Contents lists available at ScienceDirect



journal homepage: www.sciencedirect.com/journal/joitmc

Behavioral intention to adopt FinTech services: An extension of unified theory of acceptance and use of technology



Kholoud Bajunaied^{a,b,*}, Nazimah Hussin^a, Suzilawat Kamarudin^{a,b}

^a Azman Hashim International Business School, Universiti Teknologi Malaysia, Kuala Lumpur 54100, Malaysia
^b College of Business Administration, University of Business and Technology, Jeddah, Saudi Arabia

ARTICLE INFO

Keywords: Fintech Privacy enablers Privacy inhibitors Behavioral intention UTAUT Saudi Arabia

ABSTRACT

FinTech service companies in Saudi Arabia face several challenges (i.e., lack of awareness, competition, regulations, data privacy, and cyber security concerns) in motivating their customers to adopt FinTech services in their daily financial activities. Thus, the present study aimed to investigate and understand the consumers' behavioral intention toward FinTech services in Saudi Arabia. The unified theory of acceptance and use of technology was applied and extended by adding privacy enablers and privacy inhibitors. Partial least square structural equation modeling was applied to test the hypotheses in the present study. Based on 361 FinTech users from Jeddah, Saudi Arabia, who participated in the present study, the results indicated that performance expectancy, effort expectancy, facilitating condition, and privacy enablers significantly and positively impact users' behavioral intention towards FinTech services. The results also revealed the insignificant impacts of social influencers and privacy inhibitors on users' behavioral intention towards FinTech services. Overall, the findings suggested that FinTech service companies and practitioners should account for the privacy enablers on the broader level and to adopt a governance approach in developing reliable FinTech applications based on the information richness that can assist in developing trust amongst consumers. The present study contributes by extending the unified theory of acceptance and use of technology by adding privacy enablers and privacy inhibitors in the model to understand the consumers' behavioral intention toward FinTech services in advancing the horizon of the extant literature.

1. Introduction

The modernization of the financial industry has played a comprehensive role in promoting, understanding, and manipulating the global business markets' monetary transactions to become more effective, better, and quick ways through telecommunication, computing, artificial intelligence, and data management systems (Burney et al., 2010; Greu, 2016; Demestichas and Daskalakis, 2020). Moreover, information and communication technology (ICT) permeates and brings significant transformations in value creation by developing new financial sectors by changing existing business models from traditional to modern (Martinčević et al., 2020). Similarly, ICT plays a dynamic role in transforming traditional banking systems into digital ones by introducing Financial Technologies (FinTech) services (Marszk et al., 2019; Arefjevs et al., 2020). Empirically, prior studies concluded different definitions of FinTech services. For example, Alkhwaldi et al. (2022) defined that "FinTech is a distinguishing taxonomy that mainly describes the financial technology sectors in a wide range of operations for enterprises or organizations, which mainly addresses the improvement of the service quality by using information technology (IT) applications" (p.2). "Fintech is defined as the design and delivery of financial products and services through technology (Mamonov, 2020, p.313). Accordingly, Yan et al. (2021) concluded that "FinTech has enabled consumers to access innovative financial services, such as online payment, mobile financial services, savings and investments, budgeting and financial planning, peer-to-peer lending, and crowdfunding" (p.2).

Recently, wide forms of FinTech services (i.e., digital payment, cryptocurrency, smart contacts, Insurtech, RegTech, Robo-advisors, cyber security, online banking, and e-commerce, etc.) are promoted and accessible to consumers through numerous sectors, including banks, capital markets, insurance companies, blockchain companies, and re-tailers, etc. (Ramlall, 2018; Caneve, 2018; Hook and Tangaza, 2019;

* Corresponding author at: Azman Hashim International Business School, Universiti Teknologi Malaysia, Kuala Lumpur 54100, Malaysia. *E-mail addresses:* k.bajunaid@ubt.edu.sa (K. Bajunaied), nazimah.kl@utm.my (N. Hussin), s.kamarudin@ubt.edu.sa (S. Kamarudin).

https://doi.org/10.1016/j.joitmc.2023.100010

Received 8 January 2023; Received in revised form 14 February 2023; Accepted 22 February 2023 Available online 4 March 2023

2199-8531/© 2023 The Author(s). Published by Elsevier Ltd on behalf of Prof JinHyo Joseph Yun. This is an open access article under the CC BY license (http:// creativecommons.org/licenses/by/4.0/).

Madir, 2021; Macchiavello and Siri, 2022). Moreover, Xiang et al. (2017) pointed out that FinTech brings a big revolution by facilitating secure, timely, simple, and efficient modern financial transactions for retailers and their consumers. Considering the popularity and success of FinTech services, several non-financial companies (i.e., Google (Google pay), Apple (Apple pay), Samsung (Samsung pay), etc.) have started providing m-payment services to their users. The implementation of FinTech services by non-financial companies is on a great pace of growth since they allow users to download their mobile applications, sign-up, and perform m-payment transactions worldwide.

Accordingly, a recent report by Mobidev (2022) stated that worldwide FinTech companies generated 32.4 USD billion in the first quarter of 2022, with 1.31 billion active users. However, currently, 12,211 FinTech startups are providing different financial services worldwide; of them, 2849 are in Asian countries (Finances Online, 2022), and of them, only 153 are operating in Saudi Arabia, which is a lower ratio compared to the United Arab Emirates and Jordan (Tracxn, 2022). In this regard, prior studies discussed that the people in Saudi Arabia still believe that FinTech services are unsecured (Imerman and Fabozzi, 2020), fear of losing money (Asante-Offei and Yaokumah, 2021), and they may employ extra hidden charges (Laven and Bruggink, 2016) while performing e-payment. On the other hand, Atif et al. (2021) discussed that people in Saudi Arabia expressed that e-payment through the FinTech system is "Haram" prohibited in Islam. In addition, prior studies highlighted broader challenges that the FinTech companies are facing in Saudi Arabia are stated below:

- a) Regulation: The regulatory framework for e-payment in Saudi Arabia is still in its early stages, which makes it challenging for FinTech companies to operate and grow (Chinnasamy et al., 2021).
- b) Lack of awareness: There is a lack of awareness among the general public about the potential benefits of FinTech services and benefits offered by FinTech companies, which makes it difficult for FinTech companies to acquire new customers and expand their businesses (Abubotain and Chamakiotis, 2021).
- c) Competition from traditional financial institutions: Traditional financial institutions in Saudi Arabia are well-established and have a strong customer base (Dwivedi et al., 2021). FinTech companies face significant competition from these institutions, making it challenging to grow and succeed in the market (Boustani, 2020).
- d) Limited access to funding: FinTech companies in Saudi Arabia often struggles to secure adequate funding to support their growth and development (Muryanto et al., 2022).
- e) Data privacy and security concerns: With the increasing use of digital financial services, data privacy, and security concerns are becoming increasingly important (Alamoodi and Selamat, 2021).

Despite these challenges, the FinTech industry in Saudi Arabia has significant potential for growth, and several initiatives are underway to support the sector's development.

Referring to the above-mentioned empirical discussions and arguments on hindered and challenges in the adoption of FinTech services, the present study aims to investigate and understand the consumers' behavioral intention towards FinTech services in Saudi Arabia, applying the unified theory of acceptance and use of technology (UTAUT) model. Previously, prior studies applied the technology acceptance model (TAM) to investigate the users' behavioral intention to use FinTech services in Saudi Arabia (Alnemer, 2022; Basiouni, 2022); hence, Alshebami (2022) applied the UTAUT model to conclude the users' behavioral intention towards the use of mobile payment system in Saudi Arabia. Still, the authors did not shed light on users' privacy enablers and privacy inhibitors factors while using FinTech services. In this regard, we applied and extended the UTAUT model in the present study by adding two new constructs (i.e., privacy enablers and privacy inhibitors). Venkatesh et al., 2021 suggested that privacy enablers and privacy inhibitors are the wide factors appearing on the users' minds

while performing online payments. Previously, limited studies addressed the consumers' privacy enablers and privacy inhibitors towards FinTech services in Saudi Arabia by applying an extended UTAUT model (Bin-Nashwan, 2021). However, we shed light on the empirical gaps by investigating the direct impact of performance expectancy, effort expectancy, social influences, facilitating conditions, privacy enablers, and privacy inhibitors on consumers' behavioral intention towards FinTech services in Saudi Arabia. In addition, privacy enablers were tested using its two key dimensions (i.e., trust and information richness), and accordingly, privacy inhibitors were also tested using its two key dimensions (i.e., privacy concerns and privacy risk) suggested by (Venkatesh et al., 2021).

The present paper is structured as follows: the first section discusses FinTech services and their transformation in the world's financial sector. The second section discusses the theoretical and hypothesis development and research method applications for the present study. The third and fourth sections present statistical data analysis, discussion and conclusion, and theoretical and practical implications. Limitations and future research suggestions are presented in the fifth section.

2. Literature review

FinTech services are modern digital solutions for managing finances and making financial transactions easy and secure for individuals and organizations (Hua and Huang, 2021; Alkhwaldi et al., 2022; Hassan et al., 2022). FinTech companies use advanced technologies such as artificial intelligence, big data analytics, and blockchain to provide customers with innovative and convenient financial solutions (Awotunde et al., 2021). FinTech services include mobile banking, online investment platforms, digital payment systems, and peer-to-peer lending platforms, among others (Soloviev, 2018; Hendriyani and Raharja, 2019). Dapp et al. (2015) highlighted that the popularity and rise of FinTech services have disrupted the traditional financial industry and have provided customers with more convenient, efficient, and personalized financial solutions. With the ongoing technological advancements and increasing competition in the FinTech industry, these services will likely continue to evolve and play an important role in making the modernized financial world.

Additionally, FinTech services have revolutionized the traditional financial industry by offering innovative and convenient solutions for managing finances, speed and efficiency, making transactions, and accessing credit (Romānova and Kudinska, 2016). In this regard, prior studies advocated the significant impact of FinTech services on consumers' behavioral intention to use and attitude (Chuang et al., 2016; Lim et al., 2019; Khan et al., 2022; Shahzad et al., 2022), and it has been investigated and concluded from the several perspectives. For example, Khan et al. (2022) emphasized that one of the key factors contributing to the increased consumers' behavioral intention to use FinTech services is convenience services designed to be user-friendly and accessible through mobile devices.

Another scholar, Singh et al. (2021), discussed that with the growing number of data breaches and cyber-attacks, the security system offered by FinTech companies had become a critical factor in determining consumers' intention to use these financial services at the individual and organizational level. FinTech companies are using advanced security measures to protect customer data and funds, which has increased consumers' trust and behavioral intention to use these financial services (Nayak et al., 2021). Likewise, Rahim et al. (2022) stated as "Fintech is deemed effective and efficient in various ways, in economic value, time, energy, cost, productivity, and social responsibility" (p.4). In this era of the digital economy, consumers are more focused on performing financial transactions without human interaction. Thus, such practices of financial companies significantly influence consumers' intention to use FinTech services (Shahzad et al., 2022). Vives (2017) discussed that FinTech companies often offer lower service charges than traditional financial companies, making them an

attractive option for people looking to save money; this has encouraged individuals to switch from traditional financial services to FinTech services (Dapp et al., 2015). Lim et al. (2019) and Khan et al. (2022) pointed out that speed and efficiency are also important factors influencing consumers' intention to use FinTech services.

In summary, FinTech services have been rapidly growing in popularity, and their impact on customers' behavioral intention to use could be analyzed through the lens of the UTAUT model (Yohanes et al., 2020; Regina et al., 2021). The UTAUT model is a widely established framework for predicting the intention of individuals to adopt and use technology (Macdonald et al., 2019). It includes several key factors that influence the behavioral intention of individuals, such as performance expectancy, effort expectancy, social influence, and facilitating conditions. On the other hand, several authors extended and modified the UTAUT model by adding new construct to justify the consumers' behavioral intention to use FinTech services (Możdżyński, 2018; Akhtar et al., 2019; Salgado et al., 2020). Integrations and modification of UTAUT have enabled the prior researcher to understand and conclude the acceptance and use of systematic theorizing of FinTech services (Hassan et al., 2022). In this regard, the present study also extended the UTAUT model by adding privacy enablers and privacy inhibitors suggested by (Venkatesh et al., 2021).

3. Research model and hypotheses development

We proposed a research model for the present study based on adapting the UTAUT model. Venkatesh et al. (2003) proposed UTAUT, which aims to describe the user intention to implement systems information following the actual behavioral intention. However, several previous studies investigated and concluded the users' behavioral intention toward FinTech services applying of UTAUT model (i.e., Sulaeman and Ninglasari, 2020; Darmansyah et al., 2020; Singh et al., 2020; Fianto et al., 2020; Submitter et al., 2021a, 2021b; Alkhwaldi et al., 2022). Moreover, we extended the UTAUT by adding two constructs privacy enablers and privacy inhibitors suggested by (Venkatesh et al., 2021). Furthermore, Albarrak and Alokley (2021) emphasized that several users of FinTech services in Saudi Arabia still believe that FinTech applications are unreliable in protecting users' privacy. Therefore, we developed the researcher model Figure 1 to investigate and obtain the impact of performance expectancy (H1), effort expectancy (H2), social influence (H3), facilitating condition (H4), privacy enablers (H5), and privacy inhibitors (H6) on users' behavioral intention towards FinTech services in Saudi Arabia.

In the research model, we express the consumers' behavioral intention towards FinTech services in Saudi Arabia. Where performance expectancy aims to explore consumers' confidence and motivation to use FinTech services, likely effort expectancy supports calculating consumers' intent while utilizing the FinTech services. As we discussed earlier, Saudi Arabian people are still rooted in their cultures and family norms; in this regard, we developed to investigate the impact of social influences on the consumers' intention to use FinTech services. After social influences, it is also important for FinTech service providers to develop an application that facilitates the consumers while performing e-payments. In this regard, we aim to investigate and conclude the consumers' behavioral intention while in facilitating conditions. Finally, we extended UTAUT by adding privacy enablers and privacy inhibitors. Past studies discussed that people in developing countries still believe FinTech services are not secure for performing financial transactions (Almadhoun et al., 2011; Venkatesh et al., 2021). Thus, we developed to investigate the impact of privacy enablers dimensions (i.e., trust and information richness), and accordingly, privacy inhibitors were also tested using its two key dimensions (i.e., privacy concerns and privacy risk) on consumers' behavioral intention to use FinTech services in Saudi Arabia.

3.1. Performance expectancy

Performance expectancy is the scope of certainty to which an individual confident that the usage of a particular technology may support them to maximize the potential task performance (Venkatesh et al., 2003; Rahi et al., 2019). Yohanes et al. (2020) discussed that performance expectancy is a dominant predictor of users' intention toward information technology usage. Accordingly, Chan et al. (2022) concluded that the performance expectancy significantly predicates users' intention towards using FinTech services. Thus, prior studies highlighted that performance expectancy is a dominant dimension of

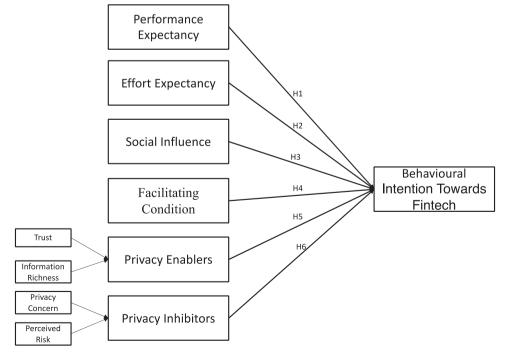


Fig. 1. Research Framework.

UTAUT, which supports the researcher in understanding the users' intention to adopt FinTech services (Yan et al., 2021; Alkhwaldi et al., 2022). Similarly, Chan et al. (2022) conducted an empirical study in Australia and confirmed a positive and strong relationship between performance expectancy and users' behavioral intention towards Fin-Tech and online banking services.

However, an empirical study by Rabaa'i (2021) surveyed the direct link between performance expectancy and users' behavioral intention toward FinTech services and confirmed a positive link. Further, they described that the concept of FinTech services is still novel in several developing countries, where institutions still need to shed light on effective, timely, and secure payment at the end of the business-to-business (B2B) and business-to-customers (B2C) (Puschmann, 2017; Oseni and Ali, 2019). In the present paper, performance expectancy implies that the use of FinTech services is potentially valuable to the users' normal life, which aims to enhance productivity and performance in fulfilling financial activities and transactions beyond the border or domestically. Hence, we proposed the following hypothesis:

H1: Performance expectancy significantly and positively impact consumers' behavioral intention toward FinTech services.

3.2. Effort expectancy

Effort expectancy is a degree of ease in utilizing inventive systems and/or technologies. This dimension of UTAUT is likely to have a strong significant influence in the prompt implementation stage (Venkatesh et al., 2003); however, it indicates the less important post-adoption interest of the users (Rahi et al., 2019). According to Chang (2012), effort expectancy defines the users' perception based on the ease of use of a system or technology. Previously, several researchers examined the direct association between effort expectancy and consumers' behavioral intention to use FinTech. For example, Senyo and Osabutey (2020) developed a framework and investigated the correlation between effort expectancy and behavioral intention to adopt FinTech services, and they confirmed a positive and strong correlation. Accordingly, Aseng (2020) confirmed the same results. Recently, a study was conducted by Ramos (2017), where they found that effort expectancy strongly impacts behavioral intention to use FinTech services. In the present study, we aim to find users' effort expectancy in using FinTech services in Saudi Arabia, where it assumes the use could be free of effort and convenient. However, the following hypothesis is developed:

H2: Effort expectancy significantly and positively impact consumers' behavioral intention toward FinTech services.

3.3. Social influence

Social influence defines the degree to which a user gives more importance to others (family, friends, leaders, etc.) and believes in using the new system and/or technology (Venkatesh et al., 2003). The social influence could be assumed as an important factor of UTAUT, which supports predicting the users' behavior that may reflect compliance, identification, and internalization (Zhou and Li, 2014). However, identification and internalization lead to a user's belief depending on social status (Yi et al., 2021), and compliance amends a user's belief rooted in subjective norms (Joa and Magsamen-Conrad, 2022). However, empirical studies addressed the strong link between social influence and users' behavioral intention to use FinTech services from different contexts. For example, Xie et al. (2021) surveyed China and found that social influence significantly predicates the users' behavioral intention to use FinTech services. Moreover, another empirical study was conducted in India by (Singh et al., 2020), and they discussed that social influence is an important indicator of UTAUT, which supports predicate the users' actual belief and intention towards FinTech services; thus, they also concluded the strong association between social influence and users' behavioral intention to use FinTech services.

According to Chandran and Alammari (2021), culture and family norms significantly shape consumers' behavior and attitudes in Saudi Arabia. These factors can have a significant impact on the adoption of FinTech services. Thereby, Alamoodi and Selamat (2021) emphasized that in a culture where saving and investing are highly valued, people might be more likely to adopt digital financial services that help them manage their finances more effectively. On the other hand, in a culture where traditional banking practices are more entrenched, people might be less likely to adopt digital financial services, as they might prefer to stick with what they are familiar with (Kouser et al., 2011; Al-Matari et al., 2022). For instance, if a person comes from a family where financial literacy and the use of technology are emphasized, they might be more likely to adopt FinTech services. For instance, social influences such as culture and family norms can significantly impact the adoption of FinTech services in Saudi Arabia (Alamoodi and Selamat, 2021). In this regard, companies offering these services must consider these factors when developing and marketing their FinTech services (Kumar et al., 2020; Rahman et al., 2021).

In summary, in the present study, we aim to empirically investigate the impact of social influence on the user's behavioral intention to use FinTech services in Saudi Arabia. Furthermore, this study may also support identifying how peers convince other induvial surrounding them to adopt FinTech services for secure and effective financial transactions. Therefore, the following hypothesis was developed:

H3: Social influence significantly and positively impact consumers' behavioral intention toward FinTech services.

3.4. Facilitating conditions

According to Venkatesh et al. (2003), facilitating conditions define the degree to which users strongly believe that an organization's technical infrastructure may fully support them to use a system and/or technology for better performance. Besides, technical innovation encourages and supports the users to understand them and sort out the effective way to resolve the issues that occurs while performing some technical tasks (Hassan et al., 2022); such activities are also adequate for the positive and strong experiences of the users (Odei-Appiah et al., 2022). Recently, Kurniasari et al. (2022) confirmed the positive impact of facilitating conditions on the use of FinTech services in Indonesia. Similarly, Ali et al. (2018) examined the link between FinTech services and facilitating conditions, where the authors found a weak relationship. In this regard, they discussed that the concept of FinTech services is still novel in several developing countries, where the organizations face several challenges in facilitating the users on how to use FinTech services for better, timely, and effective financial transactions.

On the other hand, several scholarly works documented the positive impact of facilitating conditions on FinTech services, m-payment, mobile banking, etc. In the present study, we investigated and concluded the direct impact of facilitating conditions on the user's behavioral intention to use FinTech services in Saudi Arabia. In this regard, the following hypothesis has been recommended:

H4: Facilitating conditions significantly and positively impact consumers' behavioral intention toward FinTech services.

3.5. Privacy enablers

According to Venkatesh et al. (2021), "privacy enablers are the other set of perceptions that drive customers to make an online purchase" (p.4). Almadhoun et al. (2011) advocated that the privacy enablers show the customers' immediate trustworthiness towards online platforms, i.e., online banking, e-shopping, e-commerce, etc. Thus, Venkatesh et al. (2021) mentioned that privacy is important for companies that provide online services or products to consumers. Similarly, Yang and Lee (2019) highlighted that privacy enablers are important factors that build a strong association between consumers and

crowdfunding services. Prior studies investigated and confirmed the link between privacy enablers and FinTech services, whereas Molloy and Ronnie (2021) confirmed the positive and significant relationship. Accordingly, Razzaque et al. (2020) pointed out that the privacy enablers of an organization build trustworthiness among consumers and companies that provide FinTech services.

Moreover, Saprikis and Vlachopoulou (2021) confirmed a positive correlation between privacy enablers and FinTech services. Thereby, Lee (2021) argued that the recommendations from peers could influence privacy enablers of consumers while buying online services or products. However, Molloy and Ronnie (2021) discussed and confirmed that the significant influence of privacy enablers on users' intention to use FinTech is amplified through peers' recommendations while using the FinTech services, which could be justified from two key dimensions, i.e., trust and information richness. Trust in a company is assumed to be one of the key enablers supporting equalizing consumers' positive perception of FinTech services (Muthukannan et al., 2021). A higher trust level of consumers indicates their strong sense of security and safety while using FinTech services (Razzaque et al., 2020). Secondly, information richness is the degree that defines the potential information of products and/or services that facilitate consumers to understand the nature and use of products and/or services (Lee, 2021). According to Ramadanty and Kartikasari (2021), information richness makes buyers more comfortable using FinTech services; it also enhances the willingness of consumers to use FinTech services in the future and recommends them to their peers. Therefore, in the present study, the researchers conceptualized investigating privacy enablers using two key dimensions, i.e., trust and information richness. In this regard, we suggested the following hypothesis:

H5: Privacy enablers significantly and positively impact consumers' behavioral intention toward FinTech services.

3.6. Privacy inhibitors

Privacy inhibitors drive the consumers' perception of not buying anything online (Venkatesh et al., 2021). Privacy inhibitors' practices convey a negative message that online shopping or banking is full of risk factors that may scam them. Moreover, Yang and Lee (2019) discussed that privacy inhibitors build a perception that prevents users from providing their personal information while making online payments. Recently Johnson and Reves (2021) concluded that privacy inhibitors reduce the consumers' intention to use FinTech services. Thus, prior studies investigated the link between privacy inhibitors and users' behavioral intention to use FinTech services and reported a positive link. For example, Yuan et al. (2022) conducted an empirical study and found that privacy inhibitors are high among consumers, negatively influencing their perception of FinTech services. Accordingly, Submitter et al. (2021a), (2021b) reported that the privacy inhibitors among consumers in Malaysia are very high towards online banking, which affect their overall perception.

Moreover, Hua and Huang (2021) reported that there had been a lack of studies on the impact of privacy inhibitors on FinTech services. However, Venkatesh et al. (2021) suggested that perceived risk and privacy concerns are the important dimensions of privacy inhibitors. According to Venkatesh et al. (2021), "privacy concerns are defined as customers' concerns about the possible loss of privacy due to information disclosure to a specific shopping site," and "perceived risk, which is a second major inhibitor, is defined as the possibility of the seller's opportunistic behavior that leads to a loss for customer" (p.3). In conclusion, in the present study, we conceptualized to investigate the impact of privacy inhibitors and their dimensions (i.e., privacy concerns and perceived risk) on behavioral intention toward FinTech services. In this regard, the researcher proposed the final hypothesis of the present study:

H6: Privacy inhibitors significantly and positively impact consumers' behavioral intention toward FinTech services.

4. Methodology

4.1. Measurement scales

To obtain the present study's aim, we developed six hypotheses which to drew on previous studies for the measurement of UTAUT constructs (i.e., performance expectancy, effort expectancy, social influence, facilitating condition, and behavioral intention to use) (Venkatesh et al., 2003); thus, we extended the model by adding for two well-known constructs called privacy enablers and privacy inhibitors (Venkatesh et al., 2021). Prior studies have constantly reported the significance, reliability, and validity of the above constructs when testing users' behavioral intention toward FinTech services (Ali et al., 2018; Hassan et al., 2022; Chan et al., 2022). All the measurement items for the constructs were adopted from the previous studies presented in (Appendix A), while we also modified some items considering the present study context. All the measurement items were measured using a "five-point Likert scale (1 = strongly disagree and 5 = strongly agree)" (Alkhwaldi et al., 2022).

The questionnaire was divided into 2 sections; in section I, we asked qualifying and demographic questions from the respondents presented in Table 1. And in section II, we presented measurement items for the present study's constructs. We developed the questionnaire in English and contacted and sent it to three academic experts from "The University of Business and Technology Jeddah, Saudi Arabia" and one expert from the market research industry to review and validate the questionnaire content. After that, we translated the questionnaire into Arabic using of forward-backward technique (Alyami et al., 2021), and the questionnaire was administrated online.

Before distributing the questionnaire to the targeted respondents, we performed a pilot test on 9 participants to validate the measurement instrument for the present study (Williams-McBean, 2019). Finally, after the pilot test, we modified several items and revised some after the preliminary validity test in the pilot sample.

4.2. Sample and data collection

The population of interest in the current study is users who used FinTech services in Jeddah, Saudi Arabia. First, Jeddah was deemed a

Fable 1	
Domographia	Ito

υ	en	log	rap	me	nei	1

Division		Percent	Frequency
Gender	Male	87	314
	Female	13	47
	Total	100	361
Age	18-28	28	101
	29–39	41	148
	40-50	18	65
	Above 50 years	13	47
	Total	100	361
Education	Graduated	72	260
	Under graduated	28	101
	Total	100	361
When did you adopt	late adopter,	36	130
FinTech services?	early adopter	64	231
	Total	100	361
What FinTech	Mobile payment	46	166
servicesare you	Mobile remittance	23	83
using it?	P2P lending	11	40
	Crowdfunding	20	72
	Total	100	361
How often do you use	Daily basis	2	7
FinTech services?	Once a week	7	25
	Once a month	16	58
	Once in 3 months	28	101
	Once in 6 months	19	69
	Once in 12 years	16	58
	Once in 24 years	12	43
	Total	100	361

suitable city to conduct the present study, as it is ranked second in Saudi Arabia in terms of population and the number of active users of FinTech service (Oladapo et al., 2021). Second, a recent study by Oladapo et al. (2021) stated that Jeddah is the top-rated city for economic and commercial activities, where FinTech services users are constantly increasing, followed by other cities in Saudi Arabia. Third, most of Saudi Arabia's banks have branches in Jeddah (Oladapo et al., 2021).

To obtain the present study objectives, the researcher calculated the sample size using G*Power software version 3.1 . As discussed earlier, the present study's model has six predictors; the software suggested an effect size of 0.15 and a power of 0.95. As a result, a 74 of sample size was suggested. Therefore, the selected sample size for the present study was above the minimum requirements. In addition, past studies on consumers' behavior suggested that the minimum sample size should be 300 to investigate and conclude the consumers' behavioral intention to use (Hameed et al., 2019; Zhao et al., 2022). Therefore, the convenience sampling technique was employed to gather the data. Only volunteer participation was taken to fill out the survey forms. Thus, we administered the survey online to a sample of 366 FinTech users in Jeddah; from them, 5 responses were identified as suspicious response patterns (Bauermeister et al., 2012); thus, we performed the final statical analysis based on the 361 valid responses. As discussed earlier, in the present study, the questionnaire is divided into two sections; Section "I" present the qualifying and demographic questions, where we asked, "when did you adopt FinTech services? Where 34% of the late adopter and 64% are early adopters. What FinTech services are you using? 46% use mobile payment, 23% use mobile remittances, 11% use P2P lending, and 20% use crowdfunding. Finally, we asked, "How often do you use FinTech services" 2% use it daily, weekly 7%, 16% monthly, 28% every 3 months, 19% use it every six months, 16% use it in 12 months, and 12% uses once in 24 months. From them, 87% were male, 13% were female, 72% were graduated, 28 were undergraduates, 28% were 18 - 28 years old, and only 13% were 50 overs. Thus, Table 1 summarizes the overall demographic information of the respondents.

5. Measurement model

To obtain the objectives of the present study, we developed a research framework. We hypothesized a direct relationship between performance expectancy, effort expectancy, social influence, facilitating condition, privacy enablers, privacy inhibitors, and behavioral intention towards FinTech. In addition, a higher-order approach was applied to test the privacy enablers with two key dimensions (i.e., trust and information richness) and two key dimensions of privacy inhibitors (i.e., privacy concern). Hence, we applied the UTAUT theory to develop the research model. However, all the constructs were measured and evaluated by using "descriptive statistics," Cronbach's Alpha" and "compositive reliability" (Satici et al., 2021). Thus, "The average variance extracted" test was also performed to assess the convergent validity of the constructs (Alarcón et al., 2015).

wIn the statistical analysis, the mean value of all constructs was greater than 3.70, which shows that most participants responded significantly to the constructs. Accordingly, Cronbach's alpha value ranged from 0.738 to 0.901, and the composite reliability value indicates the value ranging from 0.911 to 0.757, which indicates that the constructs are reliable in the study context; finally, the average variance extracted value ranged from 0.538 to 0.834, where all the statistical values of the constructs higher than 0.5, which indicates that the constructs are validated. Finally, we also determined the discriminant validity when the average variance extracted square root value is higher than the correlation (Zait and Bertea, 2011). Furthermore, the obtained values are presented in Table 2, Table 3, and Figure 2 of the measurement model.

Table 2

Measurement items and Constructs.

Items	Loading	Mean	SD	α	CR	AVE
	Performance Expectancy (PE)		1.19	0.813	0.864	0.615
PE1	0.855					
PE2	0.793					
PE3	0.771					
PE4	0.710					
Effort Expe		4.39	1.28	0.738	0.757	0.538
EE1	0.661					
EE2	0.684					
EE3	0.627					
EE4	0.675					
Social Influ		3.44	1.26	0.838	0.884	0.657
SI1	0.744					
SI2	0.828					
SI3	0.768					
SI4	0.894					
Facilitating		3.33	1.13	0.859	0.893	0.584
(FC)						
FC1	0.737					
FC2	0.618					
FC3	0.772					
FC4	0.799					
FC5	0.811					
FC6	0.828					
Privacy Ena	ablers (PE)	3.40	1.18	0.877	0.911	0.672
Trust		3.73	0.99	0.833	0.900	0.75
(TR)						
TR1	0.880					
TR2	0.845					
TR3	0.873					
Informatior (IR)	1 Richness	3.91	1.21	0.843	0.905	0.762
IR1	0.885					
IR2	0.888					
IR3	0.845					
Privacy Inh		3.37	1.23	0.901	0.924	0.669
Privacy Con		3.88	1.18	0.801	0.909	0.834
PC1	0.910	5.00	1.10	0.001	0.909	0.001
PC2	0.917					
Perceived F		4.25	1.20	0.797	0.881	0.711
RR1	0.861	1.20	1.20	0.7 57	0.001	0.711
RR2	0.792					
RR3	0.875					
Behavioral Intention		3.15	1.14	0.828	0.886	0.66
Towards Fintech		0110		01020	0.000	0.00
(BI)						
BI1	0.811					
BI2	0.739					
BI3	0.848					
BI4	0.846					

Note: Standard Deviation (SD), Cronbach Alpha (α), Composite Reliability (CR), Average Variance Extracted (AVE)

6. Data analysis

To test the developed hypotheses of the present study, we used a well-known statistical software called Smart PLS (v3.3.9), applying a "partial least squares" approach to "structural equation modeling" (PLS-SEM) (Ringle et al., 2015). Prior studies documented that PLS-SEM approaches are suitable for investigating the complex model fit and its stability with the data set (Saleem et al., 2021). In addition, Saleem et al. (2022) discussed that "covariance-based" (CB) and PLS-SEM are the most appropriate techniques that support understanding the strong, moderating, and weak path coefficients between latent constructs. Similarly, Ringle et al. (2015) mentioned that the CB and PLS-SEM tests are well-known for testing the relationship between independent, intervening, and dependent variables. Referring to the above discussion and justification, in the present study, we used the PLS-SEM approaches via Smart PLS software to confirm the relationship between performance expectancy, effort expectancy, social influence,

Table 3 Discriminant Validit

Discrimi	nant Validity.										
	BI	EE	FC	IR	PR	PE	PC	PE	PI	SI	TR
BI	0.812										
EE	0.441	0.662									
FC	0.276	0.639	0.764								
IR	0.597	0.268	0.126	0.873							
PR	0.524	0.379	0.277	0.634	0.843						
PE	0.254	0.610	0.725	0.133	0.327	0.784					
PC	0.595	0.413	0.342	0.629	0.764	0.366	0.913				
PE	0.591	0.419	0.324	0.673	0.803	0.365	0.904	0.819			
PI	0.638	0.292	0.105	0.842	0.727	0.148	0.686	0.755	0.818		
SI	0.181	0.581	0.758	0.094	0.216	0.697	0.243	0.241	0.078	0.811	
TR	0.603	0.282	0.069	0.772	0.734	0.144	0.661	0.748	0.740	0.052	0.866

Note on abbreviations: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Condition (FC), Privacy Enablers (PE), Information Richness (IR), Trust, Privacy Inhibitors (PI), Privacy Concern (PC), Perceived Risk (PR), Behavioral Intention Towards Fintech (BI)

facilitating condition, privacy enablers, privacy inhibitors, and behavioral intention towards FinTech services. Previously, several researchers used PLS-SEM techniques to investigate the consumers' behavioral intention to use FinTech services (Meyliana and Fernando, 2019; Fernando, 2019; Niswah and Legowati, 2019). Furthermore, Boschen and Oei (2007) advocated that the researcher may also establish the discriminate validity test without any participant limitation. Finally, PLS-SEM approaches also support the researchers in evaluating the study's model with two techniques (i.e., measurement model (inner) and structure model (outer)) which to draw the path between latent constructs.

7. Results

7.1. Structural model

In the present study, we applied PLS-SEM approaches to evaluate the hypothetical model fit after validating the measurement model. Thus, the hypotheses' path coefficient was tested using the bootstrapping technique with 5000 sub-samples. Therefore, "Coefficient of Determination" (\mathbf{R}^2) endogenous constructs, "Path coefficients of hypothesized relationships," "Effect size" (\mathbf{f}^2), and "Predictive relevance" (\mathbf{Q}^2) were calculated (Shateri and Hayat, 2020), which is illustrated in Figure 3 and Table 5).

7.2. Hypothesis testing

In the present study, we extracted the statistical values of a hypothetical relationship obtained through SmartPLS software. Thus, a bootstrapping analysis was calculated with 5000 sub-samples to evaluate the direct relationship between performance expectancy, effort expectancy, social influence, facilitating condition, privacy enablers, privacy inhibitors, and behavioral intention towards FinTech services. However, the hypothetical results show that H1, H2, H4, and H5 present a significant relationship; surprisingly, H3 and H6 show insignificant results. Furthermore, the results are presented in Figure 2 and Table 4.

7.3. Model fit measure

The model fitness in SEM-PLS is defined by various measures such as "standardized root-mean-square residual" (SRMR), and the "exact model fits" like d_ULS and d_G, "Normed Fit Index" (NFI), and $\chi 2$ (Chi-square) (Sudarsono et al., 2020). According to Hu and Bentler (1998), the SRMR value should be less than 0.10 to assume that the model is fit. Thus, in the present study, the SRMR value is less than 0.10, which shows that the model is fit. Most importantly, Ding et al. (1995) stated that the NFI value between 0 and 1, which the model would be considered a good fit if the NFI value is greater than 0.75. therefore, in the

present study, the NFI value is greater than 0.75, which is assumed to be a good fit model. Furthermore, the overall results are stated in Table 5. However, the model fit measures of the present study consist of the measured value of both the saturated model and the estimated model. The saturated model of the present study assessed the correlation between all the constructs. The estimated model considers the model structure and is defined based on the overall effect.

8. Discussion and Conclusion

The present study investigates and concludes the impact of performance expectancy, effort expectancy, social influence, facilitating condition, privacy enablers, and privacy inhibitors on consumers' behavioral intention towards FinTech services in Jeddah, Saudi Arabia. Thus, we applied and extended UTAUT by adding two key privacy constructs (i.e., privacy enablers and inhibitors). Overall, we found that the present study theoretically and empirically backs the capability of the extended UTAUT model to be a suitable theoretical framework to understand the users' intention toward FinTech services in Jeddah, Saudi Arabia. The findings emphasize that consumers intend to use FinTech services in Saudi Arabia confidently. Hence, we found a positive and significant direct relationship between most of the suggested constructs. Still, surprisingly, we found the insignificant impact of social influencers and privacy inhibitors on the consumers' behavioral intention to use FinTech services. In addition, we found a positive impact of performance expectancy, effort expectancy, facilitating conditions, and privacy enablers on consumers' behavioral intention towards FinTech services in Saudi Arabia.

The first hypothesis of the present study aims to investigate and conclude the impact of performance expectancy on consumers' behavioral intention towards FinTech services in Saudi Arabia. The statistical results are ($\beta = 0.150$, t-value = 2.141, p-value = 0.032), which indicates that the H1 is accepted. Past studies examined and determined the same results (Ramos, 2017). Furthermore, the present study's findings show that Saudi Arabian consumers feel confident and believe FinTech services significantly maximize their overall tasks while performing financial activities. In this regard, Alkhwaldi et al. (2022) confirmed that performance expectancy is a dominant factor that supports predicting the users' behavioral intention to use FinTech services. Another empirical study by Chan et al. (2022) advocated that performance expectancy is an important dimension of the UTAUT model, enabling users to utilize FinTech services confidently.

The second hypothesis of the present study aims to investigate and conclude the impact of effort expectancy on consumers' behavioral intention to use FinTech services in Saudi Arabia. The statistical evidence presents that effort expectancy significantly and positively impacts consumers' behavioral intention toward FinTech services in Saudi Arabia; thus, the values are illustrated as ($\beta = 0.249$, t-value = 4.286, p-value = 0.000). This means that Saudi Arabian consumers believe that

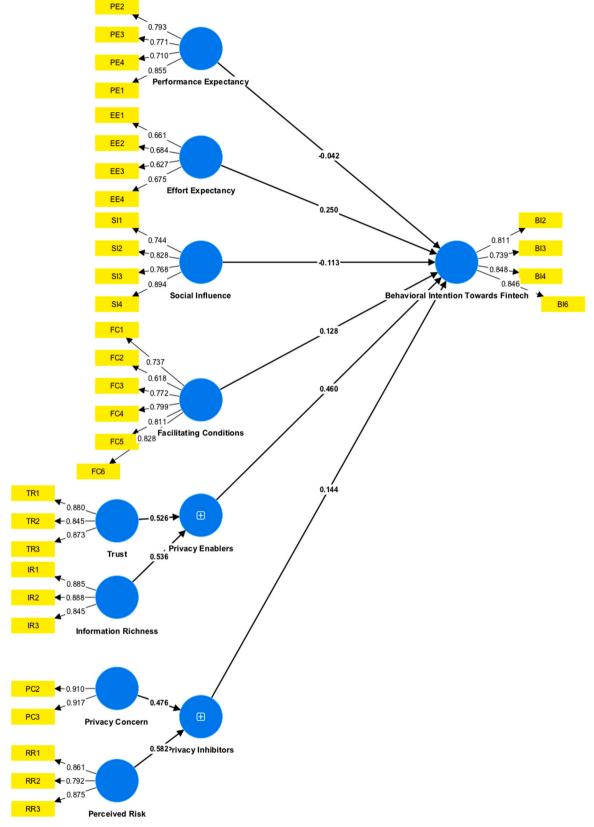


Fig. 2. Measurement Model.

using FinTech applications is free of effort and easy to understand and utilize financial transactions. Thus, the findings of the present hypothesis are in harmony with the UTAUAT model that posits effort expectancy is one of the main predictors of intention. The present study's findings align with past studies; for example, Ramos (2017) empirically confirmed a positive link between effort expectancy and behavioral intention to use FinTech services. The findings of Darmansyah et al. (2020) also support the same relationship's existence.

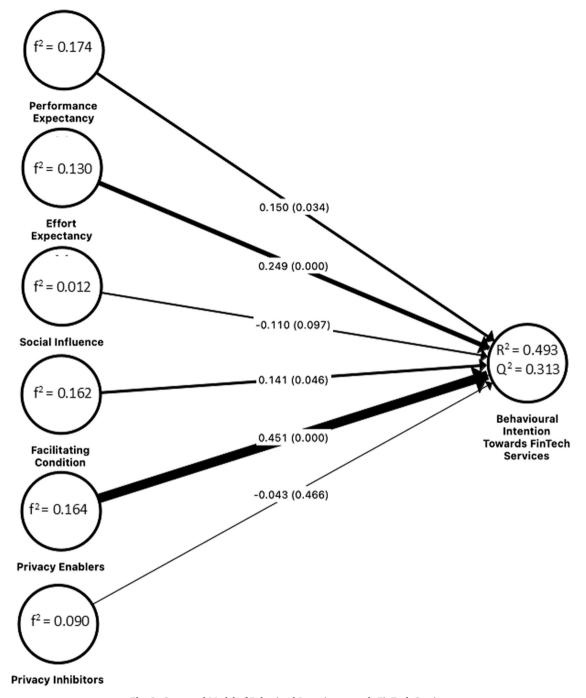




Table 4					
Path	coefficients.				

Hypothesis	Path	β	Mean	t-value	P Values	Result
H1	$PE \rightarrow BI$	0.150	0.150	2.141	0.034	Accepted
H2	$EE \rightarrow BI$	0.249	0.251	4.286	0.000	Accepted
H3	$SI \rightarrow BI$	-0.110	-0.097	1.658	0.097	Rejected
H4	$FC \rightarrow BI$	0.141	0.134	2.021	0.046	Accepted
H5	$PE \rightarrow BI$	0.451	0.451	7.606	0.000	Accepted
H6	$PI \rightarrow BI$	-0.043	-0.042	0.738	0.466	Rejected

Note on abbreviations: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Condition (FC), Privacy Enablers (PE), Privacy Inhibitor (PI), Behavioral Intention Towards Fintech (BI)

Table 5

	Saturated model	Estimated model
SRMR	0.07	0.072
d_ULS	0.593	0.596
d_G	0.283	0.286
Chi-square	668.621	674.232
NFI	0.768	0.769

Moreover, Rabaa'i (2021) discussed that if the degree of effort expectancy toward FinTech is higher among consumers, they interact with the FinTech applications without paying more attention or effort. Effort expectancy indicates the ease of use of FinTech services (Fianto et al., 2020).

The third hypothesis of the present study aimed to investigate the impact of social influence on the consumers' behavioral intention towards FinTech services in Saudi Arabia, where the path coefficient results present as ($\beta = -0.110$, t-value = 1.658, p-value = 0.097), which interpreted as social influence insignificantly impacts consumers' behavioral intention towards FinTech services in Saudi Arabia; thus, H3 is rejected. Empirically, Jin et al. (2020) also found negative results. Recently, Merhi et al. (2019) obtained similar results. Furthermore, the authors mentioned that the people in Saudi Arabia follow the family and cultural norms; if a family member or friend recommends using or doesn't use some technology and/or system, then the people follow strictly. According to, people in Saudi Arabia are rooted in subjective norms and strong belief in them. Theoretically, social influence is a dimension of UTAUT, which supports predicting the users' intention to use some system and/or technology that the peers recommend. However, in the present study, we found negative evidence between social influence and consumers' behavioral intention to use FinTech services in Saudi Arabia.

In the fourth hypothesis of the present study, we aim to investigate and conclude the impact of facilitating conditions on consumers' behavioral intention to use FinTech services in Saudi Arabia. The statistical values show ($\beta = 0.141$, t-value = 2.021, p-value = 0.043), which means facilitating conditions significantly and positively impact consumers' behavioral intention toward FinTech services in Saudi Arabia; therefore, H4 is accepted. This concept refers to the degree to which users strongly believe that an organization's technical and software infrastructure easily supports them in operating FinTech services. Literature supports that the facilitating condition is an important dimension of the UTAUT model that predicts consumers' behavioral intention to use FinTech services (Bakri et al., 2022). Similarly, Mulyana et al. (2020) examined the direct link between facilitating conditions and behavioral intention to use FinTech services and found a positive relationship. In summary, this is especially important in Saudi Arabia, where consumers are suffering from poor facilitating conditions by the companies while using FinTech services.

Molloy and Ronnie (2021) confirmed a positive and significant relationship. Accordingly, Razzaque et al. (2020) pointed out that the privacy enablers of an organization build trustworthiness among consumers and companies that provide FinTech services. Moreover, Saprikis and Vlachopoulou (2021) confirmed a positive correlation between privacy enablers and FinTech services. Thereby, Lee (2021) argued that the recommendations from social gatherings (peers) could influence private.

The fifth hypothesis of the present study aimed to investigate and conclude the impact of privacy enablers on consumers' behavioral intention to use FinTech services; therefore, the statistical results indicate as; ($\beta = 0.451$, t-value = 7.60, p-value = 0.000), which interpreted as privacy enablers positively impact consumers' behavioral intention towards FinTech services in Saudi Arabia. Hence, this means that Saudi Arabian people trust FinTech services, even if they feel secure and confident while using FinTech services. These findings are consistent

with the previous studies in the realm of intention towards FinTech services. For example, Molloy and Ronnie (2021) highlighted the positive impact of privacy enablers and behavioral intention to use Fin-Tech services. Moreover, Razzaque et al. (2020) suggested that privacy enablers should be conceptualized using its two key dimensions (i.e., trust and information richness). Accordingly, in the present study, we proposed the impact of privacy enablers and their two dimensions on the behavioral intention to use FinTech services in Saudi Arabia, and we found positive evidence.

Finally, the last hypothesis of the present study aims to investigate the impact of privacy inhibitors on consumers' behavioral intention towards FinTech services in Saudi Arabia, where the statistical values are presented as ($\beta = -0.043$, t-value = 0.738, p-value = 0.460), we described this hypothesis as the privacy inhibitors negatively impact consumers' behavioral intention towards FinTech services, thereby, H6 is rejected, which emphasized that the consumers in Saudi Arabia believe that the using of FinTech services are full of risk factor. Kheira (2021) stated that FinTech services are still a novel concept among consumers in Saudi Arabia, where most users think that FinTech companies may steal their data and miss use. Similarly, Alswaigh and Aloud (2021) highlighted that the people in Saudi Arabia believe that FinTech companies may not provide secure and efficient financial transaction services. Empirically, Tang et al. (2020) found that privacy inhibitors negatively impact the intention to use FinTech services. Moreover, they discussed that the users' intent that FinTech is not reliable for performing any financial activities. Individuals consider that if we provide personal and financial data access to FinTech companies, there will be no privacy, and someone can easily access the privacy (Suzianti et al., 2021). In this regard, Venkatesh et al. (2021) suggested that the privacy inhibitors should be investigated using their key dimensions (i.e., privacy concern and perceived risk); accordingly, in the present study, we conceptualized to investigate the impact of privacy inhibitors on the consumers' behavioral intention to use FinTech services in Saudi Arabia. Statistically, we found that privacy inhibitor insignificantly impacts the consumers' behavioral intention to use FinTech services in Saudi Arabia.

However, when users find FinTech services are beneficial secure, and effective for digital financial transactions, they believe and intend to use it for the long term. In this regard, companies and practitioners need to develop FinTech applications based on the recommendations from the users, as it could enhance the quality of use. To attain this, decision-makers and FinTech service providers should give a user guide with thorough instructions and details on the financial benefits of using FinTech services, also; as we confirmed that the performance expectancy significantly and positively impacts consumers' behavioral intention to use FinTech services, thus, the service providers should understand make existing FinTech application user friendly and upgrade considering the consumers' performance. Considering the era of globalization, financial institutions should also allow users to send and receive international remittances. In the study context, it is also suggested that service providers and practitioners develop the FinTech application in multi-languages, more likely in Arabic. In the present study, we found a significant and positive impact of effort expectancy on the consumers' behavioral intention to use FinTech services. In addition, most people in Saudi Arabia prefer to use all kinds of mobile applications in Arabic, as they feel confident and secure while using the applications in Arabic. Earlier findings have suggested that the facilitating condition significantly impacts consumers' behavioral intention to use FinTech services. In this regard, the FinTech services providers must develop modern FinTech applications that may offer help centers to maximize the users' skills and motivation to use FinTech applications. Such activities encourage people to use FinTech applications confidently. Finally, a privacy enabler is a major construct supporting predicate and building positive trust and richness of information technology or a system. Companies must provide maximum information about their products and services, which builds strong trustworthiness

among consumers and companies. As in the present study, we also confirmed the positive impact of privacy enablers on consumers' behavioral intention to use FinTech services. It is required for FinTech services providing companies to develop the FinTech application by providing the maximum information for all packages and use, which widely supports building the strong trust of the consumers in the FinTech applications.

9. Theoretical implications

The study of behavioral intention to use FinTech services has important theoretical implications in information technology and consumer behavior. We applied and extended the UTAUT model from a theoretical perspective by adding privacy enablers that provide insights into the privacy concern and trust that influence consumers' inclination to adopt and use FinTech services. Thereby, the Key factors of UTAUT include performance expectancy, efforts expectancy, social influencer, and facilitating conditions that enrich and deepen the existing knowledge of FinTech services by offering a significant empirical understanding of the broader factors that shape consumers' behavioral intention to use.

Furthermore, the study of behavioral intention to use FinTech can contribute to the literature and development of models and theories related to the adoption and utilization of information technology, providing a deeper understanding of the processes and drivers behind technology adoption, particularly the FinTech services context. Previously, the study of behavioral intention to use has important theoretical implications for information technology and consumer behavior, contributing to our understanding of the factors influencing technology adoption and use.

10. Practical implications

In terms of practical implications, the present study of behavioral intention to use FinTech services has practical implications for financial institutions, FinTech companies, and other stakeholders in the industry. The statistical findings of the present study show that the consumers' behavioral intention to use FinTech is strongly influenced by performance expectancy, effort expectancy, facilitating conditions, and privacy enablers. Firstly, policymakers in financial institutions and senior management in FinTech companies must formulate applicable policies, interventions, and promotions of FinTech services to meet every customers' expectations.

This will facilitate financial institutions to penetrate the novel technology market by leveraging significant consumers' behavioral intention to use FinTech services. Second, the present study illustrated the awareness and importance of knowledge in leading the consumers'

Appendix A Measurement Items and Sources

likelihood to use FinTech services; in addition, executive/senior management and operation departments of banks have a huge task to ensure that their technology is secure and trustworthy to build a positive reputation and increase the uptake of their services. The rapid service delivery may support the banks in enhancing their reputation of the bank.

11. Limitations and future studies

The present study reveals key indicators defining the consumers' behavioral intentions towards FinTech services. Conversely, the present scholarly work elucidates some limitations we encountered besides recommendations for future research. First, since the current research was based on a non-probabilistic sampling approach in Jeddah, Saudi Arabia, there are concerns about the generalizability of the findings around the country. Thus, future researchers may conduct the same kind of study on FinTech users in other cities of Saudi Arabia (i.e., Riyadh, Mecca, etc.), and the results may generalize different findings. Second, we carried out the present study using a "cross-sectional" approach; however, Future research is suggested to apply a "longitudinal approach" to investigate the change in consumers' behavioral intention to use FinTech services over time and understand modernized trends in real-time. Hence, future studies may also examine the numerous aspects of FinTech services and make evaluations to recognize the specific features of each one that can contribute to developing a competitive advantage. Third, we did not test any constructs' mediating and/or moderating role. The future researcher may develop the same model using a mediating variable (i.e., service quality or culture) and moderating variable (i.e., sex, age, gender). Finally, we carried out this study only in Saudi Arabia; hence, for future research, it is recommended that this present study be replicated in other middle eastern countries to understand consumers' behavioral intention towards FinTech services utilizing the same research model.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgments

none.

PE1	I expect to find FinTech useful in my financial management
PE2	Using FinTech would enable me to accomplish financial tasks more quickly
PE3	Using FinTech would increase my efficiency in financial management
PE4	If I would use FinTech, I increase my chances of getting more competitive banking offers
EE1	I expect that my interaction with FinTech would be clear and understandable
EE2	I expect that it would be easy for me to become skillful at using FinTech
EE3	I expect that I would find FinTech easy to use
EE4	I expect that learning to use FinTech would be easy for me
SI1	My friends and family would value the use of FinTech
SI2	I expect that the people that influence me would use FinTech
SI3	I expect that FinTech would be trendy
SI4	I expect that using FinTech would make me look professional in managing my finances
FC1	I have the resources to use fintech
FC2	Fintech is compatible with other technologies that I use
FC3	I can get help from family when I have difficulties in using FinTech (FC3)
FC4	FinTech can work 24/7 without problems
FC6	FinTech is always up to date
FC7	FinTech is easy to register as a new user
	PE2 PE3 PE4 EE1 EE2 EE3 EE4 SI1 SI2 SI3 SI4 FC1 FC2 FC3 FC4 FC6

K. Bajunaied, N. Hussin and S. Kamarudin

Journal of Open Innovation: Technology, Market, and Complexity 9 (2023) 100010

Privacy Concerns (Venkatesh et al., 2021)	PC1	I would be comfortable giving personal information on FinTech.
	PC2	I would be comfortable shopping though FinTech.
	PC3	The FinTech clearly explains how user information is used.
Perceived risk (Venkatesh et al., 2021)	PR1	Purchasing from FinTech would involve product risk (R)
	PR2	Purchasing from FinTech would involve financial risk (R)
	PR3	My overall perception of risk related to buying online through FinTech is high (R)
Trust (Venkatesh et al., 2021)	TR1	The FinTech is trustworthy.
	TR2	I trust the FinTech keeps my best interests in mind.
	TR3	This FinTech's behavior meets my expectations.
Information Richness (Venkatesh et al., 2021)	IR1	My interaction with the FinTech close to an actual face-to-face interaction.
	IR2	My interaction with the FinTech felt like a face-to-face interaction.
	IR3	Shopping at the FinTech felt like an in-person interaction.
Behavioral intention (Kaur and Arora, 2020)	BI1	I will use FinTech on regular basis in the future
	BI2	I will strongly recommend others to use FinTech
	BI3	I expect my use of FinTech for handling my financial transactions to continue in the future
	BI4	I intend to consult the balance of my account on the platform of FinTech
	BI5	I intend to perform a transfer on the platform of FinTech
	BI6	I intend to use FinTech for quick and easy access to my bank information

References

- Abubotain, F., Chamakiotis, P., 2021. FinTech in the Saudi context: implications for the industry and skills development. Research Anthology on Concepts, Applications, and Challenges of FinTech. IGI Global, pp. 107–122.
- Akhtar, S., Irfan, M., Kanwal, S., Pitafi, A.H., 2019. Analysing UTAUT with trust toward mobile banking adoption in China and Pakistan: extending with the effect of power distance and uncertainty avoidance. Int. J. Financ. Innov. Bank. 2 (3), 183–207. Alamoodi, M.A.A., Selamat, Z., 2021. Determinants of Fintech products and services
- adoption in Kingdom of Saudi Arabia (KSA). J. Int. Bus. Econ. Entrep. 6 (2), 1–8. Alarcón, D., Sánchez, J.A., & De Olavide, U. (2015). Assessing convergent and dis-
- criminant validity in the ADHD-R IV rating scale: User-written commands for Average Variance Extracted (AVE), Composite Reliability (CR), and Heterotrait-Monotrait ratio of correlations (HTMT). In Spanish STATA meeting (Vol. 39).
- Albarrak, M.S., Alokley, S.A., 2021. FinTech: ecosystem, opportunities, and challenges in Saudi Arabia. J. Risk Financ. Manag. 14 (10), 460.
- Ali, W., Muthaly, S., Dada, M., 2018. Adoption of Shariah compliant peer-to-business financing platforms by SMEs: a conceptual strategic framework for fintechs in Bahrain. Int. J. Innov. Technol. Explor. Eng. 8 (2), 407–412.
- Alkhwaldi, A.F., Alharasis, E.E., Shehadeh, M., Abu-AlSondos, I.A., Oudat, M.S., Bani Atta, A.A., 2022. Towards an understanding of FinTech users' adoption: intention and e-loyalty post-COVID-19 from a developing country perspective. Sustainability 14 (19), 12616.
- Almadhoun, N.M., Dominic, P.D.D., & Woon, L.F. (2011). Perceived security, privacy, and trust concerns within Social Networking Sites: The role of Information sharing and relationships development in the Malaysian Higher Education Institutions' marketing. In 2011 IEEE International Conference on Control System, Computing and Engineering (pp. 426–431). IEEE.
- Al-Matari, E.M., Mgammal, M.H., Alosaimi, M.H., Alruwaili, T.F., Al-Bogami, S., 2022. Fintech, board of directors and corporate performance in Saudi Arabia financial sector: empirical study. Sustainability 14 (17), 10750.
- Alnemer, H.A., 2022. Determinants of digital banking adoption in the Kingdom of Saudi Arabia: A technology acceptance model approach. Digit. Bus. 2 (2), 100037.
- Alshebami, A.S., 2022. Crowdfunding platforms as a substitute financing source for young Saudi entrepreneurs: empirical evidence. SAGE Open 12 (3) 21582440221126511.
 Alswaigh, N.Y., Aloud, M.E., 2021. Factors affecting user adoption of E-payment services
- available in mobile wallets in Saudi Arabia. Int. J. Comput. Sci. Netw. Secur. 21 (6), 222–230.
- Alyami, M., Henning, M., Krägeloh, C.U., Alyami, H., 2021. Psychometric evaluation of the Arabic version of the Fear of COVID-19 Scale. Int. J. Ment. Health Addict. 19 (6), 2219–2232.
- Arefjevs, I., Spilbergs, A., Natrins, A., Verdenhofs, A., Mavlutova, I., Volkova, T., 2020. Financial sector evolution and competencies development in the context of information and communication technologies. Res. Rur. Dev. 35.
- Asante-Offei, K.O., Yaokumah, W., 2021. Cyber-identity theft and fintech services: technology threat avoidance perspective. J. Inf. Technol. Res. 14 (3), 1–19.
- Aseng, A.C., 2020. Factors influencing generation Z intention in using FinTech digital payment services. CogITo Smart J. 6 (2), 155–166.
- Atif, M., Hassan, M.K., Rabbani, M.R., Khan, S., 2021. Islamic FinTech: the digital transformation bringing sustainability to Islamic finance. COVID-19 and Islamic Social Finance. Routledge, pp. 91–103.
- Awotunde, J.B., Adeniyi, E.A., Ogundokun, R.O., Ayo, F.E., 2021. Application of big data with fintech in financial services. Fintech with Artificial Intelligence, Big Data, and Blockchain. Springer, Singapore, pp. 107–132 (Singapore).
- Azman, N.H.N., Zabri, M.Z.M., 2022. Sharīʿah-compliant fintech usage among microentrepreneurs In Malaysia: an extension of utaut model. J. Islam. Monet. Econ. Financ. 8 (2), 305–324.
- Bakri, M.H., Fianto, B.A., Zainal, N., Al Shami, S.A.H., 2022. Measurement and structural modelling on factors of Islamic Fintech adoption among millennials in Malaysia. J. Islam. Mark (ahead-of-print).
- Basiouni, A.F., 2022. Blockchain technology adoption in the context of Saudi Arabia: an empirical analysis for a future outlook. Math. Stat. Eng. Appl. 71 (4), 3248–3259.

- Bauermeister, J.A., Pingel, E., Zimmerman, M., Couper, M., Carballo-Dieguez, A., Strecher, V.J., 2012. Data quality in HIV/AIDS web-based surveys: Handling invalid and suspicious data. Field Methods 24 (3), 272–291.
- Bin-Nashwan, S.A. (2021). Toward diffusion of e-Zakat initiatives amid the COVID-19 crisis and beyond. *foresight*.
- Boschen, M.J., Oei, T.P., 2007. Discriminant validity of the MASQ in a clinical sample. Psychiatry Res. 150 (2), 163–171.
- Boustani, N.M. (2020). Traditional Banks and Fintech: Survival, Future and Threats. ICT for an Inclusive World: Industry 4.0–Towards the Smart Enterprise, 345–359.
- Burney, S.A., Mahmood, N., Abbas, Z., 2010. Information and communication technology in healthcare management systems: Prospects for developing countries. Int. J. Comput. Appl. 4 (2), 27–32.
- Caneve, R. (2018). Applications of Blockchain Technology in International Logistics-a Case Study.
- Chan, R., Troshani, I., Hill, S.R., & Hoffmann, A. (2022). Towards an understanding of consumers' FinTech adoption: the case of Open Banking. *International Journal of Bank Marketing*.
- Chandran, D., Alammari, A.M., 2021. Influence of culture on knowledge sharing attitude among academic staff in eLearning virtual communities in Saudi Arabia. Inf. Syst. Front. 23, 1563–1572.
- Chang, A., 2012. UTAUT and UTAUT 2: a review and agenda for future research. Winners 13 (2), 10–114.
- Chinnasamy, G., Madbouly, A., Reyad, S., 2021. Fintech: a pathway for MENA region. Fourth Ind. Revolut.: Implement. Artif. Intell. Grow. Bus. Success 135–151.
- Chuang, L.M., Liu, C.C., Kao, H.K., 2016. The adoption of fintech service: TAM per spective. Int. J. Manag. Adm. Sci. 3 (7), 1–15.
- Dapp, T., Slomka, L., AG, D.B., Hoffmann, R., 2015. Fintech reloaded-traditional banks as digital ecosystems. Publ. Ger. Orig. 261–274.
- Darmansyah, D., Fianto, B.A., Hendratmi, A., Aziz, P.F., 2020. Factors determining behavioral intentions to use Islamic financial technology: three competing models. J. Islam. Mark. 12 (4), 794–812.
- Demestichas, K., Daskalakis, E., 2020. Information and communication technology solutions for the circular economy. Sustainability 12 (18), 7272.
- Ding, L., Velicer, W.F., Harlow, L.L., 1995. Effects of estimation methods, number of indicators per factor, and improper solutions on structural equation modeling fit indices. Struct. Equ. Model.: Multidiscip. J. 2 (2), 119–143.
- Dwivedi, P., Alabdooli, J.I., Dwivedi, R., 2021. Role of FinTech adoption for competitiveness and performance of the bank: A study of banking industry in UAE. Int. J. Glob. Bus. Compét. 16 (2), 130–138.
- Fernando, E. (2019, August). Analysis of the influence of consumer behavior using FinTech services with SEM and TOPSIS. In 2019 International Conference on Information Management and Technology (ICIMTech) (Vol. 1, pp. 93-97). IEEE.
- Fianto, B.A., Hendratmi, A., Aziz, P.F., 2020. Factors determining behavioral intentions to use Islamic financial technology: Three competing models. J. Islam. Mark.
- Finances Online (2022). 81 Key Fintech Statistics 2021/2022: Market Share & Data Analysis. Retrieved from: https://financesonline.com/fintech-statistics/). [accessed on 10 Oct 2022].
- Greu, V., 2016. Developing information and communications technologies with more artificial intelligence using artificial intelligence when internet of things is "intelligence everywhere" (Part 1). Rom. Distrib. Comm. Mag. 7 (4), 10–19.
- Hameed, I., Waris, I., Amin ul Haq, M., 2019. Predicting eco-conscious consumer behavior using theory of planned behavior in Pakistan. Environ Sci Pollut Res 26, 15535–15547.
- Hassan, M.S., Islam, M.A., Sobhani, F.A., Nasir, H., Mahmud, I., Zahra, F.T., 2022. Drivers influencing the adoption intention towards mobile fintech services: a study on the emerging Bangladesh market. Information 13 (7), 349.
- Hendriyani, C., Raharja, S.U.J., 2019. Business agility strategy: peer-to-peer lending of Fintech startup in the era of digital finance in Indonesia. Rev. Integr. Bus. Econ. Res. 8, 239–246.
- Hook, A., Tangaza, H., 2019. The Use and Regulation of Technology in the Legal Sector Beyond England & Wales. Legal Services Board, London.

K. Bajunaied, N. Hussin and S. Kamarudin

Hua, X., Huang, Y., 2021. Understanding China's fintech sector: development, impacts and risks. Eur. J. Financ. 27 (4–5), 321–333.

Imerman, M.B., Fabozzi, F.J., 2020. Cashing in on innovation: a taxonomy of FinTech. J. Asset Manag. 21 (3), 167–177.

- Jin, C.C., Seong, L.C., Khin, A.A., 2020. Consumers' behavioural intention to accept of the mobile wallet in Malaysia. J. Southwest Jiaotong Univ. 55 (1).
- Joa, C.Y., Magsamen-Conrad, K., 2022. Social influence and UTAUT in predicting digital immigrants' technology use. Behav. Inf. Technol. 41 (8), 1620–1638.
- Johnson, K.N., Reyes, C.L., 2021. Exploring the implications of artificial intelligence. J. Int'L Comp. L 8, 315.
- Kaur, S., Arora, S., 2020. Role of perceived risk in online banking and its impact on behavioral intention: trust as a moderator. J. Asia Bus. Stud. 15 (1), 1–30.
- Khan, M.S., Rabbani, M.R., Hawaldar, I.T., Bashar, A., 2022. Determinants of behavioral intentions to use Islamic financial technology: an empirical assessment. Risks 10 (6), 114.
- Kheira, T., 2021. Financial technology prospects in the Middle East and Africa. J. Econ. Growth 4 (3), 14–25.
- Kouser, R., Aamir, M., Mehvish, H., Azeem, M., 2011. CAMEL analysis for Islamic and conventional banks: comparative study from Pakistan. Econ. Financ. Rev. 1 (10), 55–64. Kumar, A., Dhingra, S., Batra, V., Purohit, H., 2020. A framework of mobile banking
- adoption in India. J. Open Innov.: Technol. Mark. Complex. 6 (2), 40.
- Kurniasari, F., Tajul Urus, S., Utomo, P., Abd Hamid, N., Jimmy, S.Y., Othman, I.W., 2022. Determinant factors of adoption of Fintech Payment Services in Indonesia using the UTAUT approach. Asian-Pac. Manag. Account. J. 17 (1), 97–125.
- Laven, M., Bruggink, D., 2016. How FinTech is transforming the way money moves around the world: an interview with Mike Laven. J. Paym. Strategy Syst. 10 (1), 6–12.
- Lee, A.R., 2021. Investigating the personalization-privacy paradox in internet of things (IoT) based on dual-factor theory: moderating effects of type of IoT service and user value. Sustainability 13 (19), 10679.
- Lim, S.H., Kim, D.J., Hur, Y., Park, K., 2019. An empirical study of the impacts of perceived security and knowledge on continuous intention to use mobile fintech payment services. Int. J. Hum. Interact. 35 (10), 886–898.
- Macchiavello, E., Siri, M., 2022. Sustainable finance and fintech: can technology contribute to achieving environmental goals? A preliminary assessment of 'green fintech'and 'sustainable digital finance' Eur. Comp. Finance Law Rev. 19 (1), 128–174
- tech'and 'sustainable digital finance'. Eur. Comp. Financ. Law Rev. 19 (1), 128–174. Macdonald, E.M., Perrin, B.M., Hyett, N., Kingsley, M.I., 2019. Factors influencing behavioural intention to use a smart shoe insole in regionally based adults with diabetes: a mixed methods study. J. Foot Ankle Res. 12, 1–9.

Madir, J., 2021. FinTech: Law and Regulation. Edward Elgar Publishing.

- Mamonov, S. (2020, April). The role of information technology in FinTech innovation: insights from the New York City ecosystem. In Conference on e-Business, e-Services and e-Society (pp. 313–324). Springer, Cham.
- Marszk, A., Lechman, E., Kato, Y., 2019. Information and communication technologies for financial innovations. The Emergence of ETFs in Asia-Pacific. Springer, Cham, pp. 53–81.
- Martinčević, I., Črnjević, S., Klopotan, I., 2020. Fintech revolution in the financial industry. ENTRENOVA-Enterp. Res. Innov. 6 (1), 563–571.
- Merhi, M., Hone, K., Tarhini, A., 2019. A cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: extending UTAUT2 with security, privacy and trust. Technol. Soc. 59, 101151.
- Meyliana, M., Fernando, E., 2019.). The influence of perceived risk and trust in adoption of fintech services in Indonesia. CommIT Commun. Inf. Technol. J. 13 (1), 31–37.
- Mobidev (2022). Top Fintech Trends of 2022: The Power of Technology to Transform Finance. Retrieved from: https://mobidev.biz/blog/fintech-trends-technology-transforms-finance-industry). [accessed on 10 Oct 2022].
- Molloy, L., Ronnie, L., 2021. Mindset shifts for the fourth industrial revolution: insights from the life insurance sector. SA J. Hum. Resour. Manag. 19, 13.
- Możdżyński, D., 2018. Acceptance of payment systems from the perspective of merchants. Inf. Syst. Manag. 7 (1), 26–34.
- Muryanto, Y.T., Kharisma, D.B., Ciptorukmi Nugraheni, A.S., 2022. Prospects and challenges of Islamic fintech in Indonesia: a legal viewpoint. Int. J. Law Manag. 64 (2), 239–252.
- Muthukannan, P., Tan, B., Tan, F.T.C., Leong, C., 2021. Novel mechanisms of scalability of financial services in an emerging market context: Insights from Indonesian Fintech Ecosystem. Int. J. Inf. Manag. 61, 102403.
- Nayak, K., Singh, P., Dave, P., 2021. Does data security and trust affect the users of fintech? Int. J. Manag. 12 (1).
- Niswah, F.M., Legowati, D.A., 2019. Muslim millennial's intention of donating for charity using fintech platform. J. Islam. Monet. Econ. Financ. 5 (3), 623–644.
- Odei-Appiah, S., Wiredu, G., & Adjei, J.K. (2022). Fintech use, digital divide and financial inclusion. *Digital Policy, Regulation and Governance*, (ahead-of-print).
- Oladapo, I.A., Hamoudah, M.M., Alam, M.M., Olaopa, O.R., Muda, R., 2021. Customers' perceptions of FinTech adaptability in the Islamic banking sector: comparative study on Malaysia and Saudi Arabia. J. Model. Manag.

Oseni, U.A., Ali, S.N., 2019. Fintech in Islamic Finance. Routledge, pp. 3-14.

Puschmann, T. (2017). Fintech. Business & Information Systems Engineering, 59(1), 69–76. Rabaa'i, A.A., 2021. An investigation into the acceptance of mobile wallets in the FinTech

- era: An empirical study from Kuwait. Int. J. Bus. Inf. Syst. 1 (1), 1. Rahi, S., Mansour, M.M.O., Alghizzawi, M., Alnaser, F.M., 2019. Integration of UTAUT
- model in internet banking adoption context: The mediating role of performance expectancy and effort expectancy. J. Res. Interact. Mark.
- Rahim, N.F., Bakri, M.H., Fianto, B.A., Zainal, N., Hussein Al Shami, S.A., 2022. Measurement and structural modelling on factors of Islamic Fintech adoption among millennials in Malaysia. J. Islam. Mark.

Journal of Open Innovation: Technology, Market, and Complexity 9 (2023) 100010

Rahman, M., Ming, T.H., Baigh, T.A., Sarker, M., 2021. Adoption of artificial intelligence in banking services: an empirical analysis. Int. J. Emerg. Mark (ahead-of-print).

- Ramadanty, M.L., & Kartikasari, D. (2021). Purchase Intention of E-Payment: The Substitute or Complementary Role of Brand, Sales Promotions, and Information Ouality.
- Ramlall, I., 2018. FinTech and the financial stability board. Understanding Financial Stability. Emerald Publishing Limited
- Ramos, F.A.B. (2017). Accessing the determinants of behavioral intention to adopt fintech services among the millennial generation (Doctoral dissertation).
- Razzaque, A., Cummings, R.T., Karolak, M., Hamdan, A., 2020. The propensity to use FinTech: input from bankers in the Kingdom of Bahrain. J. Inf. Knowl. Manag. 19 (01), 2040025.
- Regina, T., Kurniasari, F., & Utomo, P. (2021). Utaut Approach Application To Analyze the Determinants of Fintech Market Aggregator User Satisfaction. In ICEBE 2020: Proceedings of the First International Conference of Economics, Business & Entrepreneurship, ICEBE 2020, 1st October 2020, Tangerang, Indonesia (p. 454). European Alliance for Innovation.
- Ringle, C., Da Silva, D., & Bido, D. (2015). Structural equation modeling with the SmartPLS. Bido, D., da Silva, D., & Ringle, C.(2014). Structural Equation Modeling with the Smartpls. Brazilian Journal Of Marketing, 13(2).
- Romānova, I., Kudinska, M., 2016. Banking and fintech: a challenge or opportunity? Contemporary Issues in Finance: Current Challenges from Across Europe Vol. 98. Emerald Group Publishing Limited, pp. 21–35.
- Saleem, M., Kamarudin, S., Shoaib, H.M., Nasar, A., 2021. Influence of augmented reality app on intention towards e-learning amidst COVID-19 pandemic. Interact. Learn. Environ. 1–15.
- Saleem, M., Kamarudin, S., Shoaib, H.M., Nasar, A., 2022. Retail consumers' behavioral intention to use augmented reality mobile apps in Pakistan. J. Internet Commer. 21 (4), 497–525.
- Salgado, T., Tavares, J., Oliveira, T., 2020. Drivers of mobile health acceptance and use from the patient perspective: survey study and quantitative model development. JMIR mHealth uHealth 8 (7), e17588.
- Saprikis, V., Vlachopoulou, M., 2021. Mapping mobile payment adoption: customers' trends and challenges. Int. J. Bus. Manag. 16 (9).
- Satici, B., Gocet-Tekin, E., Deniz, M., Satici, S.A., 2021. Adaptation of the fear of COVID-19 Scale: its association with psychological distress and life satisfaction in Turkey. Int. J. Ment. Health Addict. 19 (6), 1980–1988.
- Senyo, P.K., Osabutey, E.L., 2020. Unearthing antecedents to financial inclusion through FinTech innovations. Technovation 98, 102155.
- Shahzad, A., Zahrullail, N., Akbar, A., Mohelska, H., Hussain, A., 2022. COVID-19's impact on fintech adoption: behavioral intention to use the financial portal. J. Risk Financ. Manag. 15 (10), 428.
- Shateri, K., Hayat, A.A., 2020. Investigating the mediating role of organizational trust in the relationship between perceived organizational support and Knowledge sharing. Knowl. Manag. E-Learn.: Int. J. 12 (3), 298–314.
- Singh, G., Gupta, R., & Vatsa, V. (2021). A Framework for Enhancing Cyber Security in Fintech Applications in India. In 2021 International Conference on Technological Advancements and *Innovations (ICTAI)* (pp. 274–279). IEEE.
- Singh, S., Sahni, M.M., & Kovid, R.K. (2020). What drives FinTech adoption? A multimethod evaluation using an adapted technology acceptance model. *Management Decision*.

Soloviev, V. (2018). Fintech ecosystem in Russia. In 2018 Eleventh International Conference" Management of large-scale system development"(MLSD (pp. 1–5). IEEE.

- Submitter, G.A.T.R., Peong, K.K., Peong, K.P., & Tan, K.Y. (2021a). Behavioural Intention of Commercial Banks' Customers towards Financial Technology Services. Journals and Peong, Kwee Kim and Peong, Kwee Peng and Tan, Kui Yean, Behavioural Intention of Commercial Banks' Customers Towards Financial Technology Services (March 31, 2021). Reference to this paper should be made as follows: Peong, KK, 10–27.
- Submitter, G.A.T.R., Peong, K.K., Peong, K.P., & Tan, K.Y. (2021b). Behavioural Intention of Commercial Banks' Customers towards Financial Technology Services. Journals and Peong, Kwee Kim and Peong, Kwee Peng and Tan, Kui Yean, Behavioural Intention of Commercial Banks' Customers Towards Financial Technology Services (March 31, 2021). Reference to this paper should be made as follows: Peong, KK, 10–27.
- Sudarsono, H., Nugrohowati, R.N.I., Tumewang, Y.K., 2020. The effect of COVID-19 pandemic on the adoption of Internet banking in Indonesia: Islamic bank and conventional bank. J. Asian Financ. Econ. Bus. 7 (11), 789–800.

Sulaeman, S., Ninglasari, S.Y., 2020. Analyzing the behavioral intention factors in using zakat-based crowdfunding platform in Indonesia. Int. J. Zakat 5 (3), 1–19.

- Suzianti, A., Haqqi, F.R., Fathia, S.N., 2021. Strategic recommendations for financial technology service development: a comprehensive risk-benefit IPA-Kano analysis. J. Model. Manag.
- Tang, K.L., Ooi, C.K., Chong, J.B., 2020. Perceived risk factors affect intention to use FinTech. J. Account. Financ. Emerg. Econ. 6 (2), 453–463.

Tracxn (2022). FinTech Startups in Saudi Arabia. Retrieved from: https://tracxn.com/explore/FinTech-Startups-in-Saudi-Arabia. [accessed on 10 Oct 2022].

- Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F.D., 2003. User acceptance of information technology: toward a unified view. MIS Q. 425–478.
- Venkatesh, V., Hoehle, H., Aloysius, J.A., Nikkhah, H.R., 2021. Being at the cutting edge of online shopping: Role of recommendations and discounts on privacy perceptions. Comput. Hum. Behav. 121, 106785.
- Vives, X., 2017. The impact of FinTech on banking. Eur. Econ. (2), 97-105.
- Williams-McBean, C.T., 2019. The value of a qualitative pilot study in a multi-phase mixed methods research. Qual. Rep. 24 (5), 1055–1064.
- Xiang, X., Lina, Z., Yun, W., Chengxuan, H., 2017. China's path to FinTech development. Eur. Econ. (2), 143–159.

K. Bajunaied, N. Hussin and S. Kamarudin

Journal of Open Innovation: Technology, Market, and Complexity 9 (2023) 100010

- Xie, J., Ye, L., Huang, W., Ye, M., 2021. Understanding FinTech platform adoption: impacts of perceived value and perceived risk. J. Theor. Appl. Electron. Commer. Res. 16 (5), 1893–1911.
- Yan, C., Siddik, A.B., Akter, N., Dong, Q., 2021. Factors influencing the adoption intention of using mobile financial service during the COVID-19 pandemic: the role of FinTech. Environ. Sci. Pollut. Res. 1–19.
- Yang, Q., Lee, Y.C., 2019. An investigation of enablers and inhibitors of crowdfunding adoption: Empirical evidence from startups in China. Hum. Factors Ergon. Manuf. Serv. Ind. 29 (1), 5–21.
- Yi, G., Zainuddin, N.M.M., Bakar, N.A.B.A., 2021. Conceptual Model on Internet Banking Acceptance in China with Social Network Influence. JOIV: Int. J. Inform. Vis. 5 (2), 177–186.
- Yohanes, K., Junius, K., Saputra, Y., Sari, R., Lisanti, Y., & Luhukay, D. (2020). Unified Theory of Acceptance and Use of Technology (UTAUT) model perspective to enhance user acceptance of fintech application. In 2020 International Conference on Information Management and Technology (ICIMTech) (pp. 643–648). IEEE.
- Yuan, Y.P., Tan, G.W.H., Ooi, K.B., 2022. Does COVID-19 Pandemic Motivate Privacy Self-Disclosure in Mobile Fintech Transactions? A Privacy-Calculus-Based Dual-Stage SEM-ANN Analysis. IEEE Trans. Eng. Manag.
- Zait, A., Bertea, P.S.P.E., 2011. Methods for testing discriminant validity. Manag. Mark. J. 9 (2), 217–224.

Zhao, J., Butt, R.S., Murad, M., Mirza, F., Saleh Al-Faryan, M.A., 2022. Untying the influence of advertisements on consumers buying behavior and brand loyalty through brand awareness: the moderating role of perceived quality. Front Psychol 12, 6280.

Zhou, T., Li, H., 2014. Understanding mobile SNS continuance usage in China from the perspectives of social influence and privacy concern. Comput. Hum. Behav. 37, 283–289.

Kholoud Bajunaied is a Ph.D. scholar at Azman Hashim International Business at Universiti Teknologi Malaysia. At the same time, she is a lecturer at University of Business and Technology Jeddah, Saudi Arabia. She specialized in finance, services marketing, and consumer behavior.

Nazimah Hussin is an Associate Professor at Azman Hashim International Business School UTM. She has more than 17 years of teaching experience and has been awarded with the fellowship status from the Higher Education Academy. She specialized in Islamic finance and services marketing.

Suzilawati Kamarudin is an Associate Professor in Management and is currently seconded to College of Business Administration, University of Business and Technology Jeddah, Saudi Arabia. She works at Azman Hashim International Business School, she specialized in Strategic Management, Global learning system, and Entrepreneurship.