

Study on customer satisfaction, adoption, perception, behaviour, and Security on financial technology (fintech) services

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Abstract

This literature review brings attention to new developments, the purpose, and current challenges in Financial Technology (Fintech). Customer satisfaction, adoption, perception, behaviour patterns, security, as well as privacy are some of the areas that are considered. After a diligent and thorough search, about 30 articles met the criteria for this review. A result of the review, security concerns for Fintech users both during and after adoption continue to be a barrier to adoption. As an outcome of the research, Technology Acceptance Model (TAM) emerged as the most widely used for Fintech model. Again, trust, perceived usefulness, perceived ease of use, perceived risk, compatibility and performance and effort expectations remain the most studied variables in the Fintech literature, according to a recent review. As being one of the least significant subjects in Fintech, security is seized and encapsulated in this review. However, most of the reviews proposed that better action should be focused on security, as it relates to the safety of customers of the whole emerging Fintech technology. This study has also inspired researchers and academics to explore other aspects apart from security.

Keywords: *Fintech Security; Adoption; Customer satisfaction; Perception; Behaviour; Cryptography; Encryption*

1. INTRODUCTION

A global community has led to the emergence of information technology (IT) (Milian et al. 2019; Gomber et al., 2018). Nowadays, new tech has been used in almost every aspect of life (Milian, et al. 2019; Wenyu, et al. 2019; Yoon et al., 2016). Technology is an integral part in the future development of industries and global companies. Contemporary commercial transactions are made simpler by the emergence of digital innovation. The innovative financial technology, according to Salmony (2014), can also be used to generate several business models and to serve the customers.

The evolution of world Fintech began as early on 1950s by introduced the credit card to ease daily transactions and ATMs had been initiated to replace tellers. As early as the late 1970s, electronic stock trading and mainframe computers were used by the financial institutions to keep track record system of E-commerce and as well as the internet grew rapidly in the 1990s. From years 2000 onward, financial institutions began to evolve from traditional customers support methods to advancing tech services (Gabor and Brooks, 2017). Therefore, in the 21st century, existing banking and finance methods were progressively replaced with new modern financial methods.

Internet access associated with the adoption and use of modern digital devices and applications such as e-wallets, peer to peer lending, crowdfunding platforms, “insurtech” (the combination of insurance and technology), Robo advisors for wealth and financial planning and quick response codes are causing various activities to migrate from the real world to the virtual world (De Kerviler et al., 2016). In addition to cash and check payments, users are constantly using contactless devices to purchase goods and services (Patil et al., 2017).

Financial firms are still trying to keep up with the changes, even as regulators are still redefining the scope of their practises (Guzman et al., 2018; Gomber et al., 2018). Although this Fintech movement recognizes some traits with other disruptive innovations, it also has its own distinctive features. When it comes to obtaining financial information and implementing financial transactions, the main factors are customers usage patterns of new digital devices and media such as smartphones, smartwatches, and tablets (Yoon et al., 2016). Online intermediaries have embraced new brick - and - mortar intermediaries in the financial sector because of Fintech development (Buchak et al., 2018). Customers expect financial services to be more convenient to use, regardless of location or time, and at an ever - decreasing cost. (Gomber et al., 2018; Guo et al., 2019). Customers of financial services gain the ability of financial technology to remove disruptions even though studies on Fintech are still lacking (Guo et al., 2019; Varga, 2017). In financial services, one of the primary goals of incorporating Fintech services is to enhance the consumer's banking experience.

Commencing in 2001, Malaysia's government already applied first steps towards Fintech when it became mandatory for every citizen to have a national identity card called MyKad combination with ATM and e-wallet. Therefore, Malaysia became the first country to establish itself in the Fintech industry by aiming and implementing a regulatory framework in year 2015. Bank Negara Malaysia (BNM) has become the first country in Southeast Asia established the framework that allows Fintech companies to innovate while maintaining financial stability and protecting customers' rights. In addition, Bank Islam Malaysia Berhad was the first bank to offer SMS banking to its Malaysian customers and now nearly all commercial financial institutions offer mobile banking to their customers as well. Hong Leong Bank Berhad (Hong Leong Bank) provides its customers a service called PEX (payment express), an application that permits customers to transfer money by just submitting their cell phone number rather than banking particulars. Hong Leong Bank customers can now transfer funds to other local banks in Malaysia more conveniently only via bank's own app.

Besides, Malaysia is the first Southeast Asian country that launched a digital e-services platform. Malaysia's e-commerce roadmap was unveiled in year 2016 and has been revised (Salleh et al., 2020). On the other hand, Malaysia has created the Digital Free Trade Zone (DFTZTM) in November 2017 with the help of MDEC and Alibaba Group (Yean, 2018). In addition, Alipay turned up in Malaysia in June 2017, 7-Eleven has become the first retailer to embrace the payment channel ("CIMB bags 'Best Retail Bank in Malaysia' award", 2017), cashless payments were becoming more popular in Malaysia. Genting Malaysia Berhad and Digi Telecommunications Sdn. Bhd. joined CIMB Bank in adopting the Alipay mobile wallet as well as YTL Corporation Berhad and Family Mart (Hew, 2017).

Malaysia's Fintech growth indicates that the penetration of information applications is increasing at a rate of 30 percent per year, as evidenced by the constant innovation of mobile apps (Alwi et al, 2019). According to Edge Markets, indicated that the transaction value per capita increased from RM550,703 in year 2016 to RM668,785 in year 2018 and as well increased for e-payment transactions per capita from 97.5 in year 2016 to 124.6 in year 2019.

Mobile applications such as mobile payment and mobile remittance are now becoming extremely relevant to Fintech organisations. Similarly, traditional banking institutions are evolving continue providing innovative and differentiated financial services (Ryu, 2018). The Malaysian Digital Economy Corporation Sdn Bhd. (MDEC) has previously noted that Malaysia has the potential to become a digital hub for ASEAN. Malaysia was referred to as an "Emerging Fintech Hub in Asia" in Ernst & Young's 2018 ASEAN FinTech Census. Malaysia is ranked 31st out of 139 Asian countries ahead of Italy, China, and Chile in the World Economic Forum's Network Readiness Index for its readiness for a digital economy and society. Furthermore, Malaysia's Fintech is now on a constant exponential progression for the past couple of years whereby there are more than 200 companies that produce and strengthen fintech services (IMF, 2020). E - payment and mobile wallet services, such as Grab, Touch' N' Go, Boost, Iflix, and Fave, are among the most vital services in Malaysia (Ishak, 2020).

There are several factors driving Fintech growth in Malaysia according to TMOne (2019):

- *Regulations lessening barriers;*
- *Developing of digital world;*
- *More Millennials in the workforce;*
- *Developing of Social media;*
- *Technological innovations have reduced entry barriers; and*
- *Customer expectations are shifting.*

In 2016, the Fintech contributed significantly to the overall economy, compensating for 6.5 percent of the current dollar Gross Domestic Product (GDP), 6.2 percent of current dollar gross output, 3.9 percent of employment, and 6.7% of employee compensation. (Mat and Ya'akub, 2019). Share of e - commerce's GDP was established at 20.8 percent by 2020, as shown in a mid-term review of Malaysia's Eleventh Malaysia Plan 2016 - 2020 (Mat & Ya'akub, 2019). Due to Malaysian customers going online shop, they are being inspired to adopt new, different, and unique things (Perumal et al., 2019). Even though, there are studies emphasize on Fintech advancement adoption but most of the study is aimed on Fintech strategy and financial risk for the supply side (Kotarba, 2016; Gozman et al., 2018; Yi-Hsuan et al., 2011; Buchak et al., 2018).

2. LITERATURE REVIEW

During reviewing the literature, the researcher considers the articles' findings, which led to the following discussion pattern.

2.1 Customer satisfaction

Customer satisfaction, according to Nagaraju, is the most important component of Fintech. Variables such as information quality, system quality, and service quality play a significant role. For determining the value added to tech-savvy customers, Geetha and Vinay conducted an empirical survey. When it came to determining the added value to customer satisfaction, the most important factors were financial security, education and training, connectivity, and reliability, according to the results. Fintech banking users' satisfaction was also investigated by Nagaraju using exploratory research methods. Finance and technology satisfaction is strongly influenced by factors such as cost, security, and time, according to the study's findings. Banks should invest time and resources in developing customer-friendly software, they said, because it will help boost customer satisfaction. User satisfaction would be the most critical aspect, regardless of tangibles such as dependability, responsiveness, security, empathy, or ability to communicate. Furthermore, Oscar indicated that the individual's perception could be expanded without affecting the service

adversely. According to Brown et al., the most significant aspects affecting customer satisfaction in South Africa were service and information quality, system quality, transaction and payment quality, perceived usefulness, trust, and innovation. As a conclusion, satisfied customer is amongst the most prominent topics in Fintech literature, and therefore security is among the most common factors that impact customer satisfaction. Customers' satisfaction with and assurances of their safety and confidentiality of the data generated during their online payment transaction process were of utmost importance. Moreover, reliability, perceived ease of use, perceived usefulness and system quality were cited as influencing factors. As shown in Table 1, there is information about literature and customer satisfaction towards Fintech services.

Table 1. Customer satisfaction.

Author/year	Rectified the main task	Tools and methodology used	Main factors identified
Geetha and Vinay (2017)	Sustaining and enlarging technology-savvy customer base by developing various, value-added FinTech services	A survey of the empirical evidence Social Sciences Statistical Package (SPSS. 20) Dissemination of new ideas	The three pillars of financial security, education and training are: For a project to be successful, it must have high levels of connectivity and dependability.
Nagaraju (2015)	Fintech satisfaction: factors to consider	TAM: Exploratory research/chi-square test and factor analysis	consider factors such as cost, security, timeliness, and customer experience
Oscar (2013)	Evaluate whether customers are satisfied with a service	Survey SERVQUAL model	Credibility and security are assurances that can be quantified.
Brown et al. (2010)	Measure financial South Africa's satisfaction with mobile phone banking.	Face-to-face interviews/snowball sampling/UTAUT	Transaction and Payment/Service Quality/Information Quality/System Quality Perceived usefulness, trust, innovativeness, and security are all aspects of quality.

2.2 Adoption and impact

There are numerous descriptions, concepts, and models for adoption. This review somehow doesn't specialize in a particular definition of adoption, but rather on the general concept of customer adoption. Bharti mentioned that currently, more individuals using mobile banking and other products of Fintech individuals and governments alike will feel the effects of this shift in global business patterns. Rogers explains that the adoption process involves learning, deciding, and acting over time, until the decision is made to continue using an innovation in its entirety. Adoption can be influenced by peer pressure and economic necessity. Adoption models like Rogers' Diffusion of Innovations are among the most popular in the business world today. Five stages are being constructed by Sherry et al. and Rogers as the combination of technology advancement and judgement.

1. **Knowledge:** In addition, they have a basic understanding of how invention works.
2. **Persuasion:** People adopt a positive or negative attitude toward innovation.
3. **Decision:** It is up to the individual to decide whether to adopt or reject an innovation.
4. **Implementation:** Whenever a decision is made by an individual or by someone else, an innovation is executed.

5. **Confirmation:** Individuals are looking for affirmation of the constantly being developed they've made, but they may change their views if they obtain contradictory signals of innovation.

As shown in Figure 1, the adoption process is classified into five categories. This means that as innovators, they can apply and comprehend technical information and they are familiar with uncertainty.

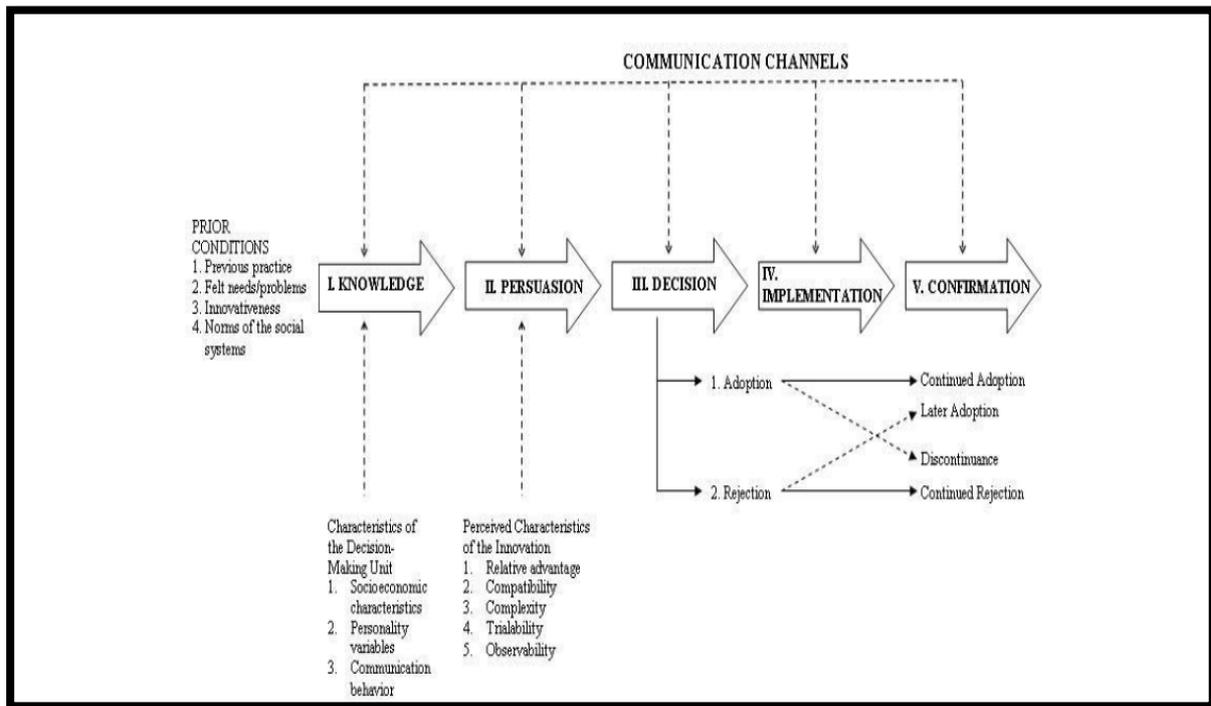


Fig. 1. Everett M. Rogers's Diffusion of Innovations, Fifth Edition, Introduces a five-stage model of the innovation-decision process.

Under this segment, most of the researchers review and examines all factors that influence consumer adoption of Fintech. The adoption of Fintech and its impact on customers are influenced by factors such as safety and security, dependability, efficiency, and accessibility, as cited by Shamsher. They also noted that Fintech operability, security, and quality assurance of services had an impact on consumer adoption. Mostafa and Eneizan conducted a survey to establish the determinants that affect Fintech acceptance. Fintech adoption is strongly influenced by perceived self-efficacy, perceived ease of use, and perceived usefulness. An exploratory research study by Emma Slade et al. revealed that progressive society' intentions to adopt were influenced by various factors. As a result of their study, which included the UTUAT model and a survey, it was concluded that Fintech adoption is largely driven by expected outcomes, social influence, innovativeness, and risk involved. Fintech adoption has been greatly affected by many other indicators, as shown in Table 2. However, in other studies, perceived privacy, security, and risk were found to be the extremely prominent factors.

Table 2. Adoption and impact.

Author/year	Rectified the main task	Tools and methodology used	Main factors identified
Shamsher (2014)	Fintech adoption and its impact on customers.	Anova and Factor Analysis, SPSS 16 / DOI	Safety/security, dependability, efficiency, and responsiveness
Perna (2011)	Users and non-users of Fintech assumed that certain issues in Fintech were critical to adoption.	Correlation, Independent Sample T-test, ANOVA, and percentile analysis TAM were used to analyse the structured questionnaire and the collected data.	Service implementation, security, and management requirements for mobile devices.
Mostafa and Eneizan (2018)	Fintech acceptance in Libya	Data collection/quantitative approach/linear regression analysis/Statistical Package for Social Science (SPSS) TAM	A sense of self-efficacy, ease of use, and usefulness
Emma et al. (2015)	Progressive society' behavioural intention to adopt virtual fintech payments will be explored.	UTAUT / Survey/Structural Equation Modelling (SEM)	Perceived risk is a function of performance expectation, social influence, and innovativeness

2.3 Customer perception

The Technology Acceptance Model (TAM) clarifies the factors contributing to acceptance and use of technology. Two specific principles are included in the TAM model and were tested: Perceived Usefulness and Perceived Ease of use. As revealed above, perceived usefulness seems to be "the degree to which a person believes that using a particular system will enhance their ability to do the job". These factors interpret customer perception literature to determine its validity and degree of influence on one's option of strategic thinking to use Fintech. A service quality model focused on perceived quality of services can be implemented to Fintech adoption (SERQUAL). Technology will be influenced by attributes such as quality, compassion and understanding, and network performance. Their research in the telecom industry prove that telecommunications and mobile services were relevant. A post-adoption behaviour analysis by Tai and Fang revealed that the most important components were security, interactivity, competitive advantages, ease-of-use, interface creativity and customer satisfaction. Ali AlSoufi and Hayat Ali explored customer perceptions of Fintech adoption using an experiential analysis and a Technology Adoption Model (TAM). Factor security and ease of use were cited as a significant variable to consider in this segment of ability to understand why customers will adapt to Fintech services. In additional, customer perception of Fintech service is described in detail in Table 3, which provides an overview of the research conducted in this area.

Table 3. Customer perception.

Author/year	Rectified the main task	Tools and methodology used	Main factors identified
Tai and Kwoting (2009)	An improved user perception measurement model for mobile banking services after adoption is established.	Exploratory factor analysis (EFA) survey	Ease of use, ease of interactivity, customer satisfaction and relative advantage.
Ali and Hayat (2014)	Customer perception of M-banking adoption should be integrated into Technology Adoption Model (TAM).	Empirically study TAM	Its perceived usefulness and usability as well as its level of safety
Shanmugam et al. (2015)	Investigate how UK customers perceive Internet Banking.	Interview DO / I	Money transfers/bill payment/security
Mullan et al.	Stakeholders' perspectives on the drivers and barriers to adoption of Fintech services	Diffusion of innovation (DOI) Data collected using blogging,	Stakeholder collaboration and perceived risk/security concerns are among the factors that influence fintech absorption.

2.4 Security and encryption

These have been explained by the researcher, that "privacy" and "security" refer to the simulation of trust that is realistic at estimation time (Huang et al.). Customers and Fintech service providers must implement a trust model. As interpreted by Goodwin (1991), privacy is the user's ability to capture their surroundings throughout a transaction and the information sharing related to Fintech transactions. Data encryption techniques based on cryptographic technologies are explored in Uma Dixit's study. In addition to AES for ATMs, fuzzy extractors, GSM and RFI for EMV (Europay, MasterCard, Visa), as well as one-time passwords for mobile banking are all examples of cryptographic methods.

According to their research, Nyamtiga et al. developed security features for SMS-based models to enhance data protection across mobile networks. In order to test their algorithms, the researcher proposed a prototype model using both GSM and Advanced Encryption Standard (AES). Data confidentiality, user authentication, and message integrity were all quoted as issues that jeopardies Fintech services. Mobile internet banking apps are discussed in detail by Hayikader et al. They explore security measures to address the challenges associated with mobile internet banking apps' architecture and security. In order to improve the security of the current system, they enforced an Intrusion Detection System (IDS). A Customers' perceptions of risk factors were studied by Kavita and Kumar, who developed a model that was used in Fintech services adoption. According to them as well, there were some concerns about the deployment and modelling process. They concluded that the most significant factors that could impede consumer adoption of the security system were time, financial, and performance-related risks.

Referring to Wu et al. examined that security remains an important issue in customers' decision making to use mobile banking applications or Fintech adoption. As a result of the findings of Oluwafemi and colleagues, the security of mobile banking and other related topics are best defined. According to a forensic analysis of the implementations Security was not properly considered in the growth of financial technology in Nigeria. This might cause problems in entire aspects of user financial technology adoption, behaviour patterns, sense of achievement, and

perspective in general. Therefore, Fintech security is indeed for widely discussed in Table 4, which provides an excellent overview of Fintech-related security research and development efforts.

Table 4. Security and encryption.

Author/year	Rectified the main task	Tools and methodology used	Main factors identified
Uma Dixit (2017)	Cryptographic techniques for data encryption and e - banking security will be discussed.	Cryptography	One Time Password (OTP)
Nyamtiga et al. (2013)	SMS-based confidentiality is enhanced with security tools integrated into the messaging system.	Encryption/GSM	Message integrity, user/authentication, and data confidentiality are all important considerations.
Sameer Hayikader et al. (2016)	Apps for mobile internet banking are assessed in terms of their architecture and security. Then we'll look at some security measures that can be taken to address the security challenges that may arise with it.		Intrusion Detection System (IDS)
Oluwafemi et al. (2019)	In Nigeria, forensic analysis of fintech applications is conducted.	The OWASP Mobile Application Security Verification Standard (OWASP).	These mobile applications may have been developed without adequate security considerations.

2.5 Customer behaviour

Perceived usefulness and perceived ease of use both are the influence for customer behaviour or intention. Using an interpretive paradigm in his paper, Ultimately, Shaikh (2015) believes consumer perception of value is the most important factor in influencing them to adopt Fintech. With the same TAM model, Shanmugam et al. found that Malaysians' adoption of Fintech was influenced by their perceptions of usefulness, benefit, and credibility. Another study conducted by Alalwan et al. to determine factors influencing behaviour and Fintech services adoption by using the UTAUT model had similar results, especially in terms of performance expectancy and effort expectancy, as well as perceived usefulness.

Tan and Lau found that implementation expectations, attempt expectations, perceived risk, and social influence all played a significant role in consumers' intentions utilise Fintech services. Researchers Waranpong and Krittipat found that perceived usefulness and social influence were among the factors that affected behavioural intention to adopt Fintech among generation Y. They also found that self-efficacy in Fintech services applications and behavioural intention influenced behavioural intention. As a result, users were influenced to adopt by the fact that security was a necessity. Customers' adoption of Fintech services was influenced by their expectations of performance and effort, their perceptions of trust, usefulness, perceived risk, perceived ease of use, and their self-efficacy. To learn more about customer behaviour, refer to the customer behaviour table in Table 5.

Table 5. Customer behaviour.

Author/year	Rectified the main task	Tools and methodology used	Main factors identified
Shaikh, (2016)	Study behaviour of customers in mobile banking services, as well as technology adoption and continuous usage to add value to fintech literature.	Exploratory research design TAM	Value as perceived by the user
Waranpong and Pitchayadejanant (2017)	To examine the factors that influence generation Y's decision to use mobile banking.	Structured Equation Model for the Unified Theory of Acceptance and Use of Technology (SEM)	Facilitating security are perceived usefulness, social influence, performance expectations, and effort expectations. A negative correlation was found between self-efficacy in mobile banking applications and behavioural intention security.
Shanmugam et al. (2014)	Malaysians' attitude as an intermediary is one of the factors that influence their adoption of fintech as a banking tool.	EM using AMOS 21 and the technology acceptance model (TAM, 1993).	Benefit, utility and credibility are all viewed as useful.
Alalwan et al., (2017)	Customer behaviour and fintech adoption in Jordanian banks are influenced by several factors.	UTAUT2 and the Trust Field Survey Questionnaire	Expectancy of performance, effort, perceived usefulness, price value, and trust.

3. RESEARCH METHODOLOGY

This research was conducted over a ten-year period, from 2009 to 2019 using a variety of journal and article databases as well as Google Scholar and other related sources. This included peer-reviewed scientific papers, working papers, conference papers, as well as articles from business journals.

A similar and prevalent lexis grouping has been used to categories the information gathered from the survey in each research. Those journals articles which did not fall into any of these categories were classified as "others." Based on current mobile banking and Fintech trends, reports, articles, and working papers were reviewed. Articles without a conclusion or a future reference were exceptions for this research.

Researchers also used snowball reviews, by choose articles based on the scope and criteria of the article they were evaluating. Only 40 of the 52 articles met the research criteria. These included "other" classifications that were never used. 30 peoples met the criteria and were used in the final evaluation. It was decided to group articles based on the purpose for which they were written as well as their author and year, the main problem they solved, the tools and methodology they used, and the main factors they discovered. Customers' satisfaction, adoption, perception, behaviour,

and security were the categories that emerged. Then, the articles were re-assessed based on the categorization they had been assigned.

3.1 Implements and techniques for Fintech services

In the research reviewed for Fintech services, a variety of tools and methods were used, each with its own set of limitations. As a result of a thorough review of the various articles in this section, the search criteria were unaffected by this classification. Ideas, outcomes, and titles in research articles contributed to this. As a result of this classification, the following categories were identified: customer satisfaction, adoption and impact, customer perception, consumer behaviour, trends and developments, and security and encryption.

4. RESULTS AND DISCUSSION

4.1 Customer satisfaction

Qualitative or quantitative customer satisfaction research was conducted, with qualitative research accounting for 60% of the total. In the literature, models such as SERVQUAL, TAM, UTAUT, and DOI are commonly used to measure customer satisfaction. In the literature, the variables that were most closely examined were security (both trust and financial), reliability, compatibility, connectivity, cost-effectiveness, perceived ease of use, perceived usefulness, and system quality. Figure 2 summarises the models used in the articles reviewed.

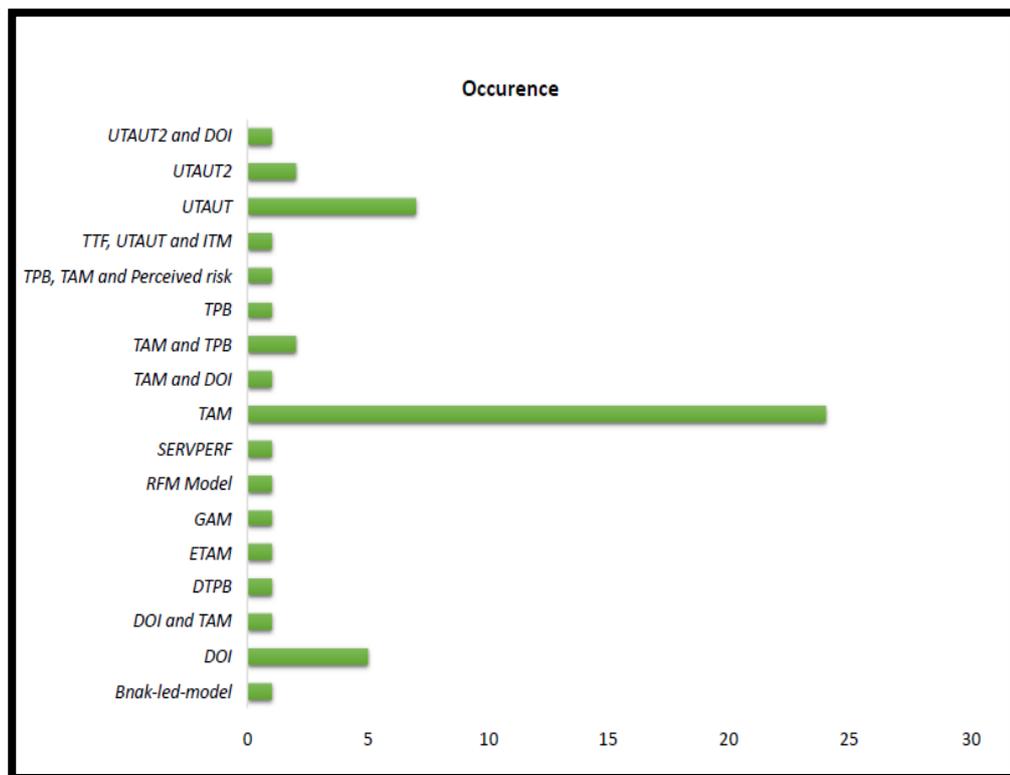


Fig. 2. The models and their occurrence over the period from 2010 to 2019.

4.2 Adoption and impact

Adoption and impact were the two main areas of focus for Fintech research. Quantitative and qualitative tools were categorised in the survey. In this section of the book, UTAUT was used as a common research model, much like TAM. As a result, it was common to use both TAM and TPB together. The review also revealed that certain variables in these models were the most frequently used in the analyses. Perceived usefulness, perceived risk, perceived ease of use, perceived (privacy, trust, and security), compatibility, and apparent performance expectancy are the variables most likely to be considered in adoption.

4.3 Security

There is so little research and exploration that has being done in this field. On the other hand, stakeholders follow up as well very few, if any, recommendations made during the security review is according to the report's findings. Cryptography and encryption, as well as their related tools, were well-known in the literature. These tools were tested on a limited number of Fintech apps. Some of the results indicate that there are security lapses in these applications.

4.3 Customer perception

The study reveals that most of the research methodology used is survey research under the heading of customer perception, which also includes both qualitative and quantitative tools. In this segment, 93 percent of the tools used to collect research data were quantitative. DOI, followed by TAM, is the commonly used research model for customer perception in the literature. For these types of studies, SERVPERF and a Fintech - led model have been introduced. Perceptions of security matters and trust, competitive advantages and relative advantages, perceived ease of use, perceived usefulness and risk perceptions were among the most frequently cited variables in customer perception literature. As a conclusion, TAM, UTAUT, and DOI were the three commonly used models for research review articles, while little or no attention was paid to security recommendations during the development stages of the articles' creation and publication (Figure 3).

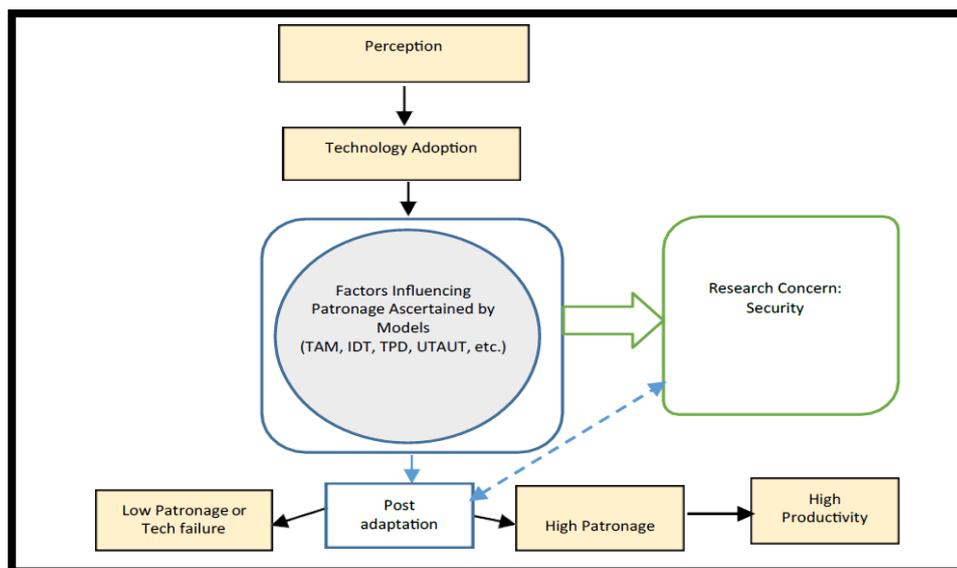


Fig. 3. Security concern a major factor incomplete adoption of Fintech.

5. CONCLUSION AND POTENTIAL SCOPE

Most of the studies contributes to the research gap in Malaysia's understanding of Fintech adoption. The advancement of the Fintech trend is greatly influenced by consumer perceptions, but it is still ambiguous in the research fields which require strong scientific research evidence to support literary mapping. Security issues, which have been identified as the most significant barrier to consumer satisfaction, will be the priority of another phase of literature regarding customer satisfaction and attitudes towards financial technology (Fintech). Security concerns are important, and have a positive effect on FinTech's intention, as it is important for the credibility of new technologies to ensure safe personal data. The security concern seems to be that the monetary information must be kept confidential during transmittals and storage to avoid breaches of security (Taherdoost, 2017). This is in accordance with the Ogbanufe & Kim (2018) study, which argues that personal data is the main element in developing financial technology for providing consumer protection of personal data during bank transactions.

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