Somehow, the preliminary acceptance of E-commerce and its consistent utilisation show identical significance level. Furthermore, in extending TAM research, the integral topic of Information System (IS) in terms of continuance in the last few years has been examined by a few researchers. The subject of technology potential discontinuity was discussed by Parthasarathy and Bhattacharjee (1998) and the authors were of

the view that the prospective factors of discontinuity are discernible according to the sources of influence for the students first adoption (interpersonal), perceived usefulness, perceived compatibility, service usage, and complementary utilisation of product. Meanwhile, Bhattacharjee (2001) applied the theory of Expectation-Confirmation in his work and found that user's decision towards continuance of Information System was impacted by their satisfaction with it. As also stated by the author, Information System comprises a direct result of user expectation of confirmation or disconfirmation.

Similarly, it is possible to predict the continuance of usage of the users of E-commerce by looking into the level of confirmation/satisfaction and the use of E-commerce service of students when they initially implemented the system. Also, since both TAM and IDT have been strongly supported, the validity of base model within E-commerce context has been recognised. The creation of the base model follows TAM which means that both the model and TAM share identical weaknesses. For instance, albeit its effectiveness in foretelling the potential user acceptance; TAM has no capacity in inventing and developing the systems that have high acceptance level. As a solution, PU, PEOU, and BI determinants should be determined (Venkatesh & Davis, 1996) in order that the noteworthy solutions could be presented to the designers of the system. The use of these determinants could ascertain the affirmation of students in addition to their level of satisfaction on E-commerce service as these would denote the important implications that would predict the prolongation of their usage. The next step for the researcher is therefore to determine the factors of the acceptance of students, and these factors would be addressed in the context of E-commerce.

Consumers (i.e., students, for the context of this study) acceptance, and adoption and behaviour expectation are two theoretical constructs that are connected. For this reason, the widely employed technology acceptance model (TAM) and innovation diffusion theory (IDT) have been chosen in this study to

establish the theoretical base. On the other hand, unified theory of acceptance models and the application of technology (UTAUT) with respect to novel technology offer insufficient explanation but it is dissimilar with respect to the context of technology (Williams, 2009). Additionally, the factor of Awareness mediates the relationship between Perceived usefulness, Perceived ease of use and intention to use acceptance new technology. Furthermore, according to alzubi et al. (2018) it Awareness mediates with Perceived usefulness, Perceived ease of use shows a positive causal relationship between the intention to use acceptance new technology.

## 1.4 HYPOTHESIS DEVELOPMENT

The plan for the current research is to set up a hypothetical model that could explain and make prediction on user's acceptance as well as usage of E-commerce services. The original TAM consisted of perceived usefulness and ease of use as the main predictors for the attitudes, intention, and actual system used. However, the current study considers technology, perceived usefulness, compatibility trust, and ease of use factors as the main predictors of attitude. There is a possibility of successful exploration with the inclusion of new predictor factors in the TAM to investigate the level of correctness of this theory in different contexts and situations (Davis, 1989). Thus, the investigation focuses on the awareness among students in the service sector toward E-commerce services in Jordan is expected to represent the new perspective of their attitude and perception of E-commerce in Jordan.

The awareness will be further investigated as to what extent the five independent variables (Technology, Perceived usefulness, Compatibility, Trust, Perceived ease of use) are indispensable in influencing its direction. Previous literature indicated that there were no past studies that contained these five independent variables formed in one model to generate an effect on the awareness among students. Earlier discussions of the importance for each variable provided evidence that was able to create awareness among students, and has been proved by

different researchers such as Lewison (1996), Shimp (1997), Futrell (1992), Kotler (2004) and Weisbord (1988) for the variable technology. This motivates this research, which will combine five factors and form them into one model to create more awareness among students, and consequently improve the issue of the intention to use E-commerce services in Jordan.

### 1.4.1 The Effect of compatibility on Awareness

For an IT project to be taken up for implementation, it has to be consistent with the needs, goals and cultural values of the organization (E Altameem, R Almakki 2014), Al-Ghaith, W., Sanzogni, L., & Sandhu, K. (2010), Akbulut, A. (2002). Ascertaining compatibility is vital as it ensures safety among potential adopters. A highly compatible IT innovation is highly meaningful to an organization. When existing systems are compatible with internet-based transactions, organizations require lower effort to streamline a new innovation and this makes it more ready to utilize e-business Teo and Pavri (1997) In general, compatibility is considered a criterion for assessing the completeness of E-commerce initiatives and its important enabler for E-commerce implementation success (Ling, C. Y. 2001) Offering services such as E-commerce is of great value, and not only does it improve the image of the commerce though its ability in providing a variety of services, but when that awareness through offers is combined with the accessibility of these services, it further enhances the security level in the presumption of the customers (Flavián et al., 2004).

H1: The Compatibility of E-commerce service has a direct effect on awareness to use e- E-commerce services.

### 1.4.2 The Effect of Compatibility on Intention to Use E-commerce service

Compatibility to the internet is a prerequisite for the intention to use e-commerce (Sathye, 1999). The more widespread the access to computers and the internet is, the greater the possibility of use e-commerce. O, Connell (1996) revealed that lack of access to

computers as one of the reasons for slow intention to use e-commerce. Based on Daniel (1999), who conducted his study in the United Kingdom, lack of customer access to suitable personal computers as the main reason for low usage of electronic commerce.

Aliyu et al. (2012) found that the construct compatibility mostly has a significant or direct impact on E-commerce adoption, and it could be noted that compatibility is an important factor for electronic based shop adoption, but there are limited empirical studies that found these constructs to have insignificant effect on E-commerce adoption. However, these prior studies on E-commerce adoption factors have produced mixed results, which have culminated to the difficulty in articulating the E-commerce adoption drivers. The factor was compatibility, which mainly refers to respondents being incapable of connecting to an E-commerce (Gerrard et al., 2006).

Based on the literature reviewed, this study offers the following hypotheses:

H2: The Compatibility of E-commerce service has a direct effect intention to use E-commerce services.

#### **1.4.3 Compatibility significantly effects Perceived Usefulness**

In broad terms, compatibility encompasses “the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters” (Rogers, 1983, p. 15). A positive relationship between the two constructs -compatibility and intention to use - has been found in a number of previous E-commerce studies (Dass & Pal, 2011; Kapoor et al., 2015; Schierz et al., 2010; Yang et al., 2012; Zhang et al., 2012). The perceived ease of use and usefulness constructs are always parallel with each other, and they are the most significant indicators of technology adoption (Kim, Mirusmonov, & Lee, 2010). This study conceptualized compatibility to have an indirect impact on behavioural intention of E-commerce through perceived ease of use and perceived usefulness. Therefore, this study offers the following hypotheses:

H3: The Compatibility of E-commerce service has a direct effect perceived usefulness to use E-commerce services.

#### **1.4.4 Perceived Usefulness of Intention to Use E-commerce service**

There is extensive research in the IS community that provides evidence of the significant effect of perceived usefulness on usage intention (Agarwal and Prasad, 1999; Davis et al., 1989; Hu et al., 1999; Jackson et al., 1997; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000). The ultimate reason individuals exploit E-commerce systems is that they find the systems useful when carrying out their shopping transactions. This leads to the hypothesis:

H4: The Perceived usefulness of E-commerce service has a direct effect intention to use E-commerce services.

#### **1.4.5 The Effect of Perceived Usefulness on Awareness**

Perceived usefulness is, “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989; Davis et al., 1989; and Mathieson, 1991). It was revealed to influence awareness, and intention to using retail accepting new technology in a number of studies (Al-Sukkar, 2005; Liao and Cheung, 2002; Kolodinsky and Hogarth, 2001; Kolodinsky et al., 2004; Ravi et al., 2007; and Vatanasombut, Lgbaria, Stylianou and Rodger, 2008).

H 5: The Perceived usefulness of E-commerce service has a direct effect awareness to use E-commerce services.

#### **1.4.6 Perceived ease of use significantly affects Perceived usefulness**

Perceived ease of use refers to the degree to which an individual believes that using a target system will be free of effort (Davis, 1989). In the E-commerce field, perceived ease of use refers to the degree to which E-commerce would be easy to use and free of mental and physical effort (Wei, et al.,

2009). Davis suggested and confirmed that perceived ease of use was an antecedent of perceived usefulness and attitude. Furthermore, Davis (1989, p.334) concluded that, "the easier a system is to interact with, the less effort is needed to operate it and the more effort one can allocate to other activities. In this study, the researcher argues that m-commerce must be easy to learn and easy to use, with less complexity to develop positive attitude and to enhance his\her performance in order to encourage users to adopt e-commerce services. This posited a similar effect in the following hypothesis:

H6: The Perceived ease of use of E-commerce service has a direct effect Perceived usefulness to use E-commerce services.

#### **1.4.7 The Effect of Ease of Use on Awareness**

The variable ease of use has a positive effect on awareness, since it is, in the view point of consumers, a perception that if a product or service is easy to use, then more consumers will use it. However, if consumers view a particular product or service as difficult to use, they will not be motivated to use it. Therefore, it is critical that providers of any product or service, in this case, the service of E-commerce, make their service as easy to use as possible, so that customers are motivated to use it.

H7: The Perceived ease of use of E-commerce service has a direct effect awareness to use E-commerce services.

#### **1.4.8 Perceived Ease of Use on Intention to Use E-commerce service**

Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly, or indirectly, through its effect on perceived usefulness (Agarwal and Prasad, 1999; Davis et al., 1989; Hu et al., 1999; Jackson et al., 1997; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000). In order to prevent the "under-used" useful system problem, E-commerce systems need to

be both easy to learn and use. Information technology (IT) that is easy to use will be less threatening to the individual (Moon and Kim, 2001). This implies that perceived ease of use is expected to have a positive influence on users' perception of credibility in their interaction with the e-commerce systems. This leads to the hypothesis that PEOU influence user's intention to use e-commerce both directly and indirectly. This hypothesis is summarized as:

H8: The Perceived ease of use of E-commerce service has a direct effect Intention to use E-commerce services.

#### **1.4.9 The Effect of Trust on Awareness**

Greenfield Online (1998) substantiated the importance of awareness of creating online trust. The study reported that reasons for non-purchase among those who never purchased online were payment security (75%), payment-clearing structure (46%), company credibility (36%), product return (36%), and absence of privacy policy (33%). And when asked what constitutes trust, online purchasers answered company awareness (75%), brand familiarity (68%), offline presence and its performance (52%), and ratings by TV or magazines (41%). For the same question, online non-purchasers answered company awareness (71%), brand familiarity (71%), recommendation by friends or family (42%), and offline presence and its performance (38%). Thus, the awareness of the name of the company operating web sites should be considered as an essential ingredient for garnering trust toward online web sites.

H9: The Trust of E-commerce service has a direct effect awareness to use E-commerce services.

#### **1.4.10 Trust on the Intention to Use E-commerce service**

The major factors contributing to trust in E-commerce are privacy and security. This extends to electronic commerce (Wang et al., 2003; Rotchanakitumnuai and Speece, 2003; Shih and Fang, 2004; Molla and Licker, 2001; Pikkarainen et al., 2004; Cheng et al., 2006).

Wang et al., (2003) argued that information privacy is vulnerable on the internet and can lead people away from use E-commerce. As for security, it is a theme the dominates IT studies and development of It technologies. Secure websites that contain several security features help encourage people to engage in E-commerce. As such, this research hypothesises that:

H10: The Trust of E-commerce service has a direct effect intention to use E-commerce services.

#### **1.4.11 The Effect of Technology on Awareness**

In today's economic awareness and the globally competitive business world, technology becomes essential for every business, which uses this technology for performance and accuracy. In recent years, technology has become increasingly important to the evolution of the commerce sector. One of the factors that drives the improvement in the quantum and quality of commerce is more wide spread and more efficient use of information technology (Jamil and Kadam, 2013). Over the last two decades, commerce have increasingly come to rely on technology to support communication and information processing in all areas of their operations. In Jordan.

H11: The Technology of E-commerce service has a direct effect awareness to use E-commerce services.

#### **1.4.12 Technology on Intention to Use E-commerce service**

Previous studies have shown that the intention to use technology by SMEs is still lower than expected (Mansor et al., 2012; Chong, 2009; Mutula and Brakel, 2006). Several barriers and obstacles to intention to use technology have been identified, including lack of knowledge about the potential of technology, a shortage of resources lack of skills (Blackburn and Athayde, 2000; Cavalcanti, 2006; Ndubisi and Jantan, 2003; Utomo, 2001). Several studies have also focused on identifying the determinants that influence technology.

Based on the literature reviewed, this study offers the following hypothesis:

H12: The Technology of E-commerce service has a direct effect intention to use E-commerce services.

#### **1.4.13 The Effect of Awareness on the Intention to Use e-commerce service**

The exploration and understanding of awareness is critical to ensure that commerce sector remains successful and competitive in the business. There are various definitions given for understanding the concept of awareness. Referring to Kotler (2004), the concept of awareness attempts to explore how the customers establish the knowledge of the products or services and to what extent they are lacking of information about it. According to Hyytinen (2008), the term awareness refers to the extent individuals are able to associate the product or brand as an option to satisfying a problem but has little or no information about it, as argued by Sharon (1999). Raising customer awareness of the wide range of customer products beside various alternatives that are made available by commerce institutions is crucial to secure their competitiveness. Awareness may be defined as a knowing about the products offered (Mansor et al., 2012).

H13: The Awareness of E-commerce service has a direct effect intention to use E-commerce services.

#### **1.4.14 Behavioural intention to use significantly affects to use behavior.**

Venkatesh and Morris (2000) and Venkatesh et al. (2003) suggest that higher behavioral intention leads to a higher frequency of use. Therefore, Based on the literature reviewed, this study offers the following hypothesis

H14: The Behavioral intention of E-commerce service has a direct effect Use behavior to use E-commerce services.

### 1.4.15 The Factors on intention to use E-commerce service in Jordan is mediates by Awareness.

In this work, awareness is a mediator that will be placed between the relationships of the variables that have an impact on the intention to use E-commerce. Since there is a relationship between the five variables and the intention to use E-commerce in Jordan, the mediator awareness acts as a third explanatory variable. The variables influence the mediator awareness, and, in turn, the awareness of students in Jordan will influence the intention to use accepting new technology, which is the main aim of this work. Padachi and Seetanah (2010) found that user's use of accepting new technology was usually determined by the role of the relevant factors which highly influence the decision of students.

From the literature reviewed and previous studies, and based on the analysis of the hypotheses and the factors with their relation to the intention to use E-commerce, we examine the following hypotheses:

H15: The influence of compatibility on intention to use E-commerce service in Jordan is mediates by Awareness.

H16: The influence of Perceived usefulness on intention to use E-commerce service in Jordan is mediates by Awareness.

H17: The influence of Perceived ease of use on intention to use E-commerce service in Jordan is mediates by Awareness.

H18: The influence of Trust on intention to use E-commerce service in Jordan is mediates by Awareness.

H19: The influence of Technology on intention to use E-commerce service in Jordan is mediates by Awareness.

### 1.5 Data analysis

Considering the measurement model, the assessment of the structural model was the subsequent step in the PLS Analysis; an analysis was performed towards the inner model. Hair et al.'s (2011) proposed requirements were perused. Thus, for the

testing of hypotheses, the researcher employed bootstrapping to measure the significance level of the path coefficients. The researcher applied the PLS-SEM structural model for testing the hypothesized relationships. Here, the PLS algorithm and bootstrapping algorithm in SmartPLS 2.0 3M were used. The path coefficients show high level of significance in PLS analysis.

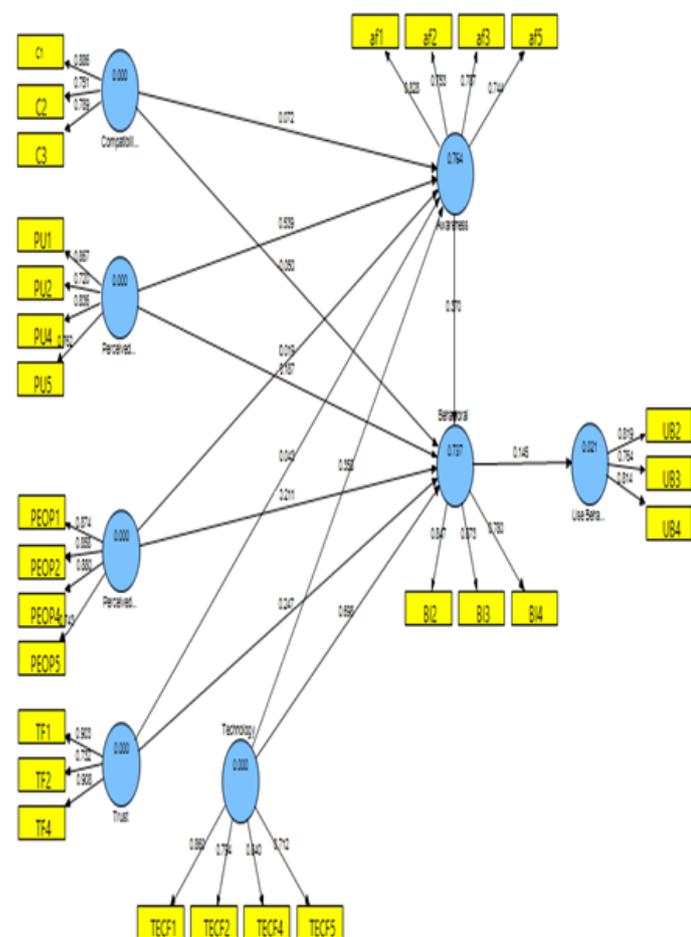


Figure 2: Items Loadings, Path Coefficient, and R<sup>2</sup> Values

### 1.5.1 Hypotheses Testing

Testing the hypothesized relationships is the last step in the structural model of PLS-SEM. For this purpose, PLS algorithm and bootstrapping algorithm are executed using SmartPLS 2.0 3M. In PLS analysis, path coefficients are highly crucial, but Hair et al. (2011) indicated that non-significant paths or those that show signs that are contradictory to the hypothesized direction means that the prior hypothesis cannot be accepted and hence, should be rejected. Conversely, significant paths demonstrate that the hypothesized direction is in support to the causal relationship proposed, empirically. The author further added that similar to the weights and loadings of indicators, the significance of each path coefficient is assessable using the procedure of bootstrapping. Accordingly, Figure 1 can be referred to view the items loadings, path coefficient, as well as  $R^2$  values.

Evaluating path coefficients with the method of bootstrapping requires a bootstrap sample of 500. Meanwhile, the amount of cases must tally with the number of observations in the initial sample (Winnie, Poh-Ming Wong, 2014; Winnie & Ramayah, 2015; Sumo & Regien, 2015; Lorenzo-Romero & Carlota, 2014; Henseler, Jörg, 2012; Monecke & Armin, 2012; Rubel & Mohammad, 2014; Iivari & Juhani, 2005).

Furthermore, the two-tailed test shows the critical t-values as follows: 1.65 (10% level of significance), 1.96 (5% level of significance), and 2.58 (1% level of significance). Accordingly, to generate standard errors and acquire t-statistics, 500 re-sampling was set with a replacement number obtained from the cases of bootstrap that correspond to the study's sample's initial number which is 384. The path coefficient and the results of bootstrapping are presented in Figure

4.4 and Table 4.11. The tables highlight the testing of the hypothesized relationships as clarified below:

H1: The proposed relationship between Compatibility and Awareness to use the E-commerce service did not appear to exist with ( $\beta = 0.084$ ,  $t = 1.622$ ). As such, the hypothesis was not supported.

H2: The proposed relationship between Compatibility and behavioural intention to use the E-commerce service did not appear to exist with ( $\beta = 0.046$ ,  $t = 1.038$ ). As such, the hypothesis was not supported.

H3: The proposed relationship between Compatibility and perceived usefulness appeared to exist with ( $\beta = 0.676$ ,  $t = 14.054$ ). As such, the hypothesis was supported.

H4: The proposed relationship between Perceived Usefulness and behavioural intention to use the E-commerce service appeared to exist with ( $\beta = 0.200$ ,  $t = 3.427$ ). As such, the hypothesis was supported statistically.

H5: The proposed relationship between Perceived Usefulness and Awareness of E-commerce service did not appear to exist with ( $\beta = 0.518$ ,  $t = 8.406$ ). As such, the hypothesis was not supported statistically.

H6: The proposed relationship between Perceived Ease of Use and perceived usefulness appeared to exist with ( $\beta = 0.159$ ,  $t = 2.814$ ). As such, the hypothesis was supported statistically.

H7: The proposed relationship between Perceived Ease of Use and Awareness of E-commerce service appeared to exist with ( $\beta = 0.034$ ,  $t = 0.519$ ). As such, the hypothesis was supported statistically.

H8: The proposed relationship between Perceived Ease of Use and behavioural intention to use the E-commerce service appeared to exist with ( $\beta = 0.208$ ,  $t = 4.377$ ) As such, the hypothesis was supported statistically.

H9: The proposed relationship between Trust Factor and Awareness of E-commerce service appeared to exist with ( $\beta = 0.056$ ,  $t = 0.763$ ). As such, the hypothesis was supported statistically.

H10: The proposed relationship between Trust Factor and behavioural intention to use the E-commerce service appeared to exist with ( $\beta = 0.253$ ,  $t = 5.743$ ). As such, the hypothesis was supported statistically.

H11: The proposed relationship between Technology Factor and Awareness of E-commerce service did not appear to exist with ( $\beta = 0.388$ ,  $t = 6.933$ ). As such, the hypothesis was not supported statistically.

H12: The proposed relationship between Technology Factor and behavioural intention to use the E-commerce service appeared to exist with ( $\beta = 0.702$ ,  $t = 14.819$ ). As such, the hypothesis was supported statistically.

H13: The proposed relationship between awareness and behavioural intention appeared to exist with ( $\beta = 0.146$ ,  $t = 2.870$ ). As such, the hypothesis was supported statistically.

H14: The proposed relationship between behavioural intention to use and Use Behavior appeared to exist with a direct effect on Use Behavior to use the E-commerce service with ( $\beta = 0.389$ ,  $t = 7.382$ ). As such, the hypothesis was supported statistically.

## 1.6 Conclusion

The last decade has witness the expansion of E-commerce in the developed nations. This has fascinated the developing countries especially the Middle East countries because the significant worth of being a player in the arena E-commerce is understood by these countries. Countries in the Middle East must employ the technology of Internet technology particularly in the marketing field. Unfortunately, Internet users are still lagging for nearly all countries in the Middle East particularly with respect to the varied usage of Internet. In fact, very few M- marketing sites can be found in Arab countries. The outcomes generated by this study fulfil its key objective: to increase the intention to use Arabic E-commerce websites among Arab users. As such, the increase number of Arab e-commerce websites is expected to cause consumer to switch their online purchasing intentions towards the local Arab websites. This in turn will improve the microeconomics of Arab nations. The study offers a validated framework model for the establishment of Arabic Websites and online shopping industry. This study is also an addition to the body of knowledge on the fundamental level. The findings obtained by this study can be used as a key guideline to the academia and practitioners in their practices of business development

## Reference

- Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies?. *Decision sciences*, 30(2), 361-391.
- Akbulut, A. Y. (2003). An investigation of the factors that influence electronic information sharing between state and local agencies.
- Al Ziadat, M. T., Al-Majali, M. M., Al Muala, A. M., & Khawaldeh, K. H. (2013). Factors Affecting University Student's

- Attitudes toward E-Commerce: Case of Mu'tah University. *International Journal of Marketing Studies*, 5(5), 88
- Alali, H., Wishah, R., Alali, S., Al-Sukkar, A., & ABU-HUSSIEN, A. H. (2016). E-MARKETPLACE LEGAL AND REGULATORY FRAMEWORK IN JORDAN: A GENERAL VIEW. *Journal of Theoretical & Applied Information Technology*, 85(2).
- Al-Azzam, A. F. M. (2014). Evaluating the antecedents of online consumer purchasing behaviour an empirical study based on theory of planned behaviour. *International journal of economics, commerce and management*, 2(4).
- Al-Ghaith, W., Sanzogni, L., & Sandhu, K. (2010). Factors influencing the adoption and usage of online services in Saudi Arabia. *The Electronic Journal of Information Systems in evolving Countries*, 40(1), 1-32.
- Al-Nawayseh, M. (2012). *Electronic commerce logistics in developing countries: the case of online grocery shopping in Jordan* (Doctoral dissertation, Brunel University School of Engineering and Design PhD Theses).
- Al-Sukkar, A. S. (2005). The application of information systems in the Jordanian banking sector: a study of the acceptance of the internet.
- Altameem, E., & Almakki, R. (2017). E-commerce Implementation: A Critical Review. *International Journal of Computing*, 6(2), 12-19.
- Alzubi, M. M., Alkhawlan, M. A., & El-Ebiary, Y. A. B. (2017). Investigating the factors affecting University students'E-commerce intention towards: a case study of Jordanian universities. *Journal of Business and Retail Management Research*, 12(1).
- Alzubi, M. M., Alkhawlan, M. A., & El-Ebiary, Y. A. B. (2017). Investigating the factors affecting University students'E-commerce intention towards: a case study of Jordanian universities. *Journal of Business and Retail Management Research*, 12(1).
- Alzubi, Y. Z. W. (2018). Turnover intentions in Jordanian Universities: The role of leadership behaviour, organizational commitment and organizational culture. *International Journal of Advanced and Applied Sciences*, 5(1), 177-192.
- an, K. S., Chong, S. C., Loh, P. L., & Lin, B. (2010). An evaluation of e-banking and m-banking adoption factors and preference in Malaysia: a case study. *International Journal of Mobile Communications*, 8(5), 507-527.
- Apweiler, R., Hermjakob, H., & Sharon, N. (1999). On the frequency of protein glycosylation, as deduced from analysis of the SWISS-PROT database. *Biochimica et Biophysica Acta (BBA)-General Subjects*, 1473(1), 4-8.
- Ashraf, J., Ali, M. A., Ahmad, W., Ayyub, C. M., & Shafi, J. (2013). Effect of different substrate supplements on oyster mushroom (*Pleurotus* spp.) production. *Food Science and Technology*, 1(3), 44-51.
- Barnes, N. G., Connell, A., Hermenegildo, L., & Mattson, L. (1996). Regional differences in the economic impact of Wal-Mart. *Business Horizons*, 39(4), 21-26.
- Bhattacharjee, A. (2001). An empirical analysis of the antecedents of electronic commerce service continuance. *Decision support systems*, 32(2), 201-214.
- Blackburn, R., & Athayde, R. (2000). Making the connection: the effectiveness of Internet training in small businesses. *Education+ Training*, 42(4/5), 289-299.
- Cavalcanti, J. V., Lopes, A. J., Jansen, J. M., & Melo, P. L. (2006). Detection of changes in respiratory mechanics due to increasing degrees of airway obstruction in asthma by the forced oscillation technique. *Respiratory medicine*, 100(12), 2207-2219.

- Chaffey, D. (2009). *E-Business and E-Commerce Management, Strategy, Implementation & Practice*, Prentice Hall, 2009: *E-Business and E-Commerce Management, Strategy, Implementation & Practice* (Vol. 1). Bukupedia.
- Chen, X. P., Eberly, M. B., Chiang, T. J., Farh, J. L., & Cheng, B. S. (2014). Affective trust in Chinese leaders: Linking paternalistic leadership to employee performance. *Journal of management*, 40(3), 796-819.
- Coelho, P. S., & Henseler, J. (2012). Creating customer loyalty through service customization. *European Journal of Marketing*, 46(3/4), 331-356.
- Dass, R., & Pal, S. (2011). A meta analysis on adoption of mobile financial services. *Indian Institute of Management Ahmedabad*, 2(1), 1-26.
- Duffy, G., & Dale, B. G. (2002). E-commerce processes: a study of criticality. *Industrial Management & Data Systems*, 102(8), 432-441.
- Flavian, C., Torres, E., & Guinaliu, M. (2004). Corporate image measurement: A further problem for the tangibilization of Internet banking services. *International Journal of Bank Marketing*, 22(5), 366-384.
- Fraley, R. T., Rogers, S. G., Horsch, R. B., Sanders, P. R., Flick, J. S., Adams, S. P., ... & Galluppi, G. R. (1983). Expression of bacterial genes in plant cells. *Proceedings of the National Academy of Sciences*, 80(15), 4803-4807.
- Futrell, J. M. (1992). Loxoscelism. *The American journal of the medical sciences*, 304(4), 261-267
- Gefen, D., & Straub, D. W. (2000). The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption. *Journal of the association for Information Systems*, 1(1), 8.
- Guriting, P., & Oly Ndubisi, N. (2006). Borneo online banking: evaluating customer perceptions and behavioural intention. *Management research news*, 29(1/2), 6-15.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice*, 19(2), 139-152.
- Hansen, E., & Jonsson, E. (2013). E-loyalty in fashion e-commerce: an investigation in how to create e-loyalty.
- Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the technology acceptance model using physician acceptance of telemedicine technology. *Journal of management information systems*, 16(2), 91-112.
- Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the technology acceptance model using physician acceptance of telemedicine technology. *Journal of management information systems*, 16(2), 91-112.
- Huang, L. S. (2015). Trust in product review blogs: the influence of self-disclosure and popularity. *Behaviour & Information Technology*, 34(1), 33-44.
- Huselid, M. A., Jackson, S. E., & Schuler, R. S. (1997). Technical and strategic human resources management effectiveness as determinants of firm performance. *Academy of Management journal*, 40(1), 171-188.
- Igbaria, M., & Iivari, J. (1995). The effects of self-efficacy on computer usage. *Omega*, 23(6), 587-605.
- Igbaria, M., Zinatelli, N., Cragg, P., & Cavaye, A. L. (1997). Personal computing acceptance factors in small firms: A structural equation model. *MIS quarterly*, 21(3).
- Iivari, J. (2005). An empirical test of the DeLone-McLean model of information system success. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, 36(2), 8-27.
- Kabango, C. M., & Asa, A. R. (2015). Factors influencing e-commerce development: Implications for the developing countries. *International*

- Journal of Innovation and Economics Development*, 1(1), 64-72.
- Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS quarterly*, 183-213.
- Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310-322.
- Kim, J., & Moon, J. Y. (1998). Designing towards emotional usability in customer interfaces—trustworthiness of cyber-banking system interfaces. *Interacting with computers*, 10(1), 1-29.
- Kohli, A., Kapoor, R., Sims, Z., Nelson, A., Sidharthan, S., Lam, B., ... & Sugarman, K. (2015). Ledipasvir and sofosbuvir for hepatitis C genotype 4: a proof-of-concept, single-centre, open-label phase 2a cohort study. *The Lancet Infectious Diseases*, 15(9), 1049-1054.
- Kolodinsky, J. M., Hogarth, J. M., & Hilgert, M. A. (2004). The adoption of electronic banking technologies by US consumers. *International Journal of Bank Marketing*, 22(4), 238-259.
- Kolodinsky, J., Hogarth, J. M., & Hilgert, A. (2001). The adoption of electronic banking technologies by American consumers. *Consumer Interests Annual*, 47(3), 1-9.
- Kotler, P., & Armstrong, G. (2004). *Marketing*. Praha: Grada, 2004. 855 s.
- Kotler, P., & Armstrong, G. (2004). *Marketing*. Praha: Grada, 2004. 855 s.
- Kumar, P. R., & Ravi, V. (2007). Bankruptcy prediction in banks and firms via statistical and intelligent techniques—A review. *European journal of operational research*, 180(1), 1-28.
- Kuntz, S., Wenzel, U., & Daniel, H. (1999). Comparative analysis of the effects of flavonoids on proliferation, cytotoxicity, and apoptosis in human colon cancer cell lines. *European journal of nutrition*, 38(3), 133-142.
- Lee, S. B., & Suh, M. C. (2013). Recent advances in cuticular wax biosynthesis and its regulation in *Arabidopsis*. *Molecular plant*, 6(2), 246-249.
- Levergood, T. M., Stewart, L. C., Morris, S. J., Payne, A. C., & Treese, G. W. (1998). *U.S. Patent No. 5,708,780*. Washington, DC: U.S. Patent and Trademark Office.
- Lewison, G. (1996). The definition of biomedical research subfields with title keywords and application to the analysis of research outputs. *Research Evaluation*, 6(1), 25-36.
- Liao, Z., & Cheung, M. T. (2002). Internet-based e-banking and consumer attitudes: an empirical study. *Information & management*, 39(4), 283-295.
- Ling, C. Y. 2001. Model of factors influences on electronic commerce adoption diffusion in small & medium sized enterprise.
- Lorenzo-Romero, C., Constantinides, E., & Brünink, L. A. (2014). Co-creation: Customer integration in social media based product and service development. *Procedia-Social and Behavioral Sciences*, 148, 383-396.
- Luenberger, David G. *Optimization by vector space methods*. John Wiley & Sons, 1997.
- Mansor, N., Shariff, A., & Manap, N. R. A. (2012). Determinants of awareness on Islamic financial institution e-banking among Malaysian SMEs. *International Journal of Business and Social Science*, 3(5).
- Mansor, N., Shariff, A., & Manap, N. R. A. (2012). Determinants of awareness on Islamic financial institution e-banking among Malaysian SMEs. *International Journal of Business and Social Science*, 3(5).
- Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of

- planned behavior. *Information systems research*, 2(3), 173-191.
- Molla, A., & Licker, P. S. (2001). E-commerce systems success: An attempt to extend and respecify the Delone and MacLean model of IS success. *J. Electron. Commerce Res.*, 2(4), 131-141.
- Monecke, A., & Leisch, F. (2012). semPLS: structural equation modeling using partial least squares.
- Moore, G. C., & Benbasat, I. (1996). Integrating diffusion of innovations and theory of reasoned action models to predict utilization of information technology by end-users. In *Diffusion and adoption of information technology* (pp. 132-146). Springer, Boston, MA.
- Mutula, S. M., & van Brakel, P. (2006). E-readiness of SMEs in the ICT sector in Botswana with respect to information access. *The electronic library*, 24(3), 402-417.
- Oly Ndubisi, N., & Jantan, M. (2003). Evaluating IS usage in Malaysian small and medium-sized firms using the technology acceptance model. *Logistics Information Management*, 16(6), 440-450.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahlila, S. (2004). Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet research*, 14(3), 224-235
- Quayle, M. (2002). E-commerce: the challenge for UK SMEs in the twenty-first century. *International Journal of Operations & Production Management*, 22(10), 1148-1161.
- Ramayah, T., Lee, J. W. C., & In, J. B. C. (2011). Network collaboration and performance in the tourism sector. *Service Business*, 5(4), 411
- Rotchanakitumnuai, S., & Speece, M. (2003). Barriers to Internet banking adoption: a qualitative study among corporate customers in Thailand. *International Journal of Bank Marketing*, 21(6/7), 312-323
- Rubel, M. R. B., & Kee, D. M. H. (2014). Quality of work life and employee performance: Antecedent and outcome of job satisfaction in Partial Least Square (PLS). *World Applied Sciences Journal*, 31(4), 456-467.
- Sandalidou, E., Baourakis, G., & Siskos, Y. (2002). Customers' perspectives on the quality of organic olive oil in Greece: A satisfaction evaluation approach. *British Food Journal*, 104(3/4/5), 391-406.
- Sathye, M. (1999). Adoption of Internet banking by Australian consumers: an empirical investigation. *International Journal of bank marketing*, 17(7), 324-334.
- Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic commerce research and applications*, 9(3), 209-216.
- Shih, Y. Y., & Fang, K. (2004). The use of a decomposed theory of planned behavior to study Internet banking in Taiwan. *Internet research*, 14(3), 213-223.
- Shimp, T. A. (1997). *Advertising, promotion, and supplemental aspects of integrated marketing communications*. Harcourt Brace College Publishers.
- Stylianou, D. A., & Silver, E. A. (2004). The role of visual representations in advanced mathematical problem solving: An examination of expert-novice similarities and differences. *Mathematical thinking and learning*, 6(4), 353-387.
- Sumo, R., van der Valk, W., van Weele, A., & Bode, C. (2016). Fostering incremental and radical innovation through performance-based contracting in buyer-supplier relationships. *International Journal of Operations & Production Management*, 36(11), 1482-1503.

- Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information systems research*, 6(2), 144-176.
- Teo, T. S., Ang, J. S., & Pavri, F. N. (1997). The state of strategic IS planning practices in Singapore. *Information & Management*, 33(1), 13-23.
- Tetteh, E., & Burn, J. (2001). Global strategies for SME-business: applying the SMALL framework. *Logistics Information Management*, 14(1/2), 171-180.
- Tsu Wei, T., Marthandan, G., Yee-Loong Chong, A., Ooi, K. B., & Arumugam, S. (2009). What drives Malaysian m-commerce adoption? An empirical analysis. *Industrial Management & Data Systems*, 109(3), 370-388
- Tung, F. C., Yu, T. W., & Yu, J. L. (2014). An extension of financial cost, information quality and IDT for exploring consumer behavioral intentions to use the internet banking. *International Review of Management and Business Research*, 3(2), 1229.
- Utomo, H., & Dodgson, M. (2001). Contributing factors to the diffusion of IT within small and medium-sized firms in Indonesia. *Journal of Global Information Technology Management*, 4(2), 22-37.
- Van Slyke, C., Lou, H., Belanger, F., & Sridhar, V. (2010). The influence of culture on consumer-oriented electronic commerce adoption. *Journal of Electronic Commerce Research*, 11(1).
- Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information systems research*, 11(4), 342-365.
- Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision sciences*, 27(3), 451-481
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204.
- Venkatesh, V., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS quarterly*, 115-139.
- Weisbord, M. (1988). Towards a new practice theory of OD: Notes on snapshotting and moviemaking. *Research in organizational change and development*, 2, 59-96.
- Wong, W. K., Kao, B., Cheung, D. W. L., Li, R., & Yiu, S. M. (2014, June). Secure query processing with data interoperability in a cloud database environment. In *Proceedings of the 2014 ACM SIGMOD international conference on Management of data* (pp. 1395-1406). ACM.
- Wong, W. P. M., Lo, M. C., & Ramayah, T. (2014). The effects of technology acceptance factors on customer e-loyalty and e-satisfaction in Malaysia. *International Journal of Business and Society*, 15(3), 477.
- Wu, J. H., & Wang, S. C. (2005). What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. *Information & management*, 42(5), 719-729.
- Yoon, S. J. (2002). The antecedents and consequences of trust in online-purchase decisions. *Journal of interactive marketing*, 16(2), 47-63
- Zhang, L., Zhu, J., & Liu, Q. (2012). A meta-analysis of mobile commerce adoption and the moderating effect of culture. *Computers in human behavior*, 28(5), 1902-1911.
- Zwass, V. (1996). Electronic Commerce: Structures and Issues' Int'l J. of Electronic Commerce, 1, 1 (Fall, 1996) 3-23.