



Behavioural Intention of Commercial Banks' Customers towards Financial Technology Services

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ABSTRACT

Objective – The objective of this study is to determine the process that takes place in the employment of financial technology in the financial services industry. It is of utmost important that FinTech firms and commercial banks understand the predictors that can influence their consumers' decision to adopt FinTech services and to increase loyalty toward their services.

Methodology/Technique – An online survey was used in the present research to explore factors that can influence commercial bank users' intention to use FinTech services in Malaysia. The data for the current study was gathered from bank users who aged at least 18 years old and resided in Malacca, Malaysia whom accessed FinTech services via smartphone. This research also employed the convenient sampling in distributing online questionnaires to 400 respondents who had successfully completed and returned the questionnaires.

Findings – The empirical findings illustrate that trust, social influence, cyber-security risks and privacy risks are the most influential determinants that affect bank customers' behavioural intention to use FinTech services in Malaysia.

Novelty – This research contributes to the theory of TAM, UTAUT and TPB by proposing a direct effect of trust, social influence, cyber-security risks and privacy risks on the adoption of FinTech services. The findings of the current study will be beneficial to policymakers, specifically financial institutions and FinTech firms as they will be informed on workable means to increase the quality of FinTech applications/websites. This can yield greater intentions to adopt FinTech. Stakeholders should play their important role in noticing and considering the influential factors that can impact the consumers' behavioural intention for using technologies in their policies to fulfil the users' needs.

Type of Paper: Empirical

JEL Classification: G02, G21

Keywords: Trust; Social Influence; Cyber-Security Risks; Privacy Risks; Behavioural Intention to Use

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1. Introduction

Recently, the revolution of technology has threatened the current doctrines in the labour and economy (Belanche, Casalo & Flavian, 2019) of a nation. The presence of technology and automation plays a significant role in the global financial services market for shaping the social and economic environment (Darmansyah, Fianto, Hendratmi & Aziz, 2020).

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The rationale of this is due to the growth of automated technology penetration grows which is at the 20 percent rate annually (Belanche et al., 2019) as the speed of information processing, and connectivity are enhanced and expanded in both back-office processes and customers' interface (Gomber, Koch & Siering, 2017; Gupta & Xia, 2018). The growth of global mobile broadband coverage in developed markets is at 86.7 per 100 inhabitants subscription, whereas, emerging markets only have a high subscription of merely 39.1 per 100 inhabitants (see Figure 1) (Gupta & Xia, 2018). Hence, it can be anticipated that almost half of the present-day occupations would be replaced with technologies in the next 20 years (Belanche et al., 2019).

With no exception to the financial services industry, multiple technological innovations have disrupted its structural change for financial firms and traditional banking (Singh, Sahni & Kovid, 2020). Financial start-up firms and banks have adopted financial technology (FinTech) as a key strategy in their business (Belanche et al., 2019) specifically in the pre-digital economy (see Figure 2) (Chanias, Myers & Hess, 2019). In the presence of constant innovations, FinTech has become a critical aspect in the financial services industry (Singh et al., 2020). FinTech is defined as "an application of digital technology for financial intermediation problems" (Darmansyah et al., 2020). It consists of an immensity of novel financial businesses, financial products, new ways of customers' interaction and communication as well as finance-related software (Gomber et al., 2017; Gupta & Xia, 2018). This new innovation in financial services is to meet customers' financial needs and demands (Belanche et al., 2019). The firm's entire business models, processes, products and services including its competitive environment can be transformed by adopting FinTech (Chanias et al., 2019). The implementation of FinTech impacts all aspects of a firm's outer and inner environment (Chanias et al., 2019) together with the nation, particularly in socioeconomic development towards stimulus economic growth (Karsen, Chandra & Juwitasary, 2019).

More importantly, FinTech is very crucial to the people's daily activities in a new era (Darmansyah et al., 2020). The appearance of digital technology application is to shape societies in numerous ways in the aspects of communication, knowledge, creation and the options to be made by consumers (Komulainen, Saraniemi, Ulkuniemi & Ylilehto, 2018). One of the examples is the ways customers perform their financial transactions online (Darmansyah et al., 2020). The behaviour of customers on the acceptance of digital distribution channels is changing with a positive signal (Gupta & Xia, 2018). With the rapid expansion of innovative and differentiated financial services (Ryu, 2018), it is expected that the global transaction value would achieve at an annual growth rate, 17 percent and attain US\$7,971,957m by 2022 (Darmansyah et al., 2020).

The investment growth in FinTech firms around the globe is remarkable (Hudaefi, 2020). It can be seen that in 2014, it has been gradually rising to USD\$12.2 billion as compared to 2013 (USD\$4.05 billion) (Ryu, 2018). In 2018, the worldwide investment in FinTech firms reached to \$57.9bn which is higher as compared to investment in 2017 (\$38.1bn), with over 50 percent increase (Hudaefi, 2020). The traditional online-banking system is switched to the mobile platform by FinTech firms such as using mobile remittance and mobile payment for enlarging their business scope (Ryu, 2018; Belanche et al., 2019). The coverage of FinTech applications consists of decentralised autonomous corporations, cryptocurrency, marketplace financing, mobile payments, smart contracts and robo-advisors (Hua, Huang & Zheng, 2019). It furnishes customers with greater values, expands companies' revenues (Belanche et al., 2019), contributes to the inclusive growth, diminishes risk and improves efficiency (Singh et al., 2020). As such, people could attain more new opportunities in deploying FinTech such as accessing financial information, abolishing middlemen, inflating transparency (Ryu, 2018) and minimising costs (Ryu, 2018; Hua et al., 2019).

In Asia, insurance, investment management, market provisioning, deposits and lending, capital raising and payments are the evolution areas of FinTech (see Table 1). The awareness and adoption of Fintech services have increased and reached 64 percent around the world. India and China are examples of active countries that contribute to the growth of FinTech with an adoption rate of 87 percent (Singh et al., 2020). In the context of Malaysia, it shows that the percentage of Malaysians who employed FinTech services is around 1 to 2 per cent, which is lower than China, India, Singapore and Indonesia (see Table 1). Internet, smart phone penetration, population breakdown and unbanked population are the key aspects to support the growth of

FinTech (Gupta & Xia, 2018). Even though there are many FinTech services available at the current market, only a few have shown success such as money transfer and payment services. These types of services are the main drivers to the rise of the adoption of FinTech services across the globe with 50 per cent of customers (Singh et al., 2020).

Notwithstanding, global investments in Asia's FinTech stand at 49 per cent. FinTech accommodates customers better with a banking system that is based on values, improves returns for stockholders, mitigates risk to the society (Gupta & Xia, 2018) in a more efficient way (Hua et al., 2019), provides banking services to customers with a more personalized way (Komulainen et al., 2018; Singh et al., 2020) and assists to intensify the reachability of customers (Hua et al., 2019). Customers can also be more convenient, flexible and ubiquitous when using mobile banking (Komulainen et al., 2018). Albeit FinTech offers numerous benefits, some users are still sceptical in continuing to utilise FinTech as they are concerned with risks (Ryu, 2018). Asian banks encounter disruptions when online payments and mobile wallets, financial comparison and retail investment dominate the Asean FinTech industry (Gupta & Xia, 2018). As the acceptance of digital distribution channels increases among customers, it is a golden opportunity for banks to differentiate by improving its efficiency in a lower return scenario (Gupta & Xia, 2018).

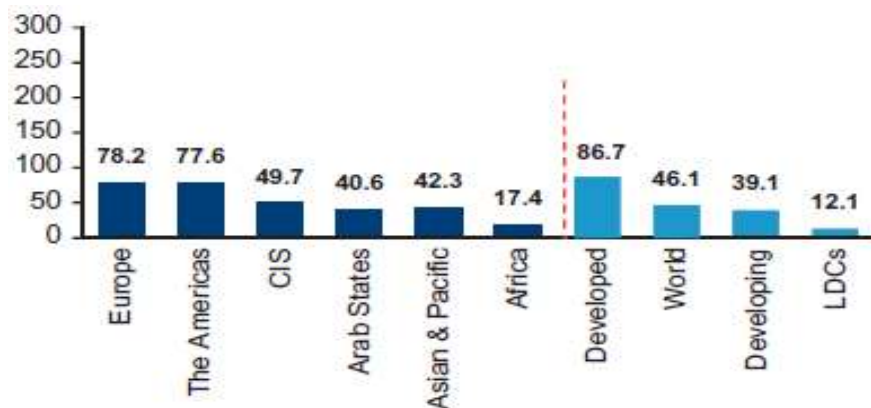


Figure 1. The percentage of mobile broadband subscription between developed and developing countries per 100 inhabitants. Source: Gupta & Xia (2018, p. 218)

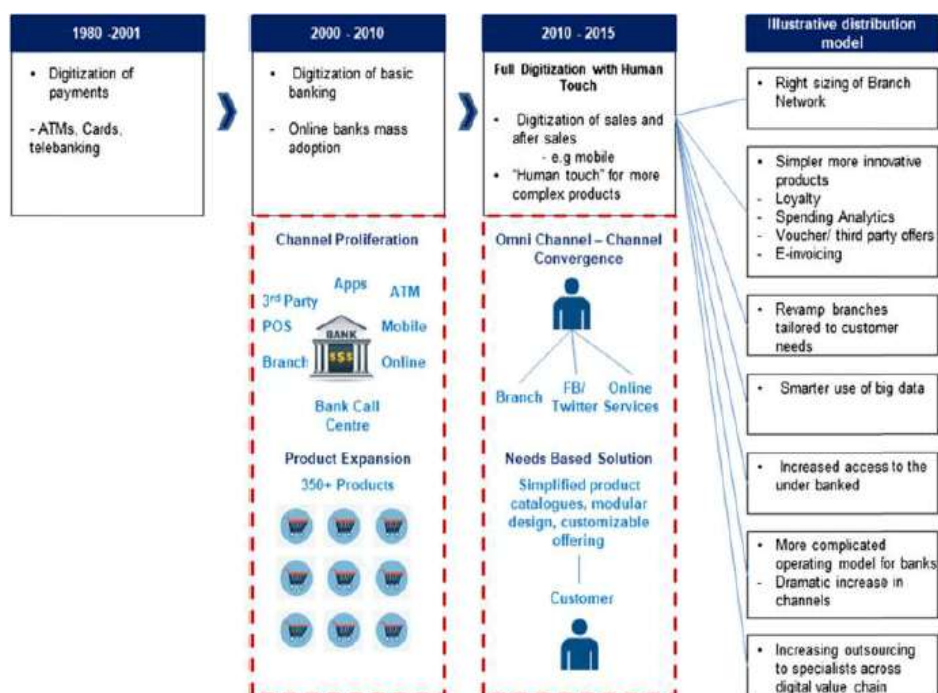


Figure 2. Retail distribution digitalisation. Source: Gupta & Xia (2018, p. 217)

Table 1. Financial/banking services customers use FinTech services (%)

Service Type	China (%)	India (%)	Singapore (%)	Indonesia (%)	Malaysia (%)	Thailand (%)
Payments/ Remittances	40	20	4	1	1	1
Lending	14	5	2	2	2	2
Personal Wealth Management	5	3	1	2	1	1
Insurance	35	2	2	1	1	1

Source: Gupta & Xia (2018, p. 219)

The mobile money financial services have impacted the unbanked population in developing nations to stride in accessing financial services due to its usage and broad coverage (Bongomin & Ntayi, 2019). For instance, a financial product penetration in Asia is lower due to geographic challenges and lack of established banking habits (Gupta & Xia, 2018). Hence, digital finance accommodates access to banks and its services specifically in less developed countries which have inadequate bank infrastructure (Gomber et al., 2017). Furthermore, the cost of delivering financial services could be lowered via the mobile money services. Mobile phones could significantly drive up more users into the mainstream financial system. It is expected that the intention to use mobile money could contribute an additional \$3.7 trillion in global growth domestic products (GDP) by 2025 (Bongomin & Ntayi, 2019).

Yet, obtaining the trust of consumers is a pivotal challenge not only in banks, but also in FinTech (Gupta & Xia, 2018) to grow their business and retain customers. It goes without saying that the trust in service is an extremely crucial issue even after the 2008 financial crisis as financial services in nature entail risks (Wang, Guan, Hou, Li & Zhou, 2019). More specifically, consumers feel unsafe and do not trust in using internet-only banks particularly in the uncertainty of deploying an open technological infrastructure which is connected to the financial transactions as well as the spatial and distant nature of online environment. In building trust, social influence is the main influencer which derived from colleagues, family members and peers' advice (Kaabachi, Mrad & O'Leary, 2019). If there are security threat/fraud and even troubles found in FinTech, social groups will impact individuals to not use FinTech services. This shows that social groups' opinion will discourage FinTech usage. Individuals have more concern on the negative feedbacks rather than positive feedbacks from their social groups when FinTech engages with financial and money transactions (Singh et al., 2020). Moreover, since banking deals with sensitive financial information, users of smartphone banking services are more cautious when adopting it. One possible explanation for this is that using a smartphone generates higher risk in the context of privacy and security rather than PC-based e-banking. In relation to this, the automated teller machine (ATM) banking services are still the most favourable for numerous bank users as compared to electronic banking (Susanto, Chang & Ha, 2016). New FinTech technologies have caused unanticipated cyber risks which derived from untrusted and anonymous data users (Sangwan, Harshita, Prakash & Singh, 2019). Thus, digital security is a serious issue which can result in a large total loss income to the banks when adopting FinTech (Stewart & Jurjens, 2018). Due to privacy concerns, 40 percent of individuals stop using mobile apps and 52 percent have deleted mobile apps (Balapour, Nikkhah & Sabherwal, 2019).

On the other hand, the implementation of FinTech must consider consumers' decision as whether to adopt them (Kalinic, Liebaba-Cabanillas, Munoz-Leiva & Marinkovic, 2020). One perspective illustrates that users will move away from traditional banks when utilising these new financial transaction systems (Susanto et al., 2016). Banks may lose contact with their customers as they have lack of interaction with their customers which will result in the lack of understanding of the customers' value creation and possibly confronting customer-centricity. This will lead banks to have difficulty in understanding the ever-changing customers and their day-to-day needs (Komulainen et al., 2018). The banking industry is an extremely high regulated sector. With the embrace of technology in this industry, specifically in Malaysia, it is required to fulfil a rapid

customers' demands with an efficient and reliable service instead of seeing FinTech firms as competitors (Gho, 2016). Establishing and retaining valuable customer relationships are new issues in the digitalisation of banking services. Customers feel that they do not obtain insufficient value from the banking services even though internet banking is a present trend. Indeed, they have no other choice instead of participating in such digitalization technology (Komulainen et al., 2018).

All these issues have been warranted for the present research in having an interest to examine the determinants which influence commercial bank users' intentions in using FinTech services in Malaysia. The main objective of the present study is to determine the process of bank customers' behaviour intention in employing financial technology in the financial services industry. It is important for FinTech firms and commercial banks to understand the variables which impact consumers' decision to use FinTech services and becoming more loyal toward the service. Therefore, this research has identified various research questions. First, the current study anticipates to investigate factors that affect Malaysian commercial bank customers' behaviour adoption on FinTech services. Second, it examines how trust, social influence, cyber-security risks and privacy risks impact on commercial bank users' intention to utilise FinTech services in Malaysia.

FinTech services are quite new and very little has been explored about it in the finance literature. The current study extends previous research that investigated bank users' behavioural intention in adopting FinTech services in the Malaysia context. Besides that, based on theories such as the technology acceptance model (TAM) which was established by Davis (1985) together with Davis, Bagozzi and Warshaw (1989), unified theory of technology acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003) as well as theory of planned behavior (TPB) (Ajzen, 1985, 1991), this research attempts to analyse how the relevance of other key determinants such as trust, social influence, cyber-security risks and privacy risks affect the bank consumers' intention into using it. More importantly, the TAM is a high validity model that can be used to estimate, explore and describe the willingness of customers in adopting and using technology in different contexts namely online shopping, mobile e-banking, online banking and financial services, online games, banking technology, business-to-consumer e-services, mobile commerce, information technology, communication and school information technologies integration, internet-based information systems, desktop video conferencing, electronic payment modalities and educational technology (Singh et al., 2020; Usman, Mulia, Chairy & Widowati, 2020). Hence, in order to fill the research gaps, the present study aspires to identify the exact mechanism through the factors which affect bank users' decision to adopt and use FinTech services as well as to elucidate the research framework on the foundation of TAM, UTAUT and TPB. This research expands the TAM and UTAUT by revealing determinants that can forecast the consumer's behaviour in varied application contexts and extending with more user-related constructs. In understanding the user's behaviour, it relies on both motivation and ability (Darmansyah et al., 2020). Moreover, this study includes technological attributes with relation to trust, social influence, security and privacy in the TAM as these constructs are not yet considered in prior TAM research particularly in the FinTech services context. These factors emerge as the powerful indicators that affect FinTech usage. Our empirical findings will not only assist current service providers and even newcomers in attracting potential users and retain existing customers, but will also assist banks to better understand users' behavioural intention to adopt of technology. One reason is that in the twenty-first century, FinTech has empowered companies to compete effectively and to promote the global movement under the sustainable development goals (SDGs) which was introduced by the United Nations Development Programme (Hudaefi, 2020). Governments across the globe, explicitly Malaysia have paid attention to this matter and formulated policies, together with regulations to support the development of FinTech. Therefore, in order to accomplish the aim of the Eleventh Malaysia Plan (2016-2020) that calls for the strengthening of infrastructure in order to support economic expansion and the SDGs 9 and 11, the current research extends the understanding of mechanisms of how bank customers' intention is identified in this new context.

The remainder of the present study is structured as follows. This research has four further sections following the introductory section. The next section reviews the theoretical literature on technology adoption

and use. Section 3 presents the research framework and the hypotheses formulation as well as the explanation of the methodological framework and data collection process. Then, the empirical results and findings are discussed in Section 4. Last but not least, section 5 highlights a discussion, conclusion, research implications, limitations and recommendation for future research.

1.Literature Review and Hypotheses Development

Behavioural Intention to Use

Behavioural intention to use has become a vital element in the financial services sector, particularly for the users' adoption and use of FinTech services. Behavioural intention influences on the usage pattern. This view point explains that the level of consumer awareness and the technological advancement significantly influenced a user's behavioural intention (Singh et al., 2020). It is a major role in determining the actual use of technology (Sumak & Sorgo, 2016). Intrinsic and extrinsic motivations are two types of motivations that impact the user's behaviour in online environments. Intrinsic motivation is defined as "performance of an activity for no apparent reinforcement other than the process of performing the activity per se" (Susanto et al., 2016, p. 512). However, "performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions" is defined as extrinsic motivation (Susanto et al., 2016, p. 512). Therefore, banking transactions entails extrinsic motivation (Susanto et al., 2016). Another important concern is to create a stable behavioural intention to be used among users in the future, the direct technology usage experience, accessibility of technology and information regarding its usage and usefulness are main component to influence consumers. Technological determinants and behavioural are mostly criteria to evaluate behavioural intention (Singh et al., 2020).

Trust

Interestingly, trust refers to "a subjective belief that a party will fulfil their obligations and it plays an important role in electronic financial transactions, where users are vulnerable to greater risks of uncertainty and a sense of loss of control" (Slade, Dwivedi, Piercy & Williams, 2015, p. 863). Users' trust involves honesty, reliability, competence of the firm, the user's confidence in the integrity and willingness to cooperate (Usman et al., 2020). It is critically important factor in the financial services sector to improve customer long-term relationships. A reasonable explanation is that it could lower uncertainty or anxiety of the behaviour (Slade et al., 2015; Kaabachi et al., 2019) and facilitates transactions with customers (Kaabachi et al., 2019; Bongomin & Ntayi, 2019). Consumers believe that financial institutions are not behaving opportunistically at their expense when there is an opportunity. Banks should keep its acts and promises in accordance with procedures, outcomes and the agreed promises (Kaabachi et al., 2019). Thus, trust is a vital predictor for the adoption of e-banking services or online banking (Kaabachi et al., 2019; Usman et al., 2020). Insecurity and perceptions of risk could be reduced for mobile money customers as they feel comfortable in makings purchases, payments and transaction together with sharing personal information when using the mobile money digital platform (Bongomin & Ntayi, 2019). It is generally related to knowledge based which derived from accumulated experience of customers' dealings with e-banking service providers (Kaabachi et al., 2019; Bongomin & Ntayi, 2019). This would make them to make trust inferences (Bongomin & Ntayi, 2019). Consistent with the online shopping whereby dependence, risk characterise and uncertainty are vital components in the relationship of buyer-seller. In this case, this view supports that there is a positive impact of trust on the behavioural intention to buy online or use of FinTech (Bongomin & Ntayi, 2019; Kaabachi et al., 2019; Usman et al., 2020). Nonetheless, FinTech promotion has no direct or indirect effects on the individuals' willingness to trust FinTech (Stewart & Jurjens, 2018). Trust is not strongly

significant on continuous use intention (Susanto et al., 2016). Based on the literature, we propose the following:

H1: *Trust has a significant relationship on behavioural intention to use FinTech services.*

Social Influence

Social influence can be defined as a “person’s perception that most people who are important to him think he should or should not perform the behaviour in question” (Kaabachi et al., 2019, p. 513). In reference to this, social influence refers to the extent of others’ influence in utilising a specific technology (Singh et al., 2020). The positive experience of individuals about technological banking devices will stimulate others (Santini, Ladeira, Sampaio, Perin & Dolci, 2019). Customers consult to their social network on new technologies and could be affected by perceived social pressure, image or information provided by them (Slade et al., 2015; Sinha, Majra, Hutchins & Saxena, 2019; Singh et al., 2020). As a result, users tend to perform a behaviour when it is beneficial to the referent group (Kaabachi et al., 2019). It is supported by Slade et al. (2015) that social influence has an important role in consumer behaviour. Peers’ advice like family members, colleagues and friends is a major influencer in establishing trust (Kaabachi et al., 2019) and behaviour (Santini et al., 2019). Their statements, actions and attitudes with regard to the use of technology are also crucial (Singh et al., 2020). It is found that social influence has significantly impact on behaviour intention to use (Santini et al., 2019; Singh et al., 2020). This is in line with Kaabachi et al. (2019) that social influence has influenced on the users’ decision to use internet banking. Social influence has a positive and significant impact on behavioural intention (Lau, Choong, Seow, Choong, Senadjki & Ching, 2020). However, Singh et al. (2020) found that a significant negative relationship between social influence and the actual use is revealed. Therefore, we posit the following:

H2: *Social influence has a significant relationship on behavioural intention to use FinTech services.*

Cyber-Security Risks

In the FinTech area, the introduction of new FinTech technologies could involve unforeseen cybersecurity risk which caused by untrusted and anonymous data users (Sangwan et al., 2019). Security risk is “the potential loss due to fraud or a hacking that compromises the security of the financial transactions of FinTech” (Ryu, 2018, p. 548). The modification of regulations is needed to ensure FinTech companies are safer in the context of investor protection (Sangwan et al., 2019). Consumers are critically concern about security risks on the electronic services as it has the probability of a privacy invasion. The privacy of users can be violated and they may even lose monetarily in many online and mobile technologies due to hackers and fraud intrusions (Ryu, 2018). There are three factors leading to potential fraud cases that arise in FinTech which include opportunity, rationalisation and pressure (Ng & Kwok, 2017). Hence, the use of FinTech is likely related to the potential of large losses (Ryu, 2018) and exposed to other cyber security risks, illegal activities and data theft. In order to control and reduce cybersecurity risks, various initiatives have been highlighted such as implementing a FinTech supervisory sandbox, training for current and next generation of cyber-security talents, the institutionalisation of risk-based approach (Sangwan et al., 2019), good internal controls and identity authentication such as biometrics identification, digital certificates and mobile device certificates than traditional password logins (Ng & Kwok, 2017). Singh et al. (2020) revealed that there is a significant effect of security on intention. Security is a crucial technological attribute in determining the perception of FinTech use. Stewart and Jurjens (2018) identified that data security strongly impacts the intention to use FinTech. In contrast, Sangwan et al. (2019) reported that perceived security has no direct relationship on intention to use. Accordingly, it is proposed that:

H3: *Cyber-security risks has a significant relationship on behavioural intention to use FinTech services.*

Privacy Risks

Privacy is defined as “the right of self-determination for when, how and to what extent information about oneself may be communicated to other”. It is associated with informational, physical and decision-related considerations (Sinha et al., 2019). The intentions of trust and beliefs are influenced by information security like privacy, integrity, authentication, assurance, confidentiality, availability and accountability (Stewart & Jurjens, 2018). Privacy risks are a hurdle for the development of mobile payment application (Wang, Luo, Yang & Qiao, 2019). It leads the users to not use mobile apps and disclose information (Balapour et al., 2019). The rising of cyber-attacks on data breach issues and bank networks have been known by customers via the social networks and media. Users have expectations, value their privacy and data. They feel disappointed if an unauthorised individual and third-party firms decide to intercept or to disclose their important data. They are always concerned about data security and privacy issues than the product quality as well as their behaviour when providing personal information (Stewart & Jurjens, 2018). Therefore, privacy is an essential predictor in e-services namely smartphone banking services or the beginning stage of technology acceptance and use and it has to have greater affective evaluation regarding the service. Customers will rely on the flow experience to interact with the system. As a result, a positive reinforcement could be seen from them so that the possibility of future use can be enhanced. The user perception on privacy and security may be different from each other as it depends on his/her access and use of e-services (Susanto et al., 2016). Stewart and Jurjens (2018) disclosed that the effect of privacy on the intention to use FinTech is an immediate significant. Similarly, perceived privacy risks have significantly affected the FinTech behavioural intention (Ryu, 2018; Merhi, Hone & Tarhini, 2019). In contrast, the consumers’ perceived privacy concerns negatively impact their intention to use technology (Balapour et al., 2019). Thus, we posit the following:

H4 Privacy risks has a significant relationship on behavioural intention to use FinTech services.

3. Research Methodology

An online survey questionnaire was designed and used in the present research to explore factors that influence commercial bank users’ intention to use FinTech services in Malaysia. The advantage of using online questionnaires to collect data for this research is that it can extensively and instantly reach respondents and economical in getting a more representative and reliable sample for empirical data collection (Usman et al., 2020). The research methodology of this study is presented in Figure 3. Firstly, the questionnaire was developed based on past research findings that were related to behaviour intention. Secondly, a pilot study was carried out to amend the questionnaire which depended on the result of the pilot study. Thirdly, the data collection was conducted. Fourthly, a data analysis was performed and lastly, the results were reported and discussed. The questionnaire was originally designed in English and was divided into two sections. The first section contained questions about the sociodemographic background of the respondents including gender, age group of the respondents, educational qualifications, income level and the FinTech services usage to provide the overview of each respondent’s basic characteristics. It was then followed by the second section which consisted of items which measured the key constructs of the study. All measures were adapted from the existing literature. Trust is measured using six scale items that were adapted from Susanto et al. (2016) as well as Bongomin and Ntayi (2019). The Social influence construct consists of six items which were adapted from Kaabachi et al. (2019) and Singh et al. (2020). Cyber-security risks (five items) and privacy risks (four items) were adapted from Singh et al. (2020) and Susanto et al. (2016) as well as Sinha et al. (2019), respectively. The behavioural intention to use is measured by seven items that were adapted from Bongomin and Ntayi (2019) and Sinha et al. (2019). Items were presented to respondents on a five-point Likert scale which are as follows; 1= Strongly Disagree; 2= Disagree; 3= Slightly Disagree; 4= Agree; 5= Strongly Agree. The questionnaire was pretested to assess the content and face validity. Furthermore, the literature was reviewed systematically to identify the validity and reliability of the measures that were employed by past researchers. When the content validity was assured, the questionnaire was face validated to ensure the

items presented in the surveys were readable, understandable and clear to respondents. For this study, the survey was piloted on 30 respondents to obtain all Cronbach's alpha coefficient were above the cut off value of 0.70 (Quoquab, Mohammad & Sobri, 2020) prior distribution to the larger sample. The pilot test respondents' results were not used for further analysis. The data for the current study was gathered from bank users who aged at least 18 years old and resided in Malacca, Malaysia that accessed FinTech services using a smartphone. Under a non-probability sampling, this research also employed the convenience sampling for the distribution of online questionnaires of which 400 respondents had successfully completed and returned the questionnaires. Convenience sampling is a sampling method that selects the targeted respondents based on their availability, accessibility and willingness to contribute to the research (Razali, Daud, Choong & Jiram, 2020). This study also used descriptive analysis, correlation analysis and multiple regression analysis to analyse the proposed model's data.

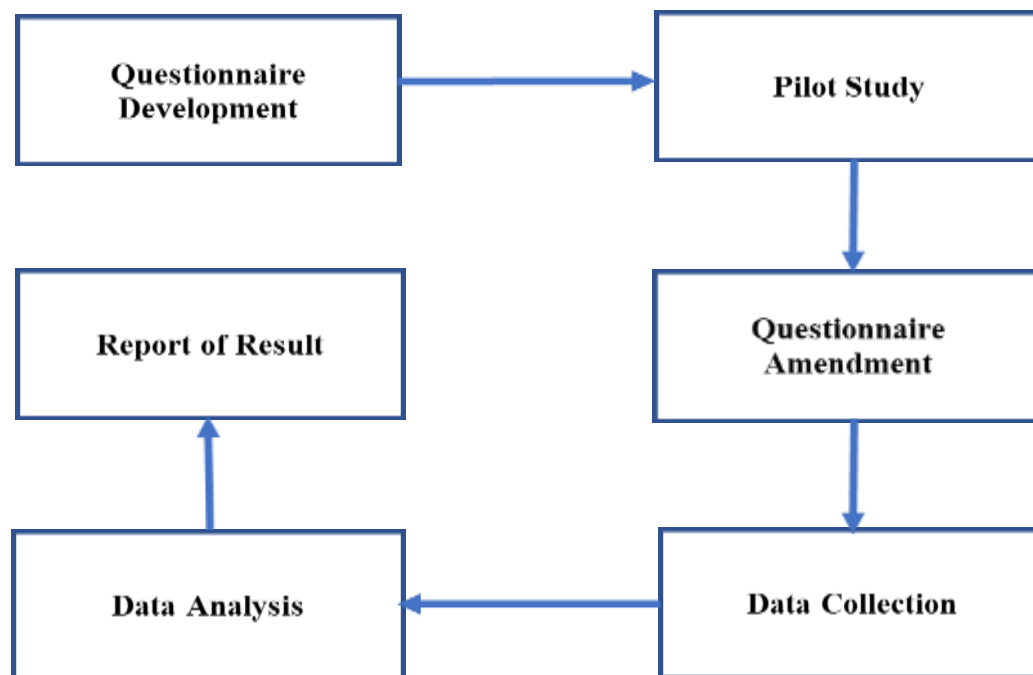


Figure 3. Research Methodology Flowchart

4. Results

The Sample demographics of the current study are exhibited in Figures 4, 5, 6, 7, 8 and 9. Most of respondents were female, with a total of 58.75 percent as compare to 41.25 percent of males. With regards to the age of the respondents, it varied between 18 and 55 years old, with the majority of participants (119 persons) being between 18 and 25 years old, followed by 26-35 years old and 36-45 years old being the second highest (114 people), while the age of 46-55 years old and 55 years old and above were 41 persons and 12 people, respectively. The race of the majority respondents was Chinese (42.50 percent) and followed by Malay (29.25 percent), Indian (28 percent) and others (0.25 percent). Meanwhile, most respondents were well educated with 223 persons of graduates, 89 persons of post-graduates, 82 persons of foundation/diploma and 6 persons of the secondary school level. A large number of respondents (114 people) fell under the income range of RM4,001 and above, followed by 105 persons were in the income level of RM2,501-RM4,000, 94 people were from the RM1,000-RM2,500 income range and 87 persons were from the income level of below RM1,000. From the FinTech services usage perspective, it can be clearly seen that the majority number of respondents (48.50 per cent) employed FinTech services on a regular basis, followed by 31.75

percent of respondents who occasionally employed the service, while 11.25 percent and 8.50 percent of respondents employed FinTech services daily and never use it, respectively.

The results of data processing illustrate that the average behavioural intention to use variable is 4.4367. From the measurement scale of 1-5, it indicated that Malaysian bank customers' behavioural intention to use FinTech services is good. The Malaysian government supports the development of FinTech. Almost all banks have encompassed FinTech and other digital tools to invent a digital platform for their customers (Shaikh, Qureshi, Noordin, Shaikh, Khan & Shahbaz, 2020). The average social influence is the second highest, which is at 4.3487. The bank user believes that he/she must employ a new system (Darmansyah et al., 2020). The average privacy risks and cyber-security risks variables are higher than trust. This shows that online banking adoption in Malaysia relies on privacy and security (Sinha et al., 2019). The lack of trust is an important reason which discourages bank users to use FinTech services. When numerous customers are well educated on and reassured that their data are being kept securely, their trust in FinTech will absolutely increase (Stewart & Jurjens, 2018) (see Table 2).

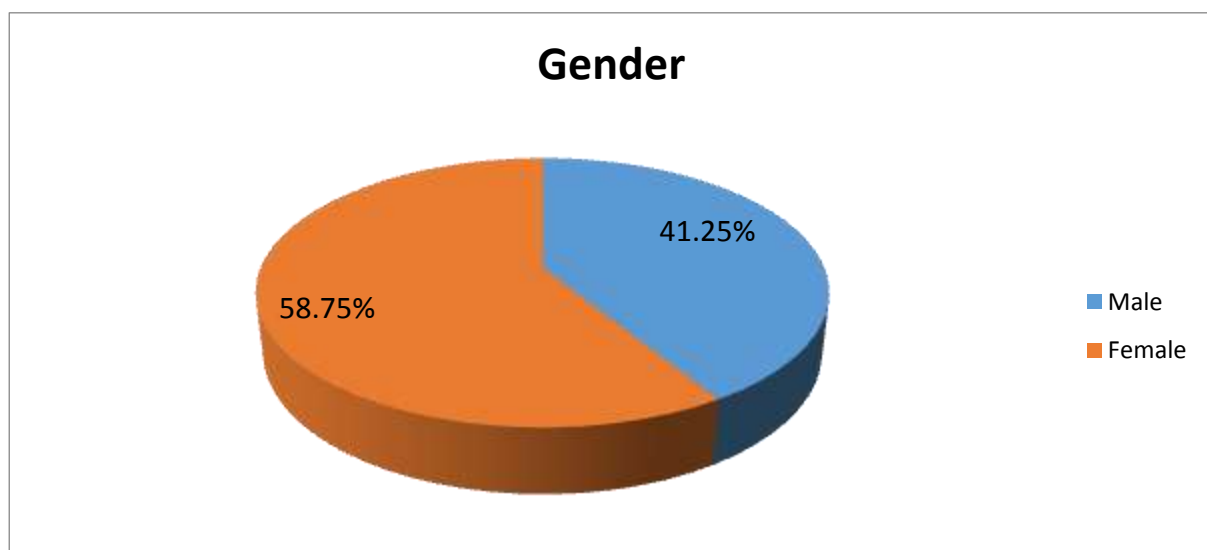


Figure 4.The percentage of Gender

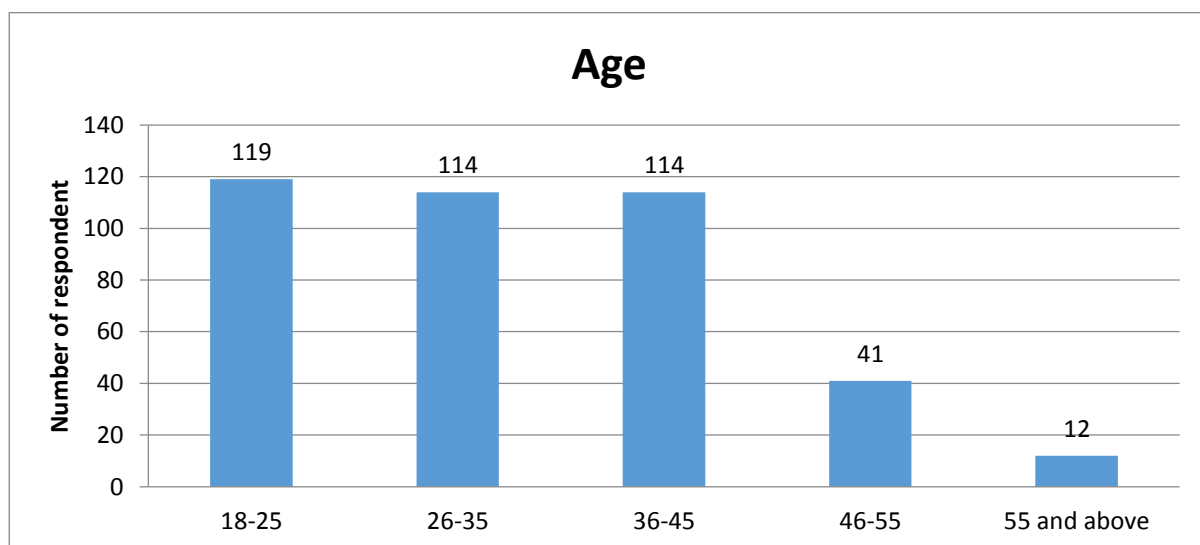


Figure 5.Characteristic of Age

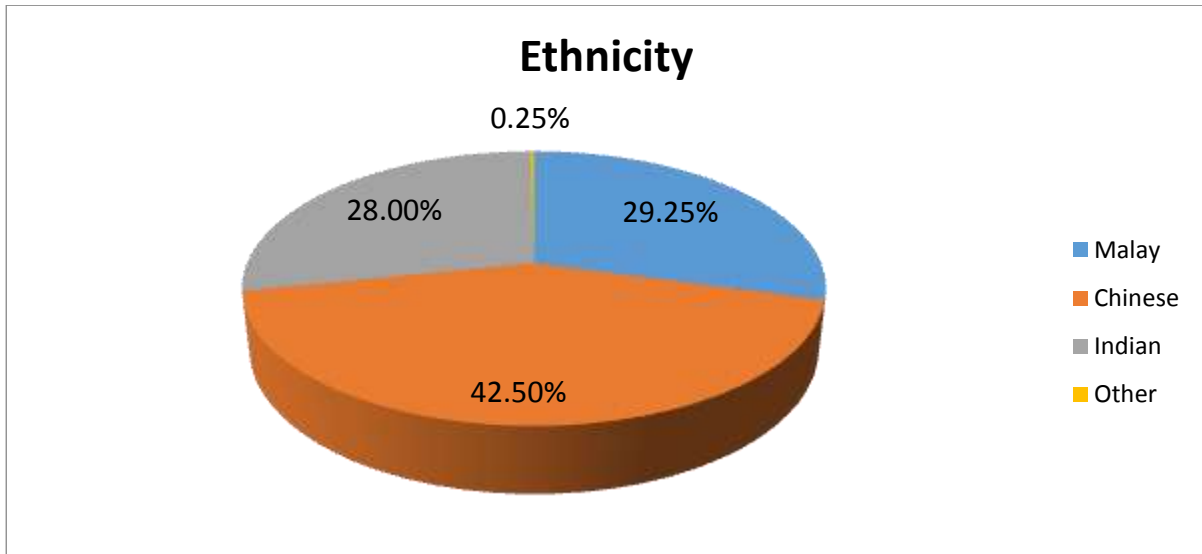


Figure 6. Characteristic of Ethnicity

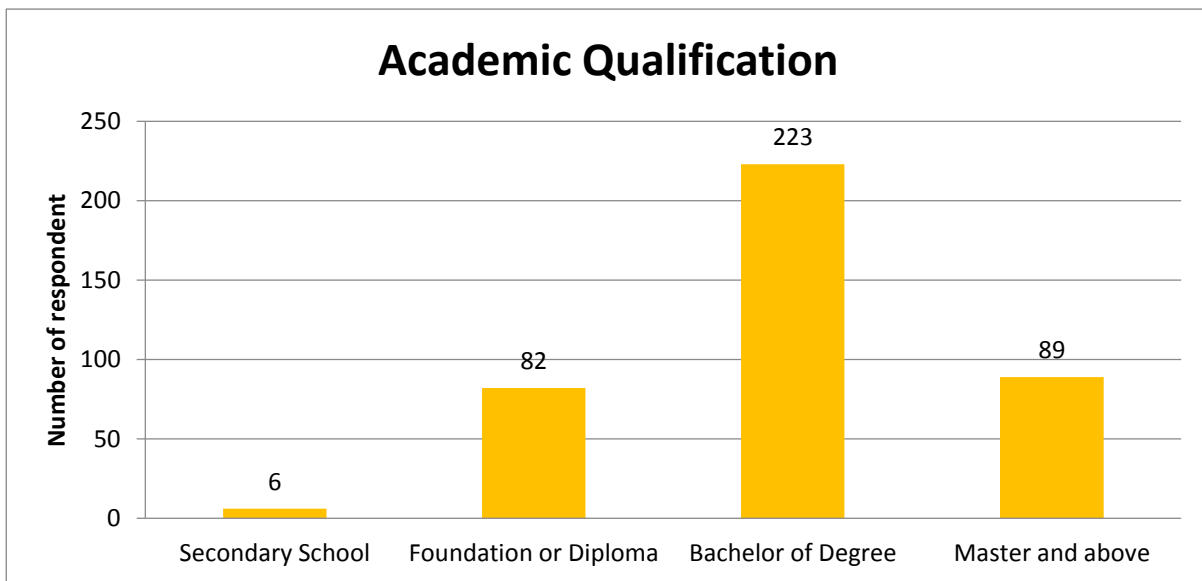


Figure 7. Characteristic of Academic Qualification

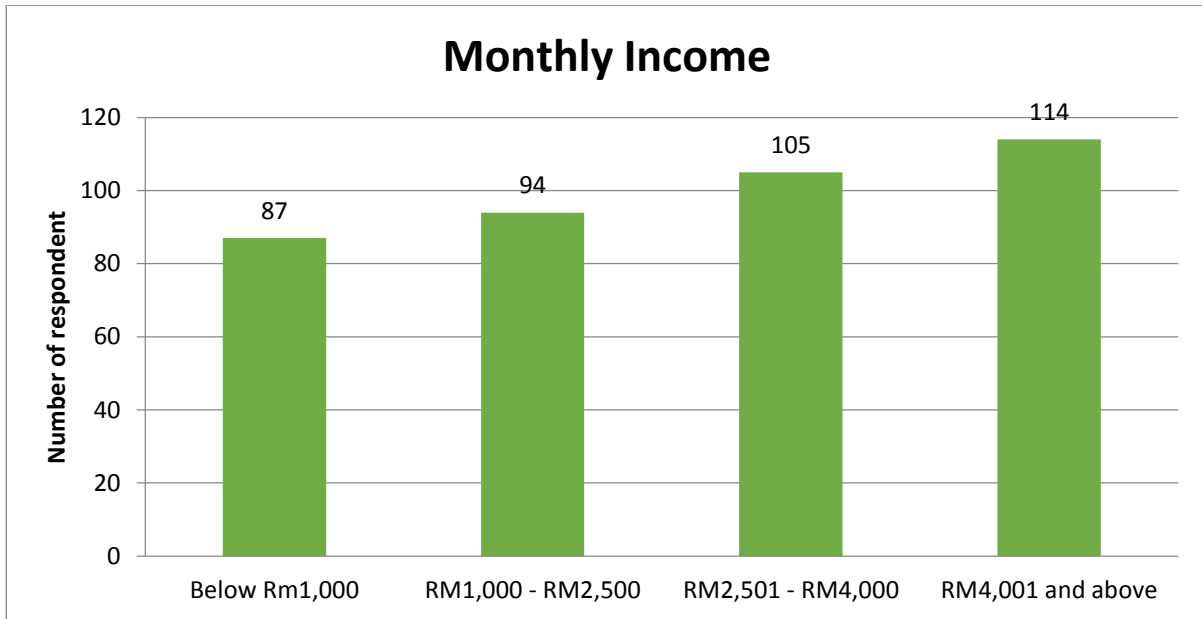


Figure 8. Characteristic of Monthly Income

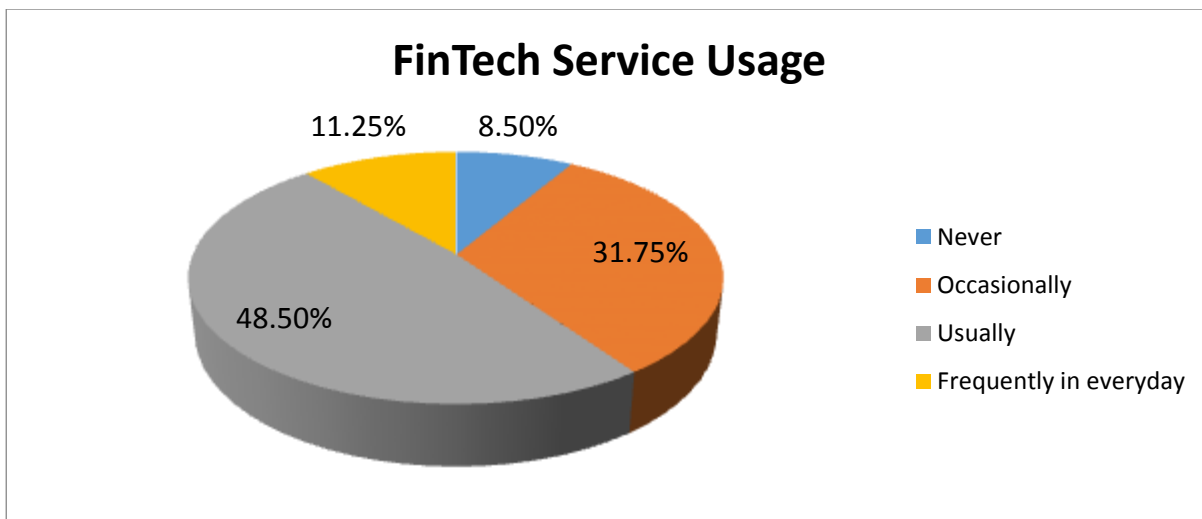


Figure 9. Characteristic of FinTech Service Usage

Table 2. Descriptive statistics

Variable	Mean	Standard Deviation
Behavioural Intention to Use	4.4367	0.4736
Trust	3.8825	0.8225
Social Influence	4.3487	0.4975
Cyber-Security Risks	4.1679	0.5288
Privacy Risks	4.2788	0.6006

Note: *Number of observations is 400.

Table 3 shows the correlation analysis. The results of the correlation analysis revealed that all four determinants of adoption were significantly related to behavioural intention in using FinTech services

($r=0.627$, $p<0.01$, $r=0.572$, $p<0.01$, $r=0.607$, $p<0.01$, $r=0.646$, $p<0.01$ for trust, social influence, cyber-security risks and privacy risks, respectively). The present study found that trust and privacy risks have a strong positive relationship with behavioural intention to use FinTech. However, there are moderate positive association effects of social influence and cyber-security risks on behavioural intention to use. The privacy concerns of individuals can influence behavioural intention to use FinTech services in the context of abusing their personal information by service providers such as revealing private information and spamming messages. This implies that Malaysian consumers perceive a reputable online firm as the one that accommodates secure encryption technologies to them and guarantee whenever there is a dispute. Consequently, their trust and desire to use FinTech services will be increased. Social influence affects individuals' decision making to use FinTech specifically via word of mouth. This is in line with Kaabachi et al. (2019) that stated word of mouth is the greater influential sources of information on products and services.

Table 3. Correlation analysis

Variable	Pearson Correlation	Sig. (2-tailed)	Degree of Correlation
Trust	0.627**	0.000	Strong Positive
Social Influence	0.572**	0.000	Moderate Positive
Cyber-Security Risks	0.607**	0.000	Moderate Positive
Privacy Risks	0.646**	0.000	Strong Positive

**Correlation is significant at the 0.01 level (2-tailed).

Table 4 depicts the results of multiple regression analysis for testing hypotheses. Based on the results, it is shown that trust has a significant impact on behavioural intention to use FinTech services ($\beta=0.286$, $p<0.00$). Hence, H1 is supported. If there are more educated customers who have understood and assured of their data being stored securely, their trust towards FinTech services will increase (Stewart & Jurjens, 2018). Trust is the most significant relationship quality perception. Trust affects buying patterns of consumers within the established service relationship. Customer loyalty cannot be conserved in the medium to long term when there is an absence of trust (Eriksson, Hermansson & Jonsson, 2020). Further, the result for social influence indicates that it has a significant influence on behavioural intention to use FinTech services ($\beta=0.142$, $p<0.01$). Therefore, H2 is supported. Social norms impact the attitude toward the technology especially users' decision to use FinTech when there is a new offered service (Kaabachi et al., 2019; Singh et al., 2020). Individuals modify their actions in accordance with the actions of others to obtain social acceptance (Singh et al., 2020). The findings also stated that the effect of cyber-security risks on behavioural intention to use FinTech services is significant ($\beta=0.116$, $p<0.05$). Thus, H3 is also supported. Customers who are highly aware of FinTech services concern security as the main dimension. They updated themselves with numerous news and events related to online frauds and password protection rules. Also, they do not like the service provider to intervene with their personal information as they presumed it as an intrusion to their privacy (Singh et al., 2020). Moreover, privacy risks do have a significant predictor for behavioural intention to employ FinTech services, which is $\beta=0.255$, $p<0.01$. Hence, H4 is supported. Individuals concern about their rights on their personal information, information on the person's physical location and financial information when they use digital payments as that information can potentially fall in the hands of hackers (Sinha et al., 2019). For instance, it is roughly about 82 per cent of Germans refuse to share information with FinTech firms as they tend to preserve their privacy (Stewart & Jurjens, 2018).

Table 4. Multiple regression analysis

Variable	Beta	t	p-values
Trust	0.286	4.239	0.00
Social Influence	0.142	3.139	0.01
Cyber-Security Risks	0.116	2.319	0.05
Privacy Risks	0.255	5.951	0.01
F			111.391
R Square			0.530
Adjusted R Square			0.525

5. Discussion

The results elucidate that the current study supports the TAM, UTAUT and TPB as this research contributes to the theory by proposing a direct effect of trust, social influence, cyber-security risks and privacy risks on FinTech adoption. These factors are strongly influencing the behavioural intention to utilise FinTech services. Hence, the present research supports the statement of Stewart and Jurjens (2018) that customer trust does influence FinTech promotion. This implies that customer trust is a crucial element of users' intention to adopt FinTech. Trust reduces the perception of risk in using FinTech whereby customers believe that an online firm which has a good reputation could accommodate secured encryption technologies and guarantees whenever there is a dispute. On the same note, Kaabachi et al. (2019) highlight that users' decision to employ internet banking and even become loyal customers with regards to the service are strongly influenced by trust. Our findings reveal that the impact of social influence on behavioural intention to use FinTech services is highly significant. This finding is consistent with the view of Santini et al. (2019), Sinha et al. (2019), Kaabachi et al. (2019), Lau et al. (2020) and Singh et al. (2020) that social influence significantly affects acceptance of technology and behaviour intention. Social factors and subjective norms such as family and peers' statements, views, experience, attitudes and actions are the principal components about the use of technology. The number of people who utilize it or popularity, word of mouth communication, as well as image like social symbol and reputation related to the adoption of technology are the root constructs that are important for others to believe that a technology should be adopted. Cyber-security risks emerged as the best predictor which has a greater impact on behavioural intention to use FinTech services. This is in line with past research showing that security, trust and value are essential in the usage of technology. The new introduction of FinTech technologies will bring in unexpected cyber security risks which can be caused by anonymous and untrusted data users (Sangwan et al., 2019). Consequently, it results in the increase of the perceived risks of FinTech whereby consumers' anxiety, scepticism and distrust about FinTech services and how it works (Ryu, 2018; Sinha et al., 2019). Ng and Kwok (2017) have mentioned that a new profession of cybersecurity should be developed to cope with the rising of cyber security risks in global financial centres. The empirical results show that there is a presence of direct effects of privacy risks on behavioural adoption of FinTech. Digitalisation and the emergence of mobile phone-related activities disclose an individual's physical location, personal information, financial and transaction-specific information. The likelihood of information leakage to unauthorised users like hackers and fraud can occur (Sinha et al., 2019). As a result, these intrusions may lead to users encountering financial loss and their privacy is violated (Ryu, 2018). As such, users apply their own protective strategies in protecting their privacy and preserving the service (Wang et al., 2019a). In response to this, financial institutions should

improve and sustain their customers' confidentiality, integrity and availability of financial data, legislation and rules of mobile applications (Stewart & Jurjens, 2018).

6. Conclusion

The objective of this study is to determine the process of bank customers' behaviour intention to employ financial technology in the financial services industry. FinTech firms and commercial banks are crucial to understand the predictors that can influence consumers' decision to adopt FinTech services and increase loyalty toward the service. The present research had developed and tested four hypotheses. Based on the results, all hypotheses were supported. This implies that trust, social influence, cyber-security risks and privacy risks are the most influential determinants that affect behavioural intention to use FinTech services in the Malaysia context. Hence, the two research questions and the purpose of this research have been answered and achieved. In the emerging market like Malaysia, the importance and awareness of FinTech have increased recently. FinTech is perceived as a part of consumers' daily life activities that can enhance their intentions. Intention in individuals to employ FinTech is greatly influenced by the social environment such as, peers, relatives, family members and even the government. If FinTech is found to be troublesome, a security threat and fraud for users, the social group will influence them to not use the FinTech service. Consumers are concerned by the opinions/feedbacks from their social group on FinTech which involves money and financial transactions. FinTech services should be designed to foster the individuals' confidence as well as minimising these perceived risks and uncertainties. Subsequently, their intention to use can also be enhanced.

In a broader view, the findings of the current study will be beneficial to policymakers, specifically financial institutions and FinTech firms in increasing the quality of FinTech applications/websites. FinTech managers should notify and understand the appropriate interface characteristics that must be concentrated on when they contribute to value co-creation with banks and conduct marketing about FinTech services for consumers to maximise use behaviour. Even though banks are more heavily regulated as compared to FinTech firms (Sangwan et al., 2019), marketers of banks should pay more consideration to the importance of trust, cyber-security risks and privacy risks which are always overlooked in the financial services environment. This can yield greater intentions to adopt FinTech as these factors are found to be more crucial in influencing FinTech consumers' attitudes than utilitarian elements of FinTech services. Sangwan et al. (2019) highlighted that unanticipated cyber risks are arising from new FinTech technologies. Thus, adequate training for the current and future generation of cyber-security talents, the establishment of a FinTech supervisory sandbox and sound regulated companies are encouraged to manage and counter cybersecurity risks. Graphic representations or statements could be used by service providers in order to protect the customers' privacy. Furthermore, managers should ensure and promote individuals' awareness on these measures through their bank website in order to increase their perception of the security and privacy regarding FinTech services. The service providers of FinTech can reassure their customers that their offered services are safe for them to perform financial transactions. Customers' security and privacy perception of FinTech services and their confidence can be improved and enhanced by providing trainings to them on the safe usage of FinTech which enable them to feel comfortable and secure when employing FinTech services. Stakeholders should play their important role in noticing and considering the most influential factors that impact the consumers' behavioural intention to use technologies in their policies to fulfil the users' needs. They can develop a FinTech service system that might be useful with the updated information with respect to financial products and services. As such, it enables consumers to make easy transactions and decisions. Singh et al. (2020) opined consumers who have higher awareness and greater digital experience are likely to attribute higher importance to their own perception and attitude. Nonetheless, those users who have less digital experience and low awareness level tend to be more influenced by social influence. The performance of FinTech strategies can also be enhanced by using the outcomes of this study and in the meantime, banks can attain economies of scale for worldwide intensity (Stewart & Jurjens, 2018). Comprehensive regulators

should lend a hand to support the development of FinTech services, financial institutions as well as protect investors from frauds. As privacy risks are a barrier for the high-speed development of technology (Wang et al., 2019a), these regulators should ensure that the existence of FinTech services must be a safe and protected product which reduces the cyber-security risks and privacy risks. Favourable attitudes from consumers in using FinTech services could be rising and enhancing the willingness of the FinTech designers to participate in co-creation activities.

However, it is worth to note that there are a few limitations of the present research in the sense of the sampling method that was applied. This study merely focuses on the existing internet users who are residing in Malacca, Malaysia as an area of exploring behavioural intention to adopt FinTech technologies. This limits the scope of generalisability. Thus, future studies should consider other regions/areas in similar emerging economies and with a large population to conduct the similar related field of research. It can also compare Malaysian consumers' behaviour adoption of FinTech services with those of other countries. Next, the actual usage behaviour is not considered in the proposed model of this research although there is a causal relationship between the intention and usage behaviour (Ryu, 2018). The current study only studied about trust, social influence, cyber-security risks and privacy risks as the principal predictors on behavioural intention to use. Further research can consider to explore that there might be other factors such as cultures, website quality, actual usage and information quality may influence the behavioural adoption of FinTech services. Moreover, this research used a convenience sampling which was drawn from the population. In this case, it did not represent the entire population in Malaysia effectively and thus creates limitations on generalising the results. It is suggested to future studies that there might be better way to employ a random sampling technique in order to improve the data collection. The current measurement instrument of this study can be further refined in future research to enhance its validity. Future studies can be conducted in other product categories for the generalisation of results. Due to rapidly high development and introduction of technology in a nation which has weak privacy laws/regulations, consumers' perceptions of privacy may change. Therefore, it is good for future research to investigate privacy perceptions in the context of a cultural framework. Qualitative methods can be adopted for the study in order for it to be understood more clearly.

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