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**A Conceptual Framework Integration of UTAUT and HBM on Evaluating the Adoption of Electronic Payment System in Malaysia**

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**Abstract**

Given the ongoing epidemic coupled with low acceptance of electronic payment system, such could affect individual behavior. It is through the identification of this factors that affect individual behavior that aide toward overcoming the present challenges faced in influencing individual participation in electronic payment system. The main aim of this study is to propose a conceptual framework on the term of improving the adoption of electronic payment system. Through the incorporation of grounding theory of unified theory of acceptance model and health benefit model from both quantitative and qualitative studies, we select three influencing variables perceived susceptibility, perceived severity, perceived health risk which affect electronic payment adoption. This paper further explores the impact of identified variables perceived susceptibility, perceived severity the role of perceived health risk as mediator. Finally, this paper finalized a conceptual model after exploring previous studies and propose an empirical investigation for validation in future for researchers and practitioners.

**Keyword:** electronic payment services; health benefit model; intention use; perceived health risk; Intention to use.

**INTRODUCTION**

Most recently, financial technology services such as e wallet, automated teller machines, credit and debit card and smartphones are used to conduct different forms of financial payment. therefore, any form of technology that provides the medium to which electronic payment can be initiated or confirmed (Geva, 2012). This study focuses on the individual intention to use

electronic payment systems. This is because the electronic payment system is faced with the related risk to security and privacy (Ivarsson, 2008).

However, currently the banking and financial technology industry is struggling to wrap its arms around the impact of the coronavirus outbreak, as fears about transmission and consumer behavior have led to major questions about the long-term impact on cash and digital currency. One of the major risk that is of importance in today's global epidemic and also relevance in the context of electronic payment system is Perceived Health Risk, which is defined as the degree to which an individual believes that using electronic payment system such as credit card or atm machines has harmful effect in relation to his/her health. To be more precise, credit cards tend to transmit various forms of bacteria as compared to use of coins or cash. Such could affect the adoption rate as electronic payment users might likewise opt for similar "tap and go" transactions through Apple Pay or Google Pay, so as to avoid conducting credit cards transactions in times of epidemic, according to Martini at Member Access Processing. Furthermore, it has also been reported in relation to the potential health risks that is associated with technological device usage which might increase the general public's awareness of the problem (Bilton, 2015).

Accomplishment of individual safety is key in the sustainability. It is challenging to it's too early to definitely talk about any permanent shift in payment methods. However, reports from indicate countries like China and South Korea are taking steps to disinfect their money or even burn it. It does seem highly likely that contactless payments will increase based on this. It might likewise lead to a radical change in individuals payment behaviors, as individuals tend to change to digital form of payment so as to reduce their risk of infection from handling cash. However, many countries are beginning to experience the rise in contactless transactions, which could be seen as less prone to spreading disease than the handling of cash or credit cards.

The aim of this study is to develop a new framework that focuses on the factors that affect the adoption of electronic payment. The development of the new framework was based on theories such as theory of health belief theory and unified theory of acceptance, which were found to under pin the concept of our proposed conceptual framework. Two models which comprises of theory of health belief theory and unified theory of acceptance are taken under consideration to conduct this study. Based on such theories different factors are identified influencing individual intention in the use of electronic payment system. Three factors of Health Belief Model, UTAUT

four factors and perceived health risk seems to be inclining appropriately towards individual intention to use electronic payment system.

## **THEORETICAL BACKGROUND**

The objective of this study is to emphasis on the factors that affect adoption of the electronic payment system from the perspective of the consumer health risk. As evident in today's global pandemic, evaluating the adoption of technology in relation to perceived health risk by technology users requires more contribution due to the persisting low number of studies published to date and in view of the importance of the topic (Mustafaoğlu *et al.*, 2018). The most often used adoption models when studying risk adoption by electronic payment users are the unified theory of acceptance and use of technology (UTAUT) and the technology acceptance model (TAM)(Faqih, 2011; Im, Kim, & Han, 2008; Kansal, 2016; Qian, Fang, & Gonzalez, 2012). Based on previous studies conducted in the field of consumer health information technology adoption, most of the research studies use TAM or extensions of TAM (Wilson & Lankton, 2004). Even though most studies that utilized TAM applied additional models and theories with TAM so as to adapt it to the consumer health technology setting, the technology acceptance model was not envisioned to specifically focus on the consumer. However, the UTAUT model was specifically developed to focus on the consumer user setting and thus achieving good results (Venkatesh, Thong, 2012).

Although the services rendered by financial technology are consumer-oriented technologies, due to the fact that electronic payment user could be regarded as fintech users, the application of a model like UTAUT2 ought not to be considered as adequate toward explaining the involvedness of electronic payment system adoption (AlAwadhi, & Morris, 2008; Bagozzi, 2016). Numerous studies that utilized constructs or frameworks associated to the HBM proved their role and statistical significance in describing health information consumer adoption (Ahadzadeh *et al.*, 2015; Tavares, 2016). The HBM supports that the belief in health risk relates to the prospect of involving in health behavior, or a different way to look into it, is the perception of perceived severity, as compared to the present epidemic, of the health complaint may perhaps be the motivating factor with regard to such behavior (Kim, & Park, 2012; van de Kar *et al.*, 1992). Evidence in the literature indicates that the adoption rate of electronic payment system. Therefore its paramount toward creating an understanding on whether the users of new

technologies that have a low level of adoption can be used to promote them is a valuable asset that should be evaluated (Oliveira *et al.*, 2016).

According to Rosenstock *et al.*, (1988), the Health Belief Model also known as (HBM) is one of the most commonly used theoretical frameworks in terms of predicting health-related behavior. The Health Benefit Model has likewise been employed in explaining the fundamental factors that affects parents intention to enroll in parenting programs, as well as their actual participation (Spoth, & Redmond, 1995; Thornton & Calam, 2010). Based on their findings, paternities are highly expected to partake in parenting programs based on five underlining factors which are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and perceived self-efficacy.

### **Perceived Severity**

Perceived severity implies to the individual evaluation on the seriousness of a health crisis and its likeliest concerns. The health belief model suggests that people who tend to perceive an assumed health crisis as severe are more expected to participate in behaviors that could lead toward preventing the possible occurrence of the health crises (or decrease its severity). Perceived severity comprises of opinions with regard the disease itself (e.g., whether it is life-threatening or might lead to causing disability or pain) as well as wider effect of the disease on functioning in work and social roles. For instance, an individual may perceive that a flu is not psychologically serious, but when the individual perceives otherwise if a financial penalties is attached as a result of being absent from work for several days, then he or she may perceive influenza to be a particularly serious condition.

### **Perceived Susceptibility**

The terms perceived susceptibility describes individual evaluation of risk in terms of experiencing a health problem. The health belief model suggests that those that tend to perceive that they are vulnerable to a certain health problem will participate in behaviors that tend to decrease their risk of acquiring such health crises. Therefore, those that perceive low susceptibility may well reject that they are at danger of encountering a specific disease. Certain individuals may admit the likelihood that they might encounter the disease but could also be doubtful regarding such disease. Those that tend see on the perception that they are at low risk of acquiring a disease are more prone to participate in unhealthy, or risky, behaviors. Moreover, those individuals that also tend to perceive a high risk based on the perception that they will be

directly affected by a certain health problem are more prone to participate in behaviors that will lead to decrease their risk of acquiring the condition.

The mixture of perceived severity and perceived susceptibility is regarded to as perceived threat. Notably the nature of Perceived severity and perceived susceptibility to a given health situation hinges on the level of knowledge and awareness with regard to the condition. therefore, the health belief model insinuates that the higher perceived threat the more tendency it leads to higher likelihood of individual commitment in health-promoting behaviors.

### ***Performance expectancy***

Performance expectancy (PE) is referred to as the point to which a group people rely on using a certain technology that they perceive that it will lead towards helping them in terms of increasing their job performance” (Venkatesh *et al.*, 2003). As identified by Venkatesh *et al.* (2003) such construct have being drawn from previous factors in related theories and models which consist of: perceived usefulness (TAM and C-TAM-TPB), outcome expectation (SCT), relative advantage (IDT), job fit (MPCU), and extrinsic motivation (MM). Generally, performance expectancy is mostly considered as the most significant factor that influences the behavioral intention among any particular theory within various contexts (Venkatesh *et al.*, 2003). PE as established by earlier studies is largely considered as the most important factor which makes a difference on the adoption behavior as evident from different field (Chopdar *et al.*, 2018; Madan, & Yadav, 2016; Tak, & Panwar, 2017).

### ***Effort expectancy***

Based on Venkatesh *et al.* (2003) the term *effort expectancy* (EE) is referred to as the level of presented from other related factors from previous theories which comprises of ease of use Moore, & Benbasat (1991), perceived ease of use Davis *et al.*, (2014) and complexity (Thompson *et al.*, 1991). Effort Expectancy indicated a degree of significant effect on behavioral intention within both compulsory and voluntary settings. Nevertheless, Venkatesh *et al.* (2003) argued that the role of this component is constrained by the time period subsequent to the training-phase of the individual. As electronic payment systems are designed for ease use on technology devices, consequently individuals are more comfortable in utilizing them (Chang, Tsai & Lin, 2012; Islam *et al.*, 2017). Furthermore Madan & Yadav, (2016) asserted that the adoption of a technology is precisely proportion to its ease of use.

### ***Social influence***

Social influence is generally been regarded as the point to which an individual understands that other people do trust the use of the new technology (Venkatesh et al., 2003). Social influence is captured from subjective norm in the models of TRA, TAM2, TPB/DTPB and C-TAM-TPB, social factors in MPCU, and image in DOI. More importantly, it is evident that the variable social influence plays a significant role on behavioral intention most notably in terms of mandatory background (Venkatesh et al., 2003). Previous studies have regarded social as an important determinant that significantly influence behavioral intentions in terms of the adoption of new technologies (Tandon, Kiran, & Sah, 2016; Yang, 2012).

### ***Facilitating condition***

Facilitating conditions as described by UTAUT is the point to which a certain individual rely on an organizational and technological infrastructure which happens to help the use of the technology (Venkatesh et al., 2003). The variable of facilitating conditions is mostly described in several factors such as: compatibility in DOI, perceived behavioral control in TPB, C-TAM, and, DTPB and facilitating conditions in MPCU. Most of these variables tends to provide similar effects on the behavioral intention by considering both of mandatory and voluntary contexts (Venkatesh et al., 2003). But, based on Venkatesh et al. (2003), the influence of facilitating conditions upon behavioral intention might be constrained or irrelevant following the training phase. Furthermore, Ajzen, (1985) and Taylor & Todd, (1995) believed that facilitating conditions might be affected by a direct influence on the actual usage behavior. Previous studies have regarded facilitating condition as a major factor that influences behavioral intentions to embrace new technologies.

### **MEDIATING ROLE OF PERCEIVED HEALTH RISK**

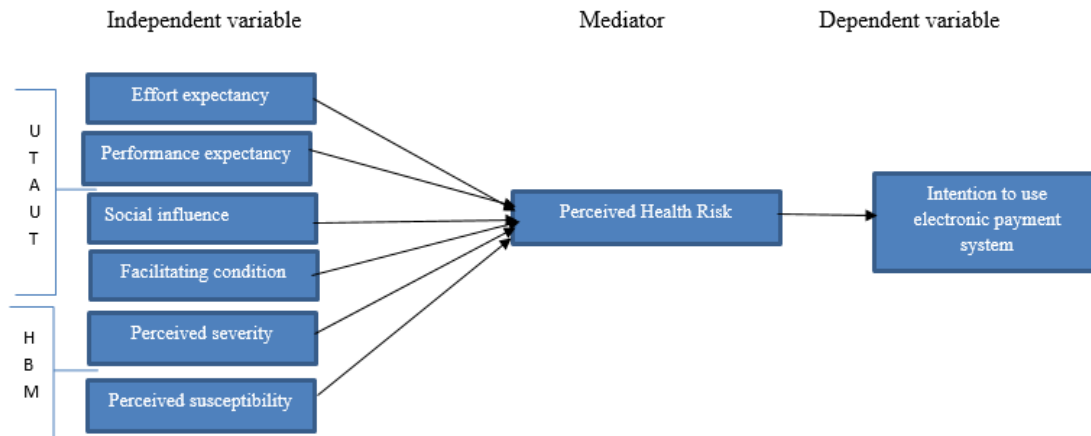
The terms risk is mostly regarded as the degree to which there is an uncertainty in significant and disappointing outcomes that may be realized (Chen, 2013; Sitkin, & Pablo, 1992). Therefore the terms perceived health risk is regarded as ones assessment with regard to the possibility of suffering from a negative health event within a specified period of time (Peter, & Ryan, 1976; Menon, Raghubir, & Agrawal, 2008).

With regard to this study, we tend to investigate the electronic payment systems, risk factor more precisely relating to health concern in the process of using electronic payment system. Users

very so often fear about risks such as privacy problems, system errors, losing passwords, incompatibility of mobile operating systems and security software, and low system quality. According to Hanafizadeh *et al.*, (2014) risk factors are critical in electronic payment system, and the higher the risk of using a new technology, the lower is willingness to use. Featherman, & Pavlou (2003) referred to perceived risk as the likelihood of experiencing loss in the quest of a desired outcome of via an e-service.” In this current research, we defined perceived health risk as the chances to which an individual gets infected or harmed in relation to use of electronic payment system.

To our knowledge, a number of studies have examined perceived risk as an external factor that affect the external factors of the UTAUT model (Martins *et al.*, 2014). Alalwan *et al.*, (2018) claimed that perceived risk significantly affects BI. However, little evidence exists in terms of examining whether perceived health risk acts as moderating factor for any of the UTAUT model’s moderator variables. The present study tested the UTAUT model in combination of Health Benefit Model in relation to electronic payment system adoption by adding the factor of perceived health risk to the model. We assumed that as a moderating factor, perceived risk could affect electronic payment users Effort Expectancy and Performance Expectancy. In other words, perceived risk moderates the relationships between the independent variables (i.e., EE and PE) and the dependent or outcome variable (i.e., BI). Furthermore, Perceived Risk, in general, can change an individual’s feelings (Yüksel, & Yüksel, 2007). Social influence is a factor in risk taking: individual are more likely to disengage in risky behavior when they are influenced with their peers than when they are alone (Dishion & Tipsord, 2011; Gardner & Steinberg, 2005; Simons-Morton, Lerner, & Singer, 2005). This is because individual are readily affected by the opinions, judgments, and behavior of other people (Klucharev *et al.*, 2009; Walker, & Andrade, 1996; Zaki, Schirmer, & Mitchell, 2011). More specifically, due to the perceived negative consequences associated with it, Perceived Risk causes negative feelings such as anxiety, discomfort and uncertainty (Dowling & Staelin, 1994). In this sense, due to the possible negative concerns of using electronic payment systems on an individual’s health, Perceived Health Risk can also be expected to cause negative feeling toward the usage of such technology. We hypothesize that:

Accordingly, we posited that the relationships between these variables are weakened when perceived risk is considered. To examine this idea in detail, the following moderating effects were hypothesized.



## CONCLUSION

The aim of this conceptual paper is to systematically review the current literature on electronic payment technology adoption and investigating associated theories and models, how the factors of electronic payment system is contributing to the adoption of in the financial technology industry. Prior findings are reexamined systematically so as to uncover the factors affecting electronic payment adoption from both qualitative and quantitative researches. Three factors perceived severity, perceived susceptibility and perceived health risk are the piece of proposed conceptual framework having significant relationships with electronic payment system adoption. perceived severity, perceived susceptibility are the two independent variables, electronic payment service adoption as dependent variable and perceived health risk is used as mediator between the relationship of perceived severity with electronic payment system adoption and perceived susceptibility with electronic payment system adoption. The conceptual framework is suggested on the grounds of exiting literature, theory and models, nevertheless its empirical examination is left for future researchers and practitioners.

## FUTURE RESEARCH

The six-hypothesis built on the proposed conceptual framework will facilitate toward contributing in the empirical validation of UTAUT, and HBM models. We will motivate a study



that focuses on proving the empirical result of the antecedents of technology adoption in context of electronic payment system and other self-serving technologies. However, more empirical research is required to further examine the impact of perceived health risk on habits, perceived barriers, perceived benefit, and cues to action, skills, values and on technology adoption in both electronic payment and self-service technology settings so as to further validate the already implemented technology acceptance models and related theories.

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