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DETERMINANTS OF FINTECH ADOPTION: A SYSTEMATIC LITERATURE REVIEW

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Abstract

The financial industry is experiencing a transformation as a result of advancements in technology. Due to these technological advancements, the financial industry has undergone a metamorphosis, becoming increasingly technology-driven and abundant with both opportunities and challenges. Even though Malaysia is a leader in Islamic finance, it still lags in terms of FinTech. Islamic banks in Malaysia, in particular, have adopted cutting-edge technological solutions in the South East Asian region. However, the limitation of literature indicates that only a few studies have examined whether FinTech may be considered acceptable or adaptable on an empirical or non-empirical basis, especially in Islamic finance. Accordingly, the present study's goal is to conduct a systematic literature review in order to investigate and compile factors that could influence a user to adopt or accept fintech banking services. Preferred Reporting Items for Systematic reviews and meta-analyses (PRISMA) was adapted in this study where there will be four stages which are identification, screening, eligibility and inclusion before systematically analyse for review process. It was found that, perceived ease of use, perceived usefulness, perceived benefit, social influence, performance expectancy, effort expectancy, trust, religiosity, intent, and other factors have all been shown to influence an individual's decision to utilize Fintech services.

Keywords: *Adoption, Determinants, Fintech, Services, SLR.*

INTRODUCTION

With the growth of technology, the financial sector is undergoing a shift. This technological advancement includes new funding mechanisms such as e-financing and mobile technology, which has resulted in a transformation in the financial sector, which is now more technology-driven and looming with opportunities and challenges (Miskam et al., 2019). Malaysia has taken the top rank in the Islamic economic ecosystem for the fifth time, with the UAE coming in second. FinTech is encouraged by the Malaysian government. Bank Negara Malaysia (BNM) assists Malaysian banks. Consequently, most banks have adopted FinTech and other digital technologies necessary for such financial institutions to create a digital platform for their customers (Hui et al., 2019). Malaysia is a centre for Islamic finance, although it is lagging in terms of FinTech. In the South East Asian area, Islamic banks in Malaysia have incorporated innovative technological assistance (Shaikh et al., 2018). At the same time, the scarcity of literature suggests that few studies have mapped out the acceptability of Islamic FinTech on empirical or non-

empirical grounds (Acar & Çitak, 2019; Breidbach et al., 2020; Milian et al., 2019). The notion of FinTech's metamorphosis into the global Islamic economic setting of Islamic FinTech. Furthermore, "FinTech promises to transform the Islamic financial environment by enhancing operational efficiency, cost-effectiveness, greater distribution, Shariah compliance, and financial inclusion," as stated by Miskam et al. (2019: 223).

To assist the FinTech revolution, several developing countries have built legal frameworks aligned with the banking sector's changing needs. Malaysia has shown interest in the new banking model and taken the initiative to promote more contemporary banking practices via regulatory frameworks tailored to their unique environments' financial and technical demands. The Islamic nations are ranked among the top five countries in Islamic banking assets, with $196 billion in 2019 (IFSI Stability Report, 2020). Besides that, Malaysia has a high rate of cell phone and internet penetration, owing to its youth-dominated population. Recognizing FinTech's potential for disruption in the banking sector, several studies have examined the factors that influence FinTech service adoption by utilizing different theories such as the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), Diffusion of innovation (DOI) Theory, Deconstructed Theory of Planned Behaviour (DTPB), Unified Theory of Acceptance and Usage of Technology (UTAUT) and a theory of interpersonal behaviour, but very few studies verified and evaluated such theories in the context of Islamic Fintech services (Oladapo et al., 2021; Shaikh et al., 2020). Despite extensive research in banking and finance, there are minimal studies undertaken in the context of Islamic banking, especially in developing countries, employing a mix of ideas such as employing UTAUT2 theoretical framework despite its compactness and comprehensiveness of constructs (Thaker et al., 2021; Oladapo et al., 2021; Shaikh et al., 2020).

FINANCIAL TECHNOLOGY (FINTECH) IN MALAYSIA

The recent surge in FinTech due to the digitization of transactions has piqued the interest of Malaysia's financial industry's regulatory organizations. One of the most significant advancements in Malaysian FinTech is using artificial intelligence (AI) to replace the country's conventional labor-intensive working practices (Fong, 2017). However, such technology is still in its early stages. The rebranding trend has caused several organizations to portray themselves as digital-centric, establishing distinct FinTech departments to increase their brand market share. The Malaysian financial industry is becoming more receptive to innovations in FinTech, and the sector is overgrowing. Indeed, one area where FinTech growth is becoming increasingly visible is the banking business. Although Malaysian banks embrace market dynamics by establishing new business methods or collaborating with FinTech start-ups, they are also worried about the disruptions FinTech has brought to the banking sector (Fintechnews & Singapore, 2017). Public Bank Berhad (PBB) collaborated with iSentric Ltd., a digital commerce software, to create a mobile payment solution in 2017. In addition, Malayan Banking Berhad (Maybank) Malaysia and Hong Leong Bank have fostered FinTech start-ups (Fintech News Singapore, 2017); because of its stable underlying market, enormous population, and business-to-consumer (B2C) model, Malaysia has a significant possibility to gain from FinTech. The availability of the internet strengthens these markets, which opens the door to a one-of-a-kind economic development structure.

According to Statista, FinTech transactions in Malaysia in 2017 amounted to approximately $6.37 million, compared to a worldwide number of $769.3 billion. This figure is expected to rise as new technologies enter the Malaysian capital market. Given the favourable changes in Malaysia, clients may continue to enjoy and discover the benefits that FinTech may give. However, despite Malaysia being one of the Muslim nations striving to encourage and create Shariah-compliant FinTech, the growth of FinTech in the Islamic financial industry is still in its early stages. According to Bank Negara Malaysia, Islamic financial service companies must adhere to Shariah principles while using an innovative business strategy (Bank Negara Malaysia, 2016). To place itself

at the forefront of the broader FinTech services, the Islamic banking industry must embrace this idea as a digital strategy, continue collaborating, and improve its expertise and exposure to educate clients (Hudaefi, 2020).

METHODOLOGY

The present research is conducted in the form of a systematic literature review. The systematic approach differs from the traditional method in that it is objectively oriented, replicable systematic, comprehensive, and the process of reporting the text resembles that of empirical work in some ways (Moher et al., 2016; Weed, 2005). By reviewing relevant literature, we understand the breadth and depth of the existing body of work and identify gaps to explore. We can test a specific hypothesis and develop new theories by summarizing, analyzing, and synthesizing a group of related literature. We can also evaluate the validity and quality of existing work against a criterion to reveal weaknesses, inconsistencies, and contradictions (Paré et al., 2015). Thus, this study aims to identify the current study on determinants of fintech adoption among consumers. In order to identify the corresponding publications, it is necessary to define the search criteria, database, search term, and publication period (Woschank et al., 2020; Xiao & Watson, 2019). To identify published articles on determinants of fintech adoption, this search involved various databases such as Scopus and Emerald Insight. Various keywords have been used, such as "fintech", "Islamic fintech", "factor", "determinant", "adoption" and "acceptance".

Then, several inclusion and exclusion criteria were set to achieve the study objectives. For example, the publication period has been set to 2018–2022 to ensure that the articles are up-to-date with the current issues. Then, the articles collected will have a quantitative background to analyse the determinants of fintech adoption. Next, the subject area will be social science, so the screening article will focus only on the social science area without including other unnecessary subject areas. Only complete articles will be included, without including articles with insufficient information. Lastly, the collected articles will differ from those in other databases so that no duplicate articles will be included. Table 1 shows the inclusion and exclusion criteria of this study.

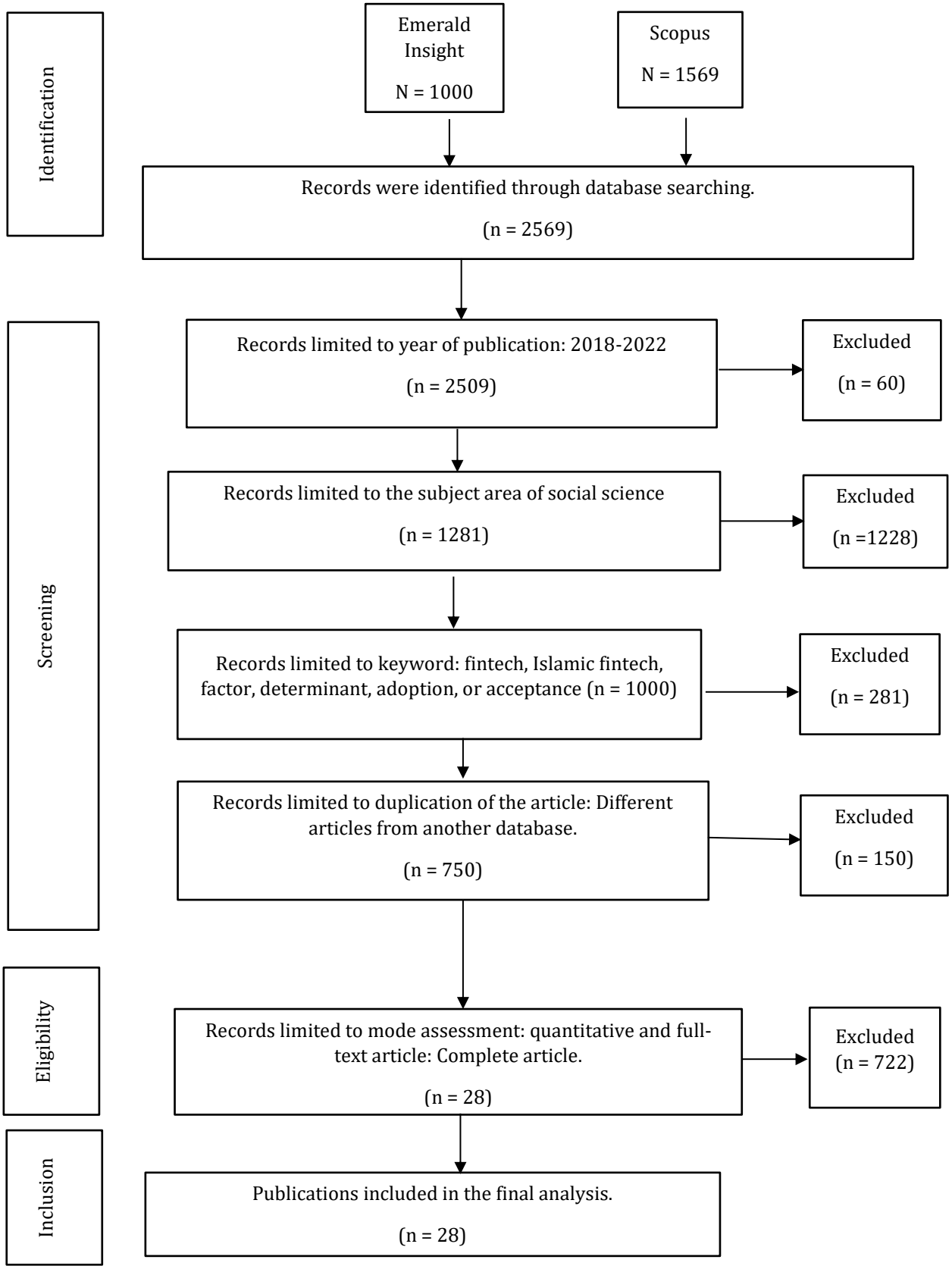
Table 1: Inclusion and Exclusion Criteria

No	Criterion	Inclusion	Exclusion
1	Year	2018 until 2022	Less than 2018 and more than 2022
2	Mode of assessment	Quantitative	Qualitative
3	Keyword	Fintech, Islamic fintech, factor, determinant, adoption, or acceptance	Other than fintech, Islamic fintech, factor, determinant, adoption, or acceptance
4	Duplicate	No	Yes
5	Full-text article	Yes	No

Source: Author (2023)

Next, the use of the Preferred Reporting Items for Systematic reviews and meta-analyses (PRISMA) was adapted in this study (Moher et al., 2015). Firstly, all relevant articles on fintech, Islamic fintech, factor, determinant, adoption, and acceptance were first identified. The process resulted in identifying 2569 publications using two databases: Emerald Insight and Scopus. The following narrowing of the results by publication year from 2018 to 2022 resulted in 2509 publications. Then, the output was reduced to 1000 documents after using the relevant keywords. Finally, duplicate publications will be eliminated, bringing the total number of articles to 750. These papers were evaluated as part of the screening procedure. In order to finalize the eligibility of the publications, only full-text articles with quantitative output will be included, resulting in the identification of a total of 28 publications. Figure 1 below illustrates the process adopted to identify the eligible papers used for the rest of the study.

Figure 1: Screening process



Source: Author (2023); Moher et al., (2016); Xiao et al., 2019

RESULT AND DISCUSION

Table 2: List of Journal

	Name of Journals	2018	2019	2020	2021	2022	Total
1	Foresight			1	2	1	2
2	Technology in Society		2	1			3
3	Sustainability Journal		1				1
4	Banks and Bank Systems		1				1
5	Industrial Management & Data Systems	1	2				3
6	African Journal of Economic and Management Studies		1				1
7	International Journal of Bank Marketing	1				1	2
8	International Journal of Human-Computer Interaction	1					1
9	International Journal of Information Management		2				2
10	Kasetsart Journal of Social Sciences		1				1
11	Journal Public Affairs		1				1
12	Journal of Islamic Marketing		1	1		2	3
13	Journal of Open Innovation			1	1		2
14	SAGE Journal		1				1
15	International Journal of Scientific & Technology Research		1				1
	Total	**3**	**14**	**4**	**3**	**4**	**28**

Table 3: List of Author, Theories/Model, Determinants, Countries, and Sampling

No	Author (s)	Theories/ Model	Determination/factors	Countries and sampling
1	Usman et al. (2022)	Extended TAM	Shariah compliance, perceived usefulness, perceived ease of use	Indonesia (300)
2	Usman et al. (2022)	Extended TAM	Trust, Image, Religiosity, PEOU, PU, Attitude, Subjective norm	Indonesia (425)
3	Khuong et al. (2022)	Self-proposed model (based on TAM and TAM)	Perceived benefit and belief	Vietnam (161)
4	Chan et al. (2022)	Extended UTAUT	Performance expectancy, effort expectancy, social influence, and perceived risk are direct antecedents of consumers' usage intention of Open Banking.	Australia (456)
5	Ali et al. (2021)	Self-conceptual model	Positive and significant relationship between trust and intention to adopt Islamic Fintech.	Pakistan (321)
6	Setiawan et al. (2021)	Extended TAM	The result shows user innovativeness as a significant predictor, directly and indirectly affecting the adoption of Fintech in Indonesia	Indonesia (485)
7	Nor et al. (2021)	TAM	trust in technology and perceived usefulness of technology.	Malaysia (200)
8	Al Nawayseh et al. (2020)	Extended UTAUT	Perceived benefits and social norms significantly affect the intention to use FinTech applications.	Jordan (451)

9	Albayati et al. (2020)	Extended TAM	regulatory support and user experience	Korea (251)
10	Singh et al. (2020)	Combination of TAM, UTAUT, ServPerf, and WebQual 4.0	Actual use is significantly influenced by ease of use and social influence.	India (439)
11	Darmansyah et al. (2020)	Three competing models (TPB, TAM, UTAUT2)	The latent variables, planned behavior, acceptance model, and use of technology significantly encourage behavioral intentions to use Islamic FinTech.	Indonesia (1262)
12	Shaikh et al. (2019)	Extended TAM	Islamic FinTech's service acceptance is determined by perceived ease of use, perceived usefulness, and another variable, consumer innovativeness (CI).	Malaysia (205)
13	Rahi et al. (2019)	UTAUT	Performance expectancy; Effort expectancy; Social influence; Facilitating conditions; Assurance; Reliability; Customer service; Website design	Pakistan (398)
14	Deng et al. (2019)	FE	Economic Growth; Social Development; Consumption Emissions; Environmental Governance	China (31)
15	Nofie Iman (2019)	DOI; SERQUAL	Tangibility; Reliability; Responsiveness; Assurance; Empathy	Indonesia (100)
16	Blanche (2019)	TAM	Perceived ease of use; Perceived usefulness; Interpersonal influence; External influence; Attitude; Intention to use	North American, British, Portuguese (765)
17	Mazambani and Mutambara (2019)	TPB	Attitude; Perceived Behavioural Control; Subjective Norm	South Africa (269)
18	Contreras Pinochet et al. (2018)	SEM	Trust; Transactional Distance; Stigma; Perceived ease of use; Social influence; Personal innovation; Privacy; Propensity to consume; Perceived utility	Brazil (507)
19	Ryu (2018)	TRA	Economic benefit; Seamless transaction; Convenience; Financial risk, Legal risk; Security risk; Operational risk	Korea (243)
20	Wang et al. (2019)	SEM	Continuance intention; Herding; Situational normality; Structural assurance; Subjective norm; Trust; System quality	China (288)
21	Lim et al. (2019)	ECT; PAM; EPAM	Confirmation; Continuous intention to use; Device security; Knowledge; Network security; Platform security; Satisfaction ; Service security; Usefulness	Korea (149)
22	Merhi et al. (2019)	UTAUT2	Performance expectancy; Effort expectancy; Social influence; Hedonic motivation; Price value; Habit; Trust; Perceived privacy; Perceived security	Lebanon & England (901)

23	Baabdullah et al. (2019)	UTAUT2, D&M IS	Performance Expectancy; Effort Expectancy; Social Influence; Facilitating Conditions; Hedonic Motivation; Price Value; Habit; Information Quality; System Quality; Service Quality; Usage; Satisfaction	Saudi Arabia (429)
24	Boonsiritomachai and Pitchayadejanant (2019)	UTAUT, TAM	Social influence; Performance expectancy; Effort expectancy; Facilitating; Self-efficacy; Hedonic motivation; Behavioral intention	Thailand (480)
25	Akhtar et al. (2019)	TAM	Perceived usefulness; Social influence; Perceived ease of use; Cultural values	China & Pakistan (570)
26	Malaquiasa and Hwang (2019)	TAM	Perceived usefulness; perceived ease of use; Trust; social influence; gender; Age	Brazil & US (375)
27	Siyal et al. (2019)	TAM	Perceived risk; Awareness of services; Resistance to change; Perceived benefits; Perceived usefulness; Perceived ease of use; Attitude	China (200)
28	Shah et al. (2019)	TAM	Perceived usefulness; Perceived ease of use; Perceived trust	Malaysia (85)

Notes: TAM= technology acceptance model; UTAUT= unified theory of acceptance and use of technology; FE= fixed effect; TPB= theory of planned behaviour; TRA= theory of reasoned action; SEM= structural equation modeling; EPAM= extended post-acceptance model (EPAM); ECT= expectation-confirmation theory; PAM= post-acceptance model; D&M IS= DeLone and Mclean IS Success Model; DOI= diffusion of innovations; SERVQUAL= theory and the service quality.

Based on table 2, the study identified several influencing factors on consumer adoption of fintech services. From the years 2018 until 2020 found, twelve (15) journals in this review published articles related to the adoption of fintech services. Based on the 15 journals, 14 articles from 2019, 3 articles from 2018 and 2021, respectively, and 4 articles from 2020 and 2022, respectively.

Discussion: Determinants

A few factors were identified based on the quantitative method in prior research referring to consumer adoption of fintech services that can either come from a fintech firm app, banking app, and others. The social influence or subjective norm factor was used frequently in nine prior research (Akhtar et al., 2019; Baabdullah et al., 2019; Boonsiritomachai & Pitchayadejanant, 2019; Contreras Pinochet et al., 2019; Malaquias & Hwang, 2019; Mazambani & Mutambara, 2020; Merhi et al., 2019; Rahi et al., 2019; Wang et al., 2019). It was proven that social influence or subjective norm positively influences the intention and trust to adopt fintech services. Social influence can define the extent to which consumers perceive that important to others (e.g., family and friends) believe they should use a particular technology (Venkatesh et al., 2012). Family, friends, co-workers, media, and social media significantly influence user perceptions and behaviour (Merhi et al., 2019).

In addition, the most common antecedents used to understand fintech adoption are the perceived ease of use, perceived usefulness, and trust (Akhtar et al., 2019; Belanche et al., 2019; Contreras Pinochet et al., 2019; Malaquias & Hwang, 2019; Shah et al., 2019; Siyal et al., 2019). The perceived ease of use can refer to using a particular system to be easier to use than another is more likely to be accepted by users (Davis, 1989). While perceived usefulness can be defined as the degree to which a person believes using a specific system will increase his or her job performance (Davis, 1989). Therefore, the study found that perceived usefulness and perceived ease of use play a crucial role and

significant effect on adopting fintech in the early stages of the adoption process (Akhtar et al., 2019; Belanche et al., 2019). Trust is also essential in assuring consumers that the bank or company is protecting their information (Contreras Pinochet et al., 2019) because people are likely to develop trust without thoroughly thinking through the different aspects of the decision. Shah et al., 2019; Wang et al., 2019 found that trust was the most influential factor in predicting customers' intentions after usefulness.

Other commonly used antecedents include performance expectancy, effort expectancy, facilitating condition, assurance, attitude, and hedonic motivation. For example, Chan et al. (2022) tested an extended UTAUT model for Australian consumer adoption of Open Banking (a form of fintech). It was found that performance expectancy, effort expectancy, social influence, and perceived risk are direct antecedents of consumers' usage intention of Open Banking. A few studies identified determinants of user beliefs in the technology adoption context, such as assurance of customer service, performance expectancy, effort expectancy, and facilitating condition (Merhi et al., 2019; Rahi et al., 2019). The studies found that the factors are supported to impact user adoption in fintech significantly. According to Boonsiritomachai & Pitchayadejanant (2019), the hedonic motivation of users emerged as the most crucial factor motivating generation Y to adopt fintech. The users will enjoy a technology system when it works properly without any problems, is continuously updated, and is easy to register and use the system. Besides, attitude also plays a crucial role in using novel technology (Siyal et al., 2019). Consumer attitude is the key driver of behavioural intention to adopt fintech (Mazambani & Mutambara, 2019).

Discussion: Theories/Model

The technology acceptance model (TAM) is prevalent in prior research as one of the best frameworks by which to understand users' reactions toward technological innovations because it can explain, to a great extent, consumer adoption of many innovations (Belanche et al., 2019). As in table reveals, few authors used adoption theory, such as the technology acceptance model (TAM), e.g. (Akhtar et al., 2019; Belanche et al., 2019; Malaquias & Hwang, 2019; Shah et al., 2019; Siyal et al., 2019), fixed effect (FE) to test the relationship, e.g., (Deng et al., 2019), theory of planned behaviour (TPB), e.g., (Mazambani & Mutambara, 2019), theory of reasoned action (TRA), e.g., (Ryu, 2018), structural equation modeling (SEM), e.g., (Contreras Pinochet et al., 2019; Wang et al., 2019). There are also combined different theories, such as TAM with UTAUT (Boonsiritomachai & Pitchayadejanant, 2019), an extended post-acceptance model (EPAM) combining the expectation-confirmation theory (ECT), and a post-acceptance model (PAM) (Lim et al., 2019), UTAUT with D&M IS (Baabdullah et al., 2019). In addition, the author (Iman, 2019) has used the diffusion of innovations (DOI) theory and the service quality (SERVQUAL) to describe the dynamics of the fintech industry landscape.

This can be further proven by Usman et al. (2020, 2022), where TAM was extended with additional factors such as religiosity, trust, image, and shariah compliance in the study. The output of the study found that trust, image, religiosity, perceived ease of use (PEOU), perceived usefulness (PU), attitude, and subjective norms significantly impact Indonesian consumers in adopting fintech services. Innovativeness was also found to be significant, either directly or indirectly affecting the adoption of Fintech by the Indonesian consumer (Setiawan et al., 2021). On top of that, some studies combine more than two theories/models. For example, Singh et al. (2020) combine TAM, UTAUT, ServPerf, and WebQual 4.0 to test the adoption factors of Indian consumers toward Fintech services. Ease of use and social influence were found to have a significant influence on the usage of Fintech by Indian consumers. Another relatively similar style where TPB, TAM, and UTAUT2 were combined, and it was found that all the models/theories antecedent were found to have a significant impact on the intention to use Islamic fintech by the Indonesia and Malaysian consumer as well (Ahmad & Yahaya, 2022; Darmansyah et al., 2020; Yahaya & Ahmad, 2018; Yahaya & Khaliq, 2019).

However, other studies proposed their self-conceptual model/framework to be tested. Khuong et al. (2022) proposed their own conceptual model that adopts TAM as the main pillar. The conceptual model consists of perceived benefit (PB), belief (B), and other antecedents of TAM as usual. Unfortunately, only perceived benefits and beliefs were to significantly impact the Vietnamese consumer's intention to use fintech, while others are rejected based on the output. Perceived benefits and social norms also significantly affected Jordanian consumers' intentions to use the Fintech application (Al Nawayseh, 2020). Ali et al. (2021) similarly used the same approach as Khoung et al. (2022) a proposed a conceptual model to be tested for the Pakistan consumer. It found that trust significantly impacted the intention to use Fintech.

Similarly, in Malaysia, trust and perceived usefulness positively affect the acceptance of blockchain to enhance the management system of zakat institutions in terms of collections and distributions of zakat (Mohd Nor et al., 2021). Shaikh et al. (2020) also found that PEOU, PU, and innovativeness affect the acceptance of Islamic banking users in Malaysia towards Islamic Fintech. In the context of blockchain, it was found that Korean consumers consider regulatory support and user experience to be vital in influencing them to use blockchain-based applications. It is appropriate to say that each country produces different results even if they adopt the same approach. This is expected since everyone has their behaviour (Ajzen, 1985).

CONCLUSION

To summarize, among the proven determinants that could affect an individual to adopt Fintech services are as follows perceived ease of use, perceived usefulness, perceived benefit, social influence, performance expectancy, effort expectancy, trust, religiosity, intention, and a lot more others that are listed in table 3. However, specific gaps still need to be explored, for example, comparative output between countries, groups of individuals, methods of analysis, other external or internal factors (word-of-mouth, etc.), and other critical areas such risks management, cryptocurrency, and blockchain and Artificial Intelligence (AI) usage particularly from the Shariah perspective. Last but not least, crucial gap that can be investigated is Islamic Fintech. Especially in Malaysia and globally, adoption or acceptance research conducted towards Islamic Fintech is very scarce and limited. Therefore, it is suggested to focus more research on Islamic Fintech regardless of the significant contribution towards which areas.

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