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Contingency Approach towards Adoption of JomPAY in Malaysia

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Abstract:

Purpose: - The need for full migration to e-payment system led to the introduction of JomPAY in Malaysia. JomPAY has been showing promising growth since its introduction but has a slow rate of adoption. Therefore, using the contingency theory concept, this study aims to examine those (internal cum external) factors influencing the adoption of JomPAY in Malaysia.

Design/methodology/approach: - The extant literature indicates that factors such as security, trust, self-efficacy, government support, socio cultural influence, and legal and regulatory framework influence the adoption of e-payment, which in this study focuses on JomPAY as an e-payment channel. A self-reporting questionnaire was developed and distributed to 210 respondents, with 149 valid response for the statistical analysis.

Findings: - From the empirical result which was achieved using SPSS, two out of the six hypotheses were rejected; H1 and H3, while the rest but government support were significant. Trust and socio cultural influence had a positive relationship with JomPAY adoption as expected.

Research limitations/implications: - The use of contingency theory in this study might have limited the exploration of other factors that can influence JomPAY adoption. Therefore, there is an issue of generalization which can be addressed by future research. Also, future research can extend the stakeholders' participation and not limit to only consumers for more comprehensibility of the factors influencing JomPAY.

Originality/value: - As the first study on JomPAY, this study has provided advanced knowledge on the current state of JomPAY in Malaysia. The factors which appear to be significant in this research will help the facility providers, policymakers and the developers to provide a better system to increase JomPAY adoption and use in Malaysia.

Keywords: E-payment, types, Jompay, security, trust, self-efficacy, government support, socio cultural influence, legal and regulatory framework, Malaysia

1. Introduction

The advent of new technologies has affected businesses and organizational activities. In light of the above, the rapid and continuous development of information and communication technology (ICT) has improved the way organizations conduct business in recent times. With the rate of advancement in the use of information technology (IT) in business, organizations tend to rely mostly on software and electronic devices to carry out the necessary financial activities. IT in recent years has increased in its usage, and in the running of the business activities of organizations. Organizations have come to acknowledge the importance of ICT/ IT in the business environment since its emergence, due to its impacts on the different segments, divisions, and departments of organizations and nations as a whole. According to Slozko and Pello (2015), the emergence of ICT is vital to the changes in the business activities. ICT/ IT has made great evolutionary development in finance, accounting, operational costs, world economies, etc., to become a key to a business success. Also, it helps the management of organizations to review their past performance, control their present operations and plan for future improvements through the use of accounting information system (AIS).

AIS as a system has several segments which include payment system. Payment systems as part of AIS are operational networks governed by regulations and standards that link bank accounts and provides the functionality of monetary exchange using bank deposits (Summers, 2012). It consists of institutions, instruments, procedures, standards and technical means established to affect the transfer of monetary value between parties in business. Its specialization in exchange for monetary figure ascertains the effectiveness in which transaction fund is used in the economy (Bossone & Cirasino, 2001). With the rise in IT evolution, the global economy has been moving from the traditional payment system which includes cash, cheques cum paper-based transactions to the electronic-based payment system (Electronic Payment System/ EPS). This is characterized by changes in the need for easier, faster and more reliable source of payment.

Electronic payment development has been proven to be a strong contributor to the improvements in countries' competitiveness in diverse ways (Kamulegeya, 2010). The growing creativity in payment system has encouraged significant and better financial service provision, which inspires the service providers of electronic payment to aid the payment of bills and electronic transactions through the orthodox financial system without the totality of involving banks or bank accounts. The World Bank suggests that e-payment is essential in the development of the economy, as it is able to provide increased accessibility, security, speed, cost efficiency and transparency (World Bank, 2014). It improves transaction speed, improves merchants' liquidity, and strengthens customer gratification. E-payment also incites reduction in transportation costs, counterfeiting of approved cash, robbery, and fraud. The traditional and common payment instruments like cash and cheques are being systematically replaced in both developed and developing countries or completely overtaken by e-platforms in developed countries notwithstanding physical and circumstantial contingencies of business. Apart from its convenience and safety, EPS has a significant number of economic benefits which include mobilizing savings and ensuring availability of cash for circulation in the country, which gave rise to its intended dominance in the Malaysian economy.

E-payment has been designed to help individuals and organizations to curtail some of the issues fundamental to payment process. In relation to those issues, customers can now have access to their bills and payments in the comfort of their homes. They can also possibly access their account information and even make online money transfers to other accounts. EPS is essential to ensuring the continuous flow of the economic development and could trigger disruptions or transmit shocks within the economy and the financial market, both at the domestic and potentially at the cross-border level in any sign of failure or collapse. In 2015, Bank Negara Malaysia (BNM) furthered its agenda to promote the safety, reliability, and efficiency of the payment systems and instruments as part of its wider responsibilities of maintaining monetary and financial stability. Given the importance of e-payment to countries, Malaysia heavily invested in e-payment system with the intention to push for efficiency and competitiveness in the retail payment market and yield better choices and aid the provision of more efficient and effective quality payment services to all. This prompted the establishment of new e-payment system called JomPAY, which will be the main subject of this research as its adoption will be explored. In the developed countries such as the USA and the UK, their e-payment systems are fully advanced, whereas the developing countries in regions such as South America, Africa, and Asia-Pacific depend on a systematic approach for its implementation in the industry (Kim et al., 2010). Taking Malaysia as the target, BNM stated that Malaysia is anticipated to attain higher economic growth and competitiveness by migrating fully to e-payment; because it is anticipated to provide among others, opportunities to enhance and reinforce the level of productivity and in the long run reduce its minimal business cost (BNM, 2011). Malaysia advancement in technology and information system is yet to be shown in its adoption of e-payment system especially in the most recent online bill payment system (JomPAY). Malaysia was 18th in the 2014-2015 World Economic Forum's Global Competitiveness Index and as of 2016-2017 index, Malaysia ranked 25 (Schwab, 2017). This shows a decline in the economic activities of the country which can be improved through the new e-payment system (JomPAY) as stated by MyClear Managing Director in his statement for a better economy. For Malaysia to improve in economic activities globally, adoption of JomPAY is advised among other strategic decisions, so as to produce a better economy and financial inclusions for the public, and subsequently, higher country's competitiveness.

Given the above statement, the migration to e-payment is relatively below expectation, as the most recent online bill payment platform (JomPAY) is yet to be adopted and used by the majority. MyClear expects to secure 5,000 billers for its JomPAY scheme by 2020, from the current 1,013 entities, as more businesses and consumers migrate to electronic payment platforms. This shows that the growth is slower than the assumed pace. The 5,000-biller target is a 393% rise from the current 1,013 entities. For the expected growth to be achieved, the service providers are entitled to know the factors that affect the adoption and use of JomPAY. This research will serve as a medium to identify and explore those factors that affect adoption of JomPAY services for the nearest future and help towards the achievement of the 2020 initiative.

The following part of the study will be structured as follows. Next section will discuss the literature review, followed by research framework and hypothesis development for testing. Following will be the research methodology, and analysis and interpretation of the data collected. The study is then concluded with the implications and future research areas discussed.

2. Literature Review

2.1. Definition of E-Payment

For over two decades, there has been much focus on e-payment system among researchers (Kim et al., 2010; Kurnia & Ali, 2012; Lai & Li, 2005; Hall and Khan, 2003; Grandon & Pearson, 2004 and more). This focus on e-payment research has been motivated by the growth in information technology, globalization and the rapid growth in e-commerce over the years. Given the number of researches on E-payment System, there have been a number of definitions. For the sake of this study, the most relevant definitions will be outlined, so as to keep the subject matter in line with the scope of the study 'JomPAY'.

There have been many views on the definition of e-payment system over the decades by different scholars cum researchers. Among the earliest definitions are Panurach (1996), and Kalakota and Whinston (1997), who defined e-payment as a financial exchange between the buyer and the seller (transactions) over an online platform or internet; and, Hancock and Humphrey (1997) who stated that e-payment refers to cash and associated transactions implemented via the electronic means. Here the definition points out that there is the use of cash in the e-payment, but it is better to understand

that the use of cash does not involve any physical exchange of cash between the parties involved rather through an electronic means. The later definitions include; Adeoti and Osotimehin (2012), whose definition of e-payment is that of making payments through electronic means for buying of goods and services acquire online or any other means. Similar to the above, Peter and Babatunde (2012) defined e-payment as fund transfer done through the internet. Also, e-payment system involves payments made in electronic commerce environment for the purpose of exchange of money via electronic means. Antwi et al., (2015) defined e-payment as a transfer of payer's monetary claim on a party acceptable to the beneficiary and Kim et al., (2010) stated that e-payment is a transfer of an electronic value of payment from a payer to a payee through e-payment means.

Reviewing the definitions of e-payment over the years show that electronic devices/ information and communication technology is needed for e-payment system to be acknowledged. It also implies that payments can be made in the comfort of homes, offices, in transit and any other place with the coverage of an internet, without being physically involved or being present in banks. This means that for there to be an e-payment, there must be an electronic device involved and the internet for connectivity. For the purpose of this study, the e-payment system will be simply defined as the payment of goods and/or services by both individuals and organizations through an electronic channel to the intended beneficiaries. This can be seen in the payment of bills, purchases, and receipts of monetary value through the card payment system, card and network-based mobile payments, JomPAY (Malaysian new payment system), electronic fund transfer (EFT), e-money and virtual money or accounts. It is necessary to note that since its introduction, e-payment has undergone some stages of development and evolution.

There are 3 main stages of e-payment evolution in Malaysia according to a study by Mohammad (2008), with the inclusion of a fourth stage which was identified under the card-based payment system stage. They include:

- The late 1970s: includes the development of card-based payment system. (The late 1980s: marking the inclusion of debit cards under the card-based payment system)
- The late 1990s: this is the implementation stage of internet-based e payment system.
- The 2000s and beyond: here the mobile-based payment system surfaced.

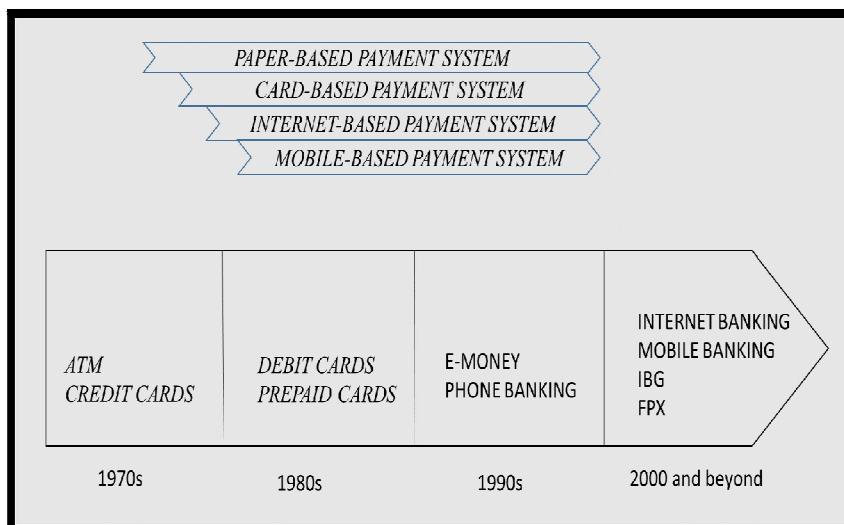


Figure 1: Evolution of E-Payment System in Malaysia (Mohammad, 2008)

2.2. Types of E-Payment System Used in Malaysia

Since the discovery, development, and evolution of e-payment system, many scholars have identified a number of e-payment services and channels within the e-payment system. Some of them include; ATMs, Electronic fund transfers (EFT), e-cash debit cards, credit cards etc. (Peffers & Ma, 2003). E-payment system can also be categorized into; online credit card payments, electronic cash, electronic cheque and other small payments. This categorization was based on the instruments and channels of the e-payment system. Another categorization of the e-payment system is seen in Tan (2004) as presented in Sidek (2015). The categories here are based on the nature of the payments made. They include; Retail e-payments, corporate e-payments, and wholesale e-payments. Given that each country has its own types of e-payment system in use, this study will focus on those specific to Malaysia.

According to Sidek (2015), the e-payment system in Malaysia can be categorized into two main e-payment systems. They include; Large value-payment system and Retail-payment system under which JomPAY is identified. The retail-payment system is further classified as; Retail payment system, Retail payment channel and Retail payment instrument. The diagram below gives a detailed illustration of the types of e-payment system in Malaysia.

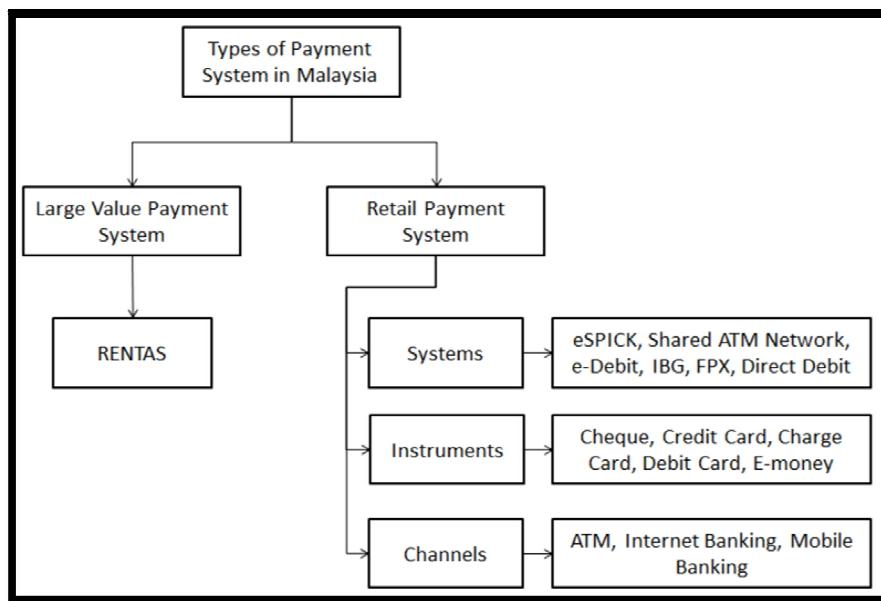


Figure 2: Payment Systems in Malaysia (BNM 2011)

Given that this study is focusing on the examination of the factors that affect the adoption of JomPAY as an e-payment channel, the next sections will introduce JomPAY and further explain the current status of JomPAY and the factors that affect the adoption of JomPAY in Malaysia.

2.3. Overview of JomPAY

For a nation's economy to grow, it must adapt to the evolutions, developments, growth and trends of globalization, be it in finance, Information system, commerce etc. The world economy is becoming more challenging as ICT among others, continue to evolve rapidly. This evolving and challenging global economy must be met with advanced and growing innovations so as to keep any economy productive and reduce risks to increase efficiency. The payment system is a crucial part of every economic activity, be it micro or macro. This makes it an indispensable factor for productivity both for individuals and organizations in any country. Malaysia has been on the road to improve its payment system for a long time. This led to the innovative steps towards the e-payment system (the online bill payment), which led to the launching of JomPAY in 2015. The Deputy Governor of BNM on the 9th of April, 2015, the launch of JomPAY said in his speech that, the launch of JomPAY is part of the progressive journey towards realization of migration to e-payment system.

2.4. What is JomPAY?

JomPAY means "Let's Pay". Its logo was inspired by the concept of security and connectivity in the reflection of reliability, and also the payment of anything and everything. It is defined as a national bill payment scheme, which expedites the payment of bills in Malaysia, by consumers and businesses through their designated financial institutions' internet and mobile banking services. It was established by the Government in collaboration with BNM to enhance the efficiency and convenience of bill payment in Malaysia. It was developed as an industry initiative, which includes financial institutions and billers and is overseen by Bank Negara Malaysia. In addition, JomPAY is operated by MyClear as a platform/ channel through which payments are made from a single account to any biller's account registered under it, i.e. JomPAY enables its subscribers to make payments to the registered billers of all JomPAY participating banks or organizations. In other words, JomPAY is an open platform which eliminates the need for billers and customers to hold multiple bank accounts to accept/receive or make payments. JomPAY provides better and greater efficiency, convenience and accessibility to the public's bill payments.

2.5. Benefits of JomPAY

JomPAY is a newly established online bill payment system/ platform and has been projected to improve the economy in Malaysia. It is a positive move for the Malaysian public to be involved in this one-stop centre for bill payments. The benefits accrued to JomPAY run through the heart of the nation's economy. This was shown in the need for a simple, convenient, and reduced risk and cost of payment. Also, as other billing organizations like Maxis, TNB, and Telecom Malaysia need different bank websites to make bill payments, JomPAY with its uniqueness solves this problem. Giving that most local banks provide bill payment via JomPAY, including the signed up billing organizations, making and collecting payment are made easy and simple using JomPAY. This serves as a genius idea, by making payments stress-free for banks to provide payment for different bills, and payer will have a uniform payment experience.

2.6. Current status of JomPAY in Malaysia

The e-payment system in Malaysia has improved since the introduction of JomPAY into the Malaysia payment system. Since its launch, JomPAY has proven to be part of the solution to bill payment, given that before it was launched

there was no identical national bill payment system/ platform. Then, companies were forced to have individual connections with the 45 mainstream banks to be able to make their bill payments. This process was stressful and, in some way, burdensome and especially costly due to the charges accrued from transactions. Introducing JomPAY into the Malaysian bill payment system brought about improvements and also increased the number of public participations in the movement towards full adoption of e-payment system. Peter Schiesser, the managing director of MyClear stated that a total of 116 billers were registered as of 2015, but between then and 2018, there has been an increase of more than 400% which smoothens the expectation towards making Malaysia one of the top cashless economies of the world. The updated list of JomPAY billers excluding the public is 1420, recording 32 recently registered billers like; Aquatic Capital SDN BHD, Abedeen Academy SDN BHD, BIZTERY, Food Marketing SDN BHD, Kolej Yayasan UEM, PSMB etc.

Nevertheless, JomPAY has seemed successful since its introduction, with the shared online infrastructure and access to 42 banks in Malaysia and more than 100 business organizations. Most of the linked banks have been keen on encouraging their customers to use JomPAY. Banks like HSBC, CIMB, AmBank, Bank Islam and others have been involved in creating awareness programs and giving out prices for users of JomPAY, to achieve the ultimate goal of fully adopting e-payment system in Malaysia. As stated earlier, JomPAY is cost-free but the cost for businesses will vary according to the participating banks. The customers making payments do not pay any extra charge, and this was confirmed by the BNM Deputy Director in his press conference after JomPAY launch. MyClear Managing Director Peter Schiesser promised the public that once a business signs up for JomPAY, all 42 banks in Malaysia would work 24 hours a day, seven days a week to collect payments for the business at minimal cost, making JomPAY round the clock platform for bill payments in Malaysia. Furthermore, Peter Schiesser stated that there is a target of registering 5000 billers and businesses before 2020, which will continue to improve the e-payment system in the nation. The adoption rate of JomPAY seem to be slow as the total number of billers and businesses is yet to reach 2000 after the first 2 years. Due to this slow adoption of JomPAY, it is important to examine those factors that are affecting its adoption. This study will be the pioneer in the research on JomPAY, so the factors affecting the adoption of JomPAY as an e-payment platform will be adopted from the prior studies on e-payment system, as will be seen below.

2.7. Factors Affecting the Adoption of Jompay in Malaysia

In every new system, there are bound to be challenges, even when there is much success. The era of e-payment has brought us many advantages, as seen in the case of JomPAY in Malaysia, which simply makes bill payment in Malaysia a stress-free, cost-free and secure means of payment. These challenges can be seen in form of the factors influencing the adoption of JomPAY as an e-payment system.

There have been various researches on the factors affecting the adoption of e-payment system. Some of those studies include Antwi et al., (2015) whose findings show that Security, Infrastructure, Legal and Regulatory issues, and sociocultural issues, are relevant factors that affect adoption and implementation of e-payment. Kim et al. (2010) also examined the causes of perceived security and trust of consumers and their effects in using e-payment systems. The result shows that security and trust were significant factors. Also, the study found that there was a positive relationship between consumers' perceived security, trust, and e-payment systems usage.

From the above review, most studies focus on a particular perspective in examining the factors that affect the adoption of e-payment system. But according to Lim et al., (2007) e-payment adoption involve cooperation among the individuals, Information Technology (IT) providers, businesses, banks and central government. Each of the above-mentioned participants is important, as the success of the e-payment system (JomPAY) is not particularly dependent on any of them rather the full support from all. Hence, this study will focus on those relevant factors affecting the adoption of JomPAY in Malaysia context. On that note, using the Contingency theory in this research can be supported as its fundamental principle opines that making a decision is contingent (dependent) on the internal and external situation surrounding that decision. To that effect, this study will focus on the factors affecting JomPAY based on some specific internal factors which include; Security, Trust, self-efficacy; and external factors which include; Government support, Sociocultural influences, and Legal and regulatory framework.

2.8. Security

Security is an important aspect of all facets of life and in this case, business organizations. Every consumer, business, organization, and industry, whether big or small need to feel secure in its business transactions and activities. Security in e-payment is essential as it projects safety to the consumers of e-payment services. In an IT environment, security is key and will go a long way in determining adoption and usage. Due to vast number of studies identifying security as one of the most single determinants of e-payment system adoption, and its attraction of notable attention (Poon et al., 2008; Lim et al., 2007), it will be considered a variable in this study, under the internal factors of the contingency model of JomPAY adoption.

The absence of security in e-payment environment is seen as a threat, which projects potential economic difficulties regarding destruction of information, loss of consumer data, fraud, manipulation of users' information and fraud (Yousafzai et al., 2009; Kalakota & Whinston, 1997; Reavely, 2005). In Sathy (1999), it was found that 73 per cent of customers in Australia were not willing to adopt online banking as a result of insecurity. Abrazhevich (2004) affirmed in his study that security remains a vital determinant of adoption of e-payment system. This was also supported by Ezeoha (2006), and Kesharwani and Radhakrishna (2013) that the fear of insecurity constitutes a huge threat to the adoption of e-banking system. Poon et al. (2008) findings also show that security is positively significant in electronic service adoption. Therefore, security viewed to be significant in the adoption of JomPAY, the hypothesis will be proposed thus;

2.8.1. H1 Security Has a Significant Relationship with the Adoption of Jompay

2.8.1.1. Trust

Trust is the confidence a potential adopter or consumer has on the e-payment system or platform. In the e-payment, consumers are willing to give their personal information, trusting that the vendors, system developers, banks and what have you, will not misuse or use their personal information for selfish purposes (Abrazhevich, 2004). As a result of uncertainty in the IT environment, trust has been seen as a crucial variable in the determination of e-payment adoption. Trust has been proven so far to be vital in e-payment system as the value of money and payments are based on trust (Arvidsson, 2014). The importance of trust is invaluable as e-payment, e-commerce or mobile commerce has a spatial (distance) factor and temporal separation between the parties involved in any transaction (Yap et al., 2010). With respect to prior literature, Abrazhevich, (2001); Chou et al. (2004); Tsiakis and Sthephanides, (2005) it has been found that trust is important in the understanding of interpersonal behaviour and economic exchange which is positively significant in the consumer adoption of e-payment system. In the case of JomPAY, consumers' trust in JomPAY will positively influence its adoption. Thus, the hypothesis will be as follows;

2.8.2. H2 Trust Will Be Positively Related to the Adoption of Jompay

2.8.2.1. Self-Efficacy

As opined by Bandura (1986), self-efficacy is a product of one's personal mastery. In this context, the self-efficacy beliefs are based on the development of a response to four sources of information;

- Previous experience (success and failures).
- Vicarious experience (observing other's success and failures).
- Verbal persuasion (from peers, colleagues, and relatives) and
- Affective state (anxiety).

Self-efficacy is the belief an organization cum individuals have in their ability to execute a given task (Dory et al., 2009). In e-payment, it is that confidence or judgment of one's ability to adopt or use e-payment system. It has been identified as a credible variable in the e-banking system and other technology and innovation literature. Bandura (1986) is of the opinion that the more confident in the capabilities to perform a given task, there exists a better chance of performing that task.

Existing literature has found self-efficacy to be a justifiable construct in the technology adoption literature (Hill et al., 1986, 1987; Luarn & Lin, 2005; Chan & Lu, 2004; Venkatesh & Davis, 1996). Compeau and Higgins (1995) opined that the reason for the inclusion of self-efficacy as technology innovation adoption variable lies on the fact that there have been a number of empirical data suggesting the positive impact self-efficacy has on IT adoption literature. Among them is Venkatesh and Davis (1994, 1996), who found in their studies that self-efficacy is positively related to information system acceptance. Other studies like Burkhardt and Brass (1990); Hill et al. (1986, 1987); Webster and Matocchio (1993); Adeoronke (2010) studied the effect of self-efficacy on adoption of innovative technology and found that there is significant relationship between self-efficacy and technology innovations adoption, high technology products, as well as performance in software training. As it has been shown in the extant literature, the hypothesis will be stated as;

2.8.3. H3 Self-Efficacy has a Positive Relationship with the Adoption of Jompay

2.8.3.1. Government Support

In every country, it is crucial for the government to be involved in the nation's building; economically, socially, culturally, technologically and what have you. The government is expected to support the nation's building in full capacity. In other words, the growth of a nation is affected by the role of the government in a great capacity.

Government support in this context refers to the assistance the authorities (government) render to encourage the growth of e-payment, innovations and new technologies in its best capacity. Government policies have been identified as a helping hand in the affordability of technologies and the exaction of pressure on the adoption of e-commerce, e-payment services, e-banking and what have you, as a tool for international/ global competition (Gibbs et al., 2003). The policies and guidance from the government serve a great purpose on the financial, educational, and technological development and service improvements in countries; especially in this technology age and the adoption of different technological innovations.

According to the survey by Chong and Pervan (2007), it was found that government initiatives stood to be one of the most significant factors in the determination of the extent of e-business development and adoption of e-payment. Also, in Singapore, Thatcher et al. (2006) examined the adoption of EDI and found that the success of EDI in Singapore was due to the exceptional support from the government in the development of IT and launch of educational programs to enlighten the public on EDI. In a similar way, a study was conducted by Kurnia et al. (2010) and the result also points to the significance of government support in the adoption of e-banking in China. This study will also examine the impact of government support as it hypothesizes;

2.8.4. H4 Government Support has a Positive Effect on the Adoption of Jompay

2.8.4.1. Socio Cultural Influence

As defined by Chong et al. (2009), it is the level to which a person or an organization (potential adopter of an e-payment system) believes that the society and culture of his/ her environment influence his/ her decision. It is also defined as those influences and pressures from others (cultural or societal) who are held in high esteem and are believed to impact the society. This is an important factor in the adoption of new technology, especially from the social psychology. Its impact on e-payment adoption have been tested in the extant literature and have been suggested to be significant (Venkatesh et al., 2003; Thompson et al., 1991). This variable has been used in different theory models; UTAUT, TAM, TPB, TRA, IDT and what have you. In some of these models, it was used as social influence, image, cultural influence, subjective norms and so on. In general, sociocultural influence is the pressure from the society and culture which are seen to be significant in decision making.

In the extant literature, Amin et al. (2008) and Zainol (2011), examined the adoption of mobile banking, and their findings show that normative pressure is significant in the behavioural intention to adopt mobile banking. Supporting the above is Kleijnen et al. (2004) whose findings show that social influence was highly significant in predicting the intention to adopt wireless finance. Also, in the work of Hartwick and Barki (1994), the result indicates that potential adopters of e-payment rely on subjective norms when they are new to the innovation technology or system being introduced. In Malaysia, the citizens are known to hold their societal values and culture in the highest esteem. With that in mind, there is a tendency of the sociocultural influence playing a major role in the adoption of JomPAY. Therefore, the hypothesis goes thus;

2.8.5. H5 There is a Significant Relationship between Socio cultural Influences and the Adoption of Jompay

2.8.5.1. Legal and Regulatory Framework

The legal and regulatory framework as part of the contingent variables are those rules and laws with the requirement to comply with regards to e-payment system. It has been suggested to be one amongst the drivers of e-payment adoption; and with good regulation and legal support, the adoption of e-payment services (JomPAY) is perceived to be improved. In the research by Tan and Ouyang (2002) on the adoption of e-banking in China, the absence of legislation was suggested to be a hindering factor in the adoption of e-commerce, likewise in the study conducted in Saudi Arabia which suggests that lack of legal framework hinders e-payment adoption (Aljowaidi, 2015).

In light of the importance of regulatory and legal framework, some research has empirically tested their significance. Tadesse and Kidan (2005) found that in the adoption of e-payment system in Ethiopia, Legal structure and security framework encourages its adoption as there was a significant relationship. Alshehri and Drew (2010) supports the existing literature on the impact of the legal and regulatory framework as their study shows that the existence and effectiveness of legal framework increase consumers' confidence and guarantees to a reasonable extent the adoption of e-payment. In addition, Zhu et al. (2006) opined that the regulatory environment has a crucial role in e-business adoption in developing countries (like Malaysia). This construct is expected to be a fit in this study as Malaysia is a developing country. Therefore, the hypothesis will be;

2.8.6. H6 There is a Significant Relationship between the Legal and Regulatory Framework and the Adoption of JomPAY

2.8.6.1. Dependent Variable

In this study, the dependent variable is defined as the adoption of JomPAY, which in other words is the actual adoption. Adoption of JomPAY can be defined as the consumers' engagement in the use of JomPAY services for work and other related activities. Unlike most models that moderate the actual adoption with the intention to adopt or attitude towards adoption (like in TAM, TPB, and TRA), the proposed model will use only the actual adoption (in this case, the adoption of JomPAY). As reflected by Taylor and Todd (1995), intention to adopt is believed to affect actual adoption; like in the research by Tan and Teo (2000), where the intention to adopt internet banking services reflected the actual adoption. Likewise, this study will be presenting the actual adoption of JomPAY; measured by the number of adoptions of JomPAY in the public universities and the satisfaction they get in its usage.

The figure below shows the research framework of this study, adopted and modified from the contingency theory. The independent variables include; security, trust, self-efficacy, government support, socio cultural influence, and legal and regulatory framework. The aforementioned variables are posited to have a significant relationship with the dependent variable (adoption of JomPAY). The next section discusses the methodology.

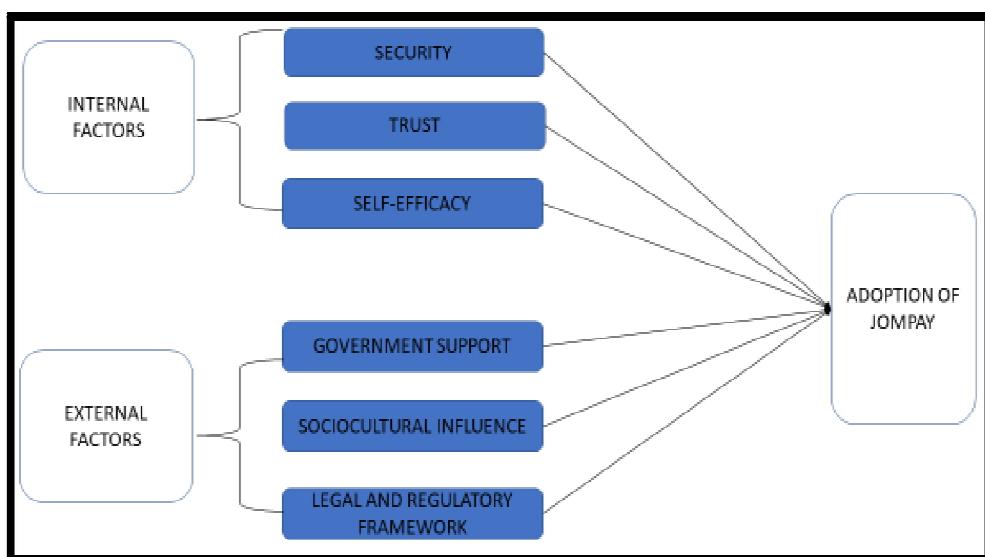


Figure 3: Conceptual Framework/ Model (Adopted and Modified from TEO Et Al. 1997)

3. Research Methodology

3.1. Introduction

Here, we present the research method which includes; research design, population and sample of the study, research instrument, data collection method and data analysis approach.

3.2. Research Design

The quantitative research design was employed due to the nature and purpose of this study. A survey was conducted using the structured questionnaire in International Islamic University Malaysia, among two relevant kulliyyahs' academic staff deemed reasonable for the study. The questionnaire survey was found to be appropriate for this study having reviewed extant literature in this area (Tan & Teo, 2000; Tan & Lau, 2016; Wu & Wang, 2005; Kim et al., 2010).

3.3. Population and Sample of Study

The population of this study is the International Islamic University Malaysia (IIUM). To be able to get a reasonable and reliable data, the whole academic staff of two relevant kulliyyahs' will be used in the collection of data, due to their exposure to IT technology, accounting and related skills. The sampling technique that was adopted was judgment sampling technique which is one of the two types of purposive sampling. In light of the above, the whole academic staff of the two kulliyyahs amounting to a total of 210 respondents were chosen based on the rationale behind the sampling technique adopted. A total of 210 questionnaires were distributed to the respondents via google form and was later followed up by printed questionnaire shared by hand. This was to foster better response rate.

3.4. Research Instrument

This study involves the adoption of JomPAY as an e-payment system, which encouraged the use of a questionnaire as the research instrument to collect data and obtain a reliable understanding of the factors that influence the adoption of JomPAY in Malaysia. The questionnaire measures seven constructs; one dependent variable and six independent variables. The variables were adapted from prior studies (Tan et al., 2007; Kim et al., 2010; Teoh et al., 2013). The respondents were asked to indicate their level of agreement using a 5-point Likert-scale ranging from; Strongly Agree (SA) to Strongly Disagree (SD).

The measurable constructs had a total of 22 items; security and trust have 4 items each, adoption of JomPAY has 2 items, while the rest have 3 items each.

3.5. Data Collection and Analysis Method

The data collected through the survey questionnaires as explained above were analyzed using the quantitative method of analysis through a statistical analysis package called SPSS (statistical package for social sciences). The major analyses done using SPSS include; descriptive statistics and inferential statistics which includes; Pearson's correlation analysis and multiple regression analysis.

4. Data Analysis Presentation and Interpretation

4.1. Demographic Information

The table below shows the demographic information of the respondents.

S/N	Items	Categories	Frequency (n)	Percentage (%)
1	Gender	Male	80	53.7
		Female	69	46.3
2	Age	Below 30 years	35	23.5
		30 years to 50 years	61	40.9
		Above 50 years	53	35.6
3	Internet usage frequency	Very often	130	87.2
		Often	18	12.1
		Moderate	1	.7
4	JomPAY for bill payments	Yes	113	75.8
		No	36	24.2
5	If not using JomPAY	No or a little knowledge	15	10.1
		Comfortable with my existing method	12	8.1
		Not all my billers registered	4	2.7
		I do not want to use any online transaction payment	5	3.7
6	Period of JomPAY usage	Below 3 months	32	28.3
		3 - 6 months	11	9.7
		6 months and above	70	61.9

Table 1

Sample size = 210, Response = 149, Response rate = 70.9%

The findings under background information of the respondents show that there is a high participation rate of the male with 53.7% than the female who has a 46.3% participation rate. For the age, respondents within the age bracket of 30 – 50 had the highest participation rate of 40.9%. As anticipated, the respondents' use of the internet indicates 'very often' with the highest percentage rate of 83.7%, as internet and IT flows through every aspect of this modern age or computer age as some may have it.

The use of JomPAY recorded a 75.8% adoption rate by the respondents, among which more males tend to be using JomPAY for their bill payments than the females. Given the above adoption rate as seen in the table above, among the respondents using JomPAY, there were more users ranging from 6 months and up to 61.9%, and 28% users have been using it for less than 3 months. This shows promise to grow in the adoption rate of JomPAY for the future.

Furthermore, for the non-adopters, when asked the reason for not using JomPAY, the majority of the respondents indicated that they had no or little knowledge about JomPAY as seen in the table above. This reflects the poor awareness scheme by the providers of JomPAY online bill payment system or the neglect of the respondents towards the developments and innovations by the government. As a national bill payment innovation, IIUM as a public institution ought to be aware of the developments and innovation of the government, especially the academic staff of the two kulliyahs that were used as a sample for this study. The respondents are academic staff who have IT and Accounting as their area of specialization. In view of the above and for the fact they are public servants, they are meant to be constantly informed on the developments of the nation in bill payments and any related payment innovation.

4.2. Correlation Analysis

	Security	Trust	Self-Efficacy	Socio cultural Influence	Legal and Regulatory Framework	Government Support	Mean	SD
Security	1						3.67	0.51
Trust	0.420**	1					3.49	0.87
Self-Efficacy	-0.430**	0.401**	1				3.02	0.95
Sociocultural Influence	-0.216*	0.369**	0.682**	1			3.27	0.81
Legal and Regulatory Framework	0.533**	0.122	-0.604**	-0.118	1		3.58	0.42
Government Support	0.788**	0.194*	-0.506**	-0.191*	0.602**	1	3.60	0.51

Table 2

**. Correlation is Significant at the 0.01 Level (2-tailed)

*. Correlation is Significant at the 0.05 Level (2-tailed)

Based on the results in the table above, there is moderately positive and significant (Pearson's) relationship between security and trust; this shows that security is significantly related to trust { $r(107) = 402, p = 0.000$ }. As for the

security and self-efficacy, a moderate negative and significant relationship is found; indicating that security has significant negative related with self-efficacy $\{r(107) = -0.430, p = 0.000\}$. Similarly, there is moderately negative and significant relationship between security and sociocultural influence, indicating that security is negatively correlated with sociocultural influence $\{r(107) = -0.216, p = 0.022\}$. On the relationship between security and legal and regulatory framework, the result shows that there is a strong positive and significant relationship between them, suggesting that security is associated with legal and regulatory framework $\{r(107) = 0.533, p = 0.000\}$. Moving to the security and government support, the result suggests that their relations is strong positive and significant relationship $\{r(107) = 0.788, p = 0.000\}$.

Furthermore, the result suggests that the relationship between trust and self-efficacy is moderate and significant, indicating that trust is associated with self-efficacy $\{r(107) = 0.401, p = 0.000\}$. For the relationship between trust and sociocultural influence, it was found that there is moderately positive and significant relationship between them; showing that trust is moderately related to sociocultural influence $\{r(107) = 0.369, p = 0.000\}$. Whereas, the relationship between trust and legal and regulatory framework, as well as the relationship between trust and government support are weak; these results show that the relationships between these variables are low. More so, there is strong and significantly positive relationship between self-efficacy and sociocultural influence; this is an indication that self-efficacy is related to sociocultural influence $\{r(107) = 0.682, p = 0.000\}$.

However, the result in the table above suggests that the relationship between self-efficacy and government support is negative, strong, and significant; this reveals that self-efficacy is negatively and significantly related to government support $\{r(107) = -0.604, p = 0.000\}$. Also, the relationship between self-efficacy and legal and regulatory framework is negative; this relationship is strong and significant, showing that self-efficacy is negatively and significantly related to legal and regulatory framework $\{r(107) = -0.604, p = 0.000\}$. On the relationship between sociocultural influence and legal and regulatory framework, as well as the relationship between sociocultural influence and government support are weak, suggesting that they are weakly correlated. Finally, the relationship between the legal and regulatory framework and government support is strong, positive, and significant; suggesting that legal and regulatory framework is significantly related to government support $\{r(107) = 0.602, p = 0.000\}$.

4.3. Multiple Regression Analysis

Predictor Variable	R ²	Adj. R ²	F	p	Cons.	Unstand. Coef.	Stand. Coef.	t	p
Model	0.39	0.36	11.27	<0.001	3.959				
Security						-0.27	-0.31	-2.02	-0.046
Trust						0.29	0.57	4.42	0.000
Self-Efficacy						-0.20	-0.44	-2.28	-0.025
Sociocultural Influence						0.29	0.53	4.32	0.000
Legal and Regulatory Framework						-0.27	-0.26	-1.99	0.049
Government Support						0.21	0.24	1.79	0.077

Table 3
Dependent Variable: JomPAY Adoption

Following various assumptions and restrictions discussed earlier, a multiple linear regression was undertaken to investigate variance in JomPAY Adoption when predicted by six variables included in this study (security, trust, self-efficacy, socio cultural influence, legal and regulatory framework, and government support). Using enter method, six independent variables were loaded into the model at once. As shown in table above, the model was able to explain 36% variation in the outcome variable (Adj. R² = 36%); this was found to be significant, F (6, 106) = 11.274, p < 0.001. Out of six independent variables included in the model, five significantly contributed to the model. While trust ($\beta = 0.29, t = 4.42, p = 0.000$) and socio cultural influence ($\beta = 0.29, t = 4.32, p = 0.000$) positively and significantly contributed to JomPAY adoption; Security ($\beta = -0.270, t = -2.02, p = 0.046$), self-efficacy ($\beta = -0.204, t = -2.28, p = 0.025$), and legal and regulatory framework ($\beta = -0.270, t = -1.99, p = 0.049$) are negatively related to JomPAY adoption. The remaining variable – government support, did not significantly contributed to variance in JomPAY adoption.

5. Conclusion and Recommendation

5.1. Research Implications

In the course of this research, the factors affecting the adoption of JomPAY as an e-payment system was addressed through the purview of contingency theory. This updates earlier empirical studies on e-payment system adoption, which has been the focus of academic research over a period of time, both in the developed and developing countries (like Malaysia). This study is specific to Malaysia, giving that JomPAY is a national bill payment scheme established to help

promote cashless economy or in this case full migration to e-payment system. This research provides a new spectrum of results in the e-payment adoption literature, and open up a new channel for researchers to study more about JomPAY; its impact in Malaysia economy, the global market, factors that influence its adoption and what have you.

5.2. Summary of the Findings

This research aims to explore the factors that influence/affect the adoption of JomPAY in Malaysia, choosing the International Islamic University Malaysia (IIUM) as the research population and the academic staff of the two kulliyahs as the desired sample cum respondents. The proposed theoretical model incorporates six independent variables; three each from both the internal and external factors based on the contingency theory. Those factors include; security, trust, self-efficacy, government support, socio cultural influence, and legal and regulatory framework. The result of the study shows the explanatory power of the proposed theory in predicting the factors influencing the decision to adopt JomPAY in Malaysia.

The empirical findings show that among the six hypotheses proposed, four were not rejected, while the remaining two; security and self-efficacy were rejected. The accepted hypotheses were found to have both positive and negative effect on the adoption of JomPAY. Trust and socio cultural influence are the two positively significant variables in the JomPAY adoption and this was predicted by prior studies as reviewed in chapter two. This result as discussed earlier simply supports the literature in e-payment system adoption as trust and socio cultural influence promotes the adoption of JomPAY. Legal and regulatory framework although significant is found to have a negative influence on the adoption of JomPAY. This was not expected as prior studies in e-payment system adoption like; Alatawi et al., (2012) shows a positive effect. Government support, on the other hand, is found not to be a significant factor in the adoption of JomPAY but has a positive relationship with JomPAY. This shows that Government support in JomPAY adoption is not relevant to the extent of this research.

Furthermore, this study contributed to the e-payment adoption research (JomPAY) by introducing contingency theory to diversify in the theoretical implications in the adoption of JomPAY in Malaysia. From the standpoint of e-payment adoption literature, this research contributes immensely to the studies on Contingency theory. This introduction of contingency theory cum contingent variables brought about new insight and opened up a new understanding as to the factors affecting the decision to adopt JomPAY bill payment scheme. This insight of introducing an unusual theory into the JomPAY adoption research is backed by extant research like; Ming-Yen et al. (2013). As suggested by the theoretical model, potential adopters are affected by both internal and external factors in relation to JomPAY and it guides them to either adopt or not adopt it. Although there is limited research on e-payment adoption that used contingency theory, the findings from this research will add to the body of literature in this area.

5.3. Limitations and Recommendations for Future Research

As seen in similar studies, there are limitations associated with this research, which will be addressed for the benefit of future research in this area. Firstly, from the perspective of the sample, the collection was done in IIUM through the kulliyahs' academic staff. With this in mind, this study might not be eligible for generalization as it cannot represent the whole view of the nation in general and even IIUM in particular, on the factors that affect the adoption of JomPAY in Malaysia. It is noteworthy to mention that the population/sample of this research was based on convenience/ researcher's judgement and the issue of bias might not have been totally taken into consideration. Hence, readers of this research should be cautious of their interpretation of the findings of this research.

Secondly, the model adopted was unable to factor in several other factors like; cost, compatibility, ease of use, innovativeness, accounting system integration, transparency and what have you. As an exploratory study, some of the above factors/ independent variables were deliberately ignored as the researcher chose the most assumed applicable factors for this study. Also, the measures of constructs are from research conducted through the quantitative method of research. The adoption of JomPAY and the factors that influence it might change over time. Therefore, for future research to have a more comprehensive result, the incorporation of mixed research method and addition of more measures of constructs should be encouraged.

Furthermore, some of the research respondents chose not to participate in this research. This might have affected the actual findings of this study, as there might be bias in the respondents' selection, which might have contributed to the limitation of the generalization of this study. Future research in this research area should factor in the above limitations in the drive to extend cum explore further.

Lastly, in an attempt to obtain a more-comprehensive research finding, future studies could also include some feedback from other stakeholders of JomPAY bill payment scheme, such as; service providers, government, regulatory authorities, and competitors. This can lead to a better adoption and full migration to e-payment system in Malaysia.

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Appendix

Factors	Measurement Items	Sources
Security	<ul style="list-style-type: none"> • JomPAY provides adequate security for users. • Since JomPAY is proposed by Bank Negara Malaysia, I feel secure. • I believe JomPAY system provider has sufficient security measures against hackers. • I believe JomPAY system is secured against transaction fraud. 	Yi et al., 2003; Kim et al., 2010.
Trust	<ul style="list-style-type: none"> • I am sure that payments made via JomPAY are surely processed. • I adopted JomPAY because the terms and conditions are clear. • JomPAY transactions are reliable. • Transactions made through JomPAY are transparent. 	Wang et al., 2003; Kim et al., 2010; Teoh et al., 2013; Tan & Teo, 2000; Amin, 2007.
Self-Efficacy	<ul style="list-style-type: none"> • I adopted JomPAY without external help (technical support or peers). • I adopted JomPAY because it was recommended by my peers. • Feedbacks from others will influence my decision to adoption JomPAY. 	Venkatesh & Davis, 1996; Yi et al., 2003; Chan & Lu, 2000.
Socio cultural Influence	<ul style="list-style-type: none"> • Important people in my social circle think I should adopt JomPAY • I adopted JomPAY because it is expected of me. • I believe is important that JomPAY is adopted by all. 	Davis, 2000; Wu & Chen, 2005.
Legal and Regulatory Framework	<ul style="list-style-type: none"> • I believe JomPAY has effective laws to combat cybercrimes. • I believe there are effective privacy laws to protect JomPAY customers. • I believe that the legal environment surrounding JomPAY is conducive to financial and business transactions. 	Tan et al., 2007.
Government Support	<ul style="list-style-type: none"> • The government via Bank Negara Malaysia encourages and promotes the adoption of JomPAY. • The government (Bank Negara Malaysia) drives the development of JomPAY. • The government has laws and regulations guiding JomPAY. 	Tan & Teo, 2000.
Adoption of JomPay	<ul style="list-style-type: none"> • I will continue using JomPAY in the nearest future. • I will strongly recommend JomPAY to others for adoption. 	Wang et al., 2003; Tan & Teo, 2000.

Table 4: Constructs and Measurement Items