

Association for Information Systems

AIS Electronic Library (AISeL)

ACIS 2023 Proceedings

Australasian (ACIS)

12-2-2023

Factors Influencing Cryptocurrency Acceptance Among Individuals: A Systematic Literature Review

Thantrige Rasika Hemantha

Woolworths, New Zealand, rasika.2000@yahoo.com

Angsana A. Techatassanasoontorn

Auckland University of Technology, New Zealand, angšana@aut.ac.nz

Follow this and additional works at: <https://aisel.aisnet.org/acis2023>

Recommended Citation

Hemantha, Thantrige Rasika and Techatassanasoontorn, Angsana A., "Factors Influencing Cryptocurrency Acceptance Among Individuals: A Systematic Literature Review" (2023). *ACIS 2023 Proceedings*. 84. <https://aisel.aisnet.org/acis2023/84>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2023 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Factors Influencing Cryptocurrency Acceptance Among Individuals: A Systematic Literature Review

Full research paper

Thantrige Rasika Hemantha

Business Information Systems Department
Auckland University of Technology
Auckland, New Zealand
Email: rasika.2000@yahoo.com

Angsana A. Techatassanasoontorn

Business Information Systems Department
Auckland University of Technology
Auckland, New Zealand
Email: angsana@aut.ac.nz

Abstract

A cryptocurrency is a digital currency that acts as a medium of exchange. Although many people know about cryptocurrency, only a few are using it. The lack of wider adoption of cryptocurrency likely hampers its future growth. Existing cryptocurrency adoption studies are fragmented; therefore, it is important to analyse and synthesise existing studies on cryptocurrency adoption to develop a comprehensive understanding of factors influencing cryptocurrency adoption. This study conducted a systematic literature review of 26 journal and conference papers to identify factors influencing cryptocurrency adoption and organise them using a Push-Pull-Mooring (PPM) framework. The findings suggest three push, ten pull and five mooring factors affecting cryptocurrency adoption. The push factors influence people to move away from conventional money to cryptocurrencies, and the pull factors attract people to cryptocurrencies. We also identify some mooring factors that negatively affect the pull factors and adoption of cryptocurrency, while social and technological factors and security positively influence the pull factors. Our study contributes to IS research by providing a comprehensive overview of factors contributing to cryptocurrency adoption. Insights from this study will be beneficial for banks and exchanges to develop strategies to encourage people to use cryptocurrencies, for governments to establish policies and safeguards on cryptocurrency use, and for developers to improve features of cryptocurrency platforms.

Keywords adoption, acceptance, cryptocurrency, push-pull-mooring framework, systematic literature review

1 Introduction

The financial industry has seen rapid technological advancement in the last few decades. Technological enhancements, such as peer-to-peer financing, mobile payments and digital banking, enable people to minimise transaction time and cost while improving convenience, flexibility and financial coverage (Alqaryouti et al., 2020a). Along with this development, a new virtual currency, cryptocurrency, was invented as an alternative to conventional money (Alqaryouti et al., 2020a). Cryptocurrency is a digital currency based on cryptologic algorithms that can act as a medium of exchange or store value (Aggarwal et al., 2019). They are different from fiat money because they do not exist physically; instead, individual ownership of coins is recorded in a digital ledger in the form of a computerised database. To prevent entries from unauthorised modifications, they are protected with cryptography algorithms. Bitcoin is considered the first successful cryptocurrency (Nakamoto, 2008). It was created as a type of electronic cash that would allow people to transfer money from one person to another without an intermediary (Murko and Vrhovec, 2019). Other popular cryptocurrencies are Ethereum, Litecoin, and Ripple (Yeong et al., 2019).

The growth of cryptocurrencies has implications for individuals, businesses (Morkunas et al., 2019) and regulatory bodies (ElBaharawy et al., 2017). For individuals, cryptocurrencies provide an alternative fund transfer system. It also provides a new payment gateway to collect customer payments for businesses (Baur et al., 2015). This new payment gateway enables customers to make quick international payments with better exchange rates and low transaction fees (Sas and Khairuddin, 2017; Sobhanifard and Sadatfarizani, 2019). Although the cryptocurrency market has grown rapidly, regulators have different positions towards embracing crypto-monetary law as a legal tender payment method (Schaupp and Festa, 2018). The use of cryptocurrency in illegal transactions, such as money laundering, drugs and arms smuggling, is one of the significant concerns.

Several scholars have argued that it is essential to investigate factors that influence cryptocurrency adoption among individuals (ElBaharawy et al., 2017). However, Alzahrani and Daim (2019b) show that existing cryptocurrency adoption studies are fragmented. Previous studies used various theories to investigate cryptocurrency acceptance (Abramova and Böhme, 2016; Albayati et al., 2020; Alqaryouti et al., 2020a, 2020b; Arias-Oliva et al., 2021; Gil-Cordero et al., 2020; Hwang and Moon, 2019; Mendoza-Tello et al., 2019; Nadeem et al., 2020; Saif Almuraqab, 2020; Shin, 2008). It is important to analyse and synthesise those studies to develop a comprehensive understanding of factors influencing cryptocurrency adoption. When the knowledge is already available in the area of research, systematic literature reviews offer researchers the opportunity to consolidate insights on existing knowledge, develop a comprehensive understanding of the state-of-the-art knowledge on the topic, and identify fruitful topics for future studies (Paré et al., 2015).

Therefore, this study aims to systematically review the existing literature and classify the factors examined in previous studies that influence cryptocurrency adoption. Previous research, such as Bansal et al. (2005), recommended a Push-Pull-Mooring (PPM) framework to understand consumers' switching behaviour in various IS contexts. Liu et al. (2021) and Gupta and Garg (2021) used the PPM framework to organise factors affecting technology adoption in the IS domain. Hence, this study will use the PPM framework to systematically organise factors that influence cryptocurrency adoption in the literature. Push factors motivate individuals to move into an alternative option. Pull factors are positive features that attract individuals to an alternative option (Bansal et al., 2005). Mooring factors are individual, social, and technological factors that hamper or facilitate an individual's decision toward cryptocurrency adoption (Zhang et al., 2008); these factors may positively or negatively affect the push and pull factors (Boyle et al., 2014). Therefore, our research questions are:

1. *What are the push factors that influence an individual to adopt and use cryptocurrencies?*
2. *What are the pull factors that encourage an individual to adopt and use cryptocurrencies?*
3. *What are the mooring factors that influence an individual to adopt and use cryptocurrencies?*

2 Theoretical Background

2.1 Theoretical Foundations in Cryptocurrency Acceptance Studies

A cryptocurrency is a digital currency based on cryptologic algorithms that can act as a medium of exchange or store of value (Aggarwal et al., 2019). In cryptocurrency technology, the ownership of the coins is recorded in a computerised database called a digital ledger. They are encrypted with robust cryptographic algorithms to prevent entries in the ledger from unauthorised modifications.

Previous research on cryptocurrency acceptance mainly draws on technology acceptance or behavioural theories. These theories include Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2012) and Theory of Planned Behaviour (TPB) (Ajzen, 1991), Innovation Decision Process Model (IDPM) and Innovation Diffusion Theory (IDT) (Rogers, 1995) to investigate cryptocurrency adoption. Factors such as technological characteristics, individual perceptions towards cryptocurrency, social influence, trust, security and risk have been investigated in previous studies (Huang, 2019; Murko and Vrhovec, 2019; Sas and Khairuddin, 2017). As a result, our understanding of cryptocurrency is fragmented and needs a framework to organise salient factors that shape cryptocurrency acceptance.

This study aims to analyse the factors influencing cryptocurrency acceptance. Prior technology acceptance models (e.g., TAM, UTAUT, TRA) often examine new technology adoption and use without considering that new technology adoption decisions often involve switching from an older to a more recent version of the same technology or changing from one technological choice to another (Gupta and Garg, 2021; Handarkho and Harjoseputro, 2020; Lenz et al., 2023; Liu et al., 2021). For example, Handarkho and Harjoseputro (2020) examined factors that explain an individual's intention to switch from traditional card payment to mobile payment. In another study, Lenz et al. (2023) investigated people's decisions to replace older smart devices with newer ones. Their study helps us understand driving factors for users to keep older devices (e.g., switching costs) and factors (e.g., privacy and security concerns) that lead them to replace them. Therefore, this study employs the PPM theoretical model to integrate the findings from previous cryptocurrency acceptance studies in the literature, some of which consider benefits and risks of cryptocurrency vis-à-vis conventional money.

2.2 Proposed Organising Framework

The PPM framework is one of the most commonly used models in technological adoption and migration studies (Aries et al., 2020). This theory has been applied to investigate the adoption of several technologies that often involve switching decisions, including e-commerce (Aries et al., 2020), mobile payment systems (Handarkho and Harjoseputro, 2019; Xin and Run-Ze, 2021), and traceability systems (Fan et al., 2021). Switching behaviours are related to "voluntary decision[s] to move from an existing incumbent option to a new option" (Lei et al., 2017, p. 101). In IS research, consumer switching can be described as shifting from an old technology to a new or an alternative technology (Shen et al., 2016). In our context, the PPM model is appropriate to organise previous studies that oftenevaluated factors associated with the current money system, characteristics of cryptocurrency, and others in an individual's decision to adopt and use cryptocurrency.

According to the PPM theory, factors that influence an individual's migration decisions can be categorised into three groups: push, pull, and mooring factors (Zhang et al., 2008). Push factors motivate people to choose an alternative option (Nimako and Ntim, 2013). These factors are closely associated with the limitation of the current choice from the user's perspective. In other words, these factors push them to consider the new technology. For example, Bansal et al. (2005) found that dissatisfaction with the existing service leads consumers to switch to a new service provider. Another study found that a perceived weak connection with other people influences individuals to stop maintaining their blogs (Hsieh et al., 1988).

Pull factors are positive features that attract an individual to an alternative option (Bansal et al., 2005). For example, previous research on mobile payment system adoption found that perceived enjoyment and convenience were pull factors that attract customers to use mobile payment systems in a physical store rather than conventional money (Handarkho and Harjoseputro, 2019).

Mooring factors positively or negatively affect the push or pull factors (Boyle et al., 2014). Although push and pull factors are strong, an individual may not switch to a new technology due to the mooring factors (Bansal et al., 2005). Mooring factors are neither the current option's limitation nor the alternative option's benefit (Fu, 2011; Zhang et al., 2008). These factors are mostly related to individual factors, social factors, technological capabilities and risks that facilitate or hamper the switching decision (Zhang et al., 2008).

3 Methodology

To address our research questions and assess the state of the art of research on cryptocurrency acceptance, we conducted a systematic literature review following the guidelines by Paré et al. (2015). Table 1 provides a detailed overview of our search protocol. We first formulated a broad search string to

identify studies on cryptocurrency acceptance across four databases to identify peer-reviewed research from IS and related domains. Our initial search yielded 329 articles, and 267 articles remained in the corpus after removing duplicated studies. The remaining articles underwent the screening process by applying inclusion and exclusion criteria. As a result, 34 journal articles and 16 conference papers spanning from 2008 to 2021 were retained for further evaluation. The next step is to evaluate the internal and external validity and quality of these studies. Hence, the shortlisted studies were verified whether they answered their research question without bias by clearly defining research objectives, using appropriate data collection methods, discussing appropriate data analysis methods and clearly presenting the findings. In addition, the quality of the articles was assessed by determining to what extent the selected studies contribute to the body of knowledge on cryptocurrency acceptance. After the evaluation, 24 articles extracted from the previous step were removed because the abstract review showed that those papers do not examine factors that influence cryptocurrency acceptance. Therefore, 26 articles remained for analysis.

These 26 articles were coded using Bandara et al.'s (2015) inductive approach since it allows an analysis of the existing literature and builds abstract ideas from conceptually related codes. First, we performed open coding of variables used in previous studies. Some examples of open codes are “quick fund transfers”, “cheap money transfer”, “cyber attackers”, “the credibility of the technology” and “social media impacts”. Next, all conceptually related open codes were combined into subcategories to gain a meaningful understanding of cryptocurrency acceptance. Some examples of subcategories are “alternative banking systems”, “high transaction speed”, “low transaction fees”, “risks”, “trust” and “social factors”. All conceptually related subcategories were grouped and classified into push, pull and mooring factors. Categories associated with the limitation of conventional money were grouped under push factors, such as “losing trust in the government and financial institutions” and “insecurity of conventional money.” Categories that encourage people to adopt cryptocurrencies, such as “alternative investment method,” “low transaction fees,” and “high transaction speed” were grouped under the pull factors. The mooring factors include categories that are not a drawback of regular currencies or the benefit of new cryptocurrencies; however, they affect individuals’ decisions to adopt cryptocurrencies. “Risks”, “individual”, “social,” and “technological factors” are some examples of mooring factors.

Databases	ACM Digital Library	IEEE Explore	Scopus	Web of Science
Search strings	(“cryptocurrency” OR “cryptocurrencies” OR “digital currency” OR “digital money” OR “virtual money” OR “virtual currency” OR “virtual currencies” OR “Bitcoin” OR “crypto-currency” OR “crypto-currencies” OR “coin mining” OR “Ethereum” OR “Litecoin” OR “XRP” OR “Tether”) AND (“Adoption” OR “Acceptance” OR “Diffusion” OR “Usage” OR “Satisfaction” OR “Intention” OR “Use Behavior” OR “Use Behaviour”)			
Initial results	329 articles and 267 after removing duplicated studies			
Inclusion criteria	English language journal and conference articles, empirical studies, literature reviews, case studies that examine cryptocurrency acceptance factors			
Exclusion criteria	Non-English articles, book chapters, commercial articles			
Results after applying criteria	34 journal articles and 16 conference articles			
Quality assessment	Full-text evaluation on quality and validity of studies			
Results after quality assessment	26 articles			

Table 1. Search and selection process of the systematic literature review

4 Findings

Based on our analysis of 26 articles, we organise the emerging categories into push, pull and mooring factors presented in Figure 1.

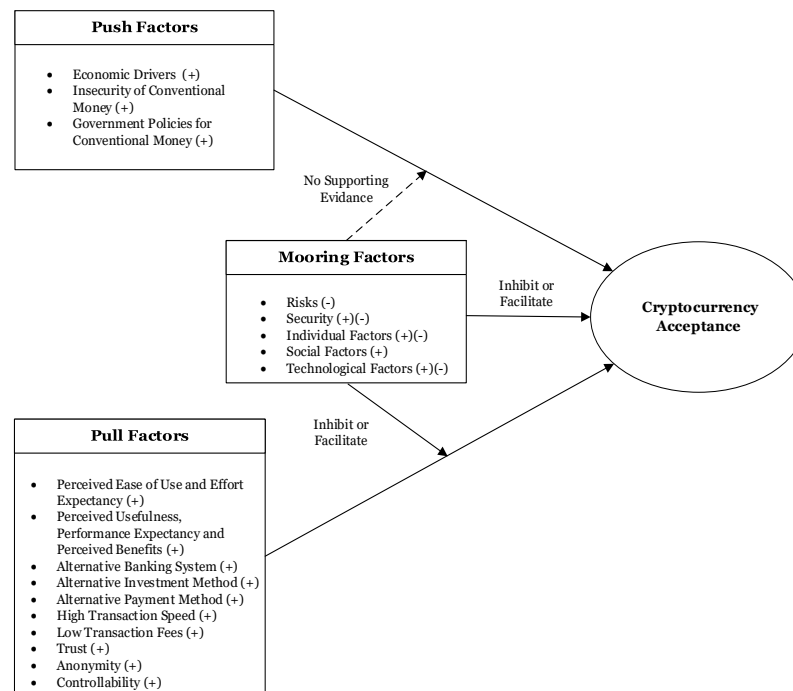


Figure 1: A theoretical model of factors influencing cryptocurrency acceptance

4.1 Push Factors

The push factors relate to conventional money's limitations and problems and the current financial system, which encourages individuals to move into cryptocurrencies. Those factors are economic drivers, insecurity of conventional money, and government policies for conventional money.

4.1.1 Economic Drivers

Cryptocurrencies offer an appealing alternative that bypasses government and financial institution involvement. According to the Quantity Theory of Money (QTM), the general price level of goods and services is proportional to the amount of money circulating in the market. In other words, if the amount of money circulating in a market is high, consumers have to pay a high price for the goods and services. On the other hand, if the amount of money circulating in a market is low, the price of goods or services will be low. Many of the cryptocurrencies have a limited supply. This means that when a cryptocurrency reaches its maximum limit, there will be no more new coins for mining. Due to this limited supply, cryptocurrency will protect customers from inflation (Bohr and Bashir, 2014). For these reasons, some people are moving from regular money to cryptocurrency (Sas and Khairuddin, 2017).

4.1.2 Insecurity of Conventional Money

Due to the unstable political conditions in some countries, their currencies are consequently not secure (Spiridonov, 2015). As a result, some people seek a more stable currency (Baur et al., 2015). For them, cryptocurrency is a better solution since it resolves hyperinflation, inflation, exchange, fraud, counterfeiting, and inaccessibility problems associated with regular currencies (Presthus and O'Malley, 2017). People who live in countries with high fluctuating and unpredictable exchange rates, such as Brazil, Argentina, Nicaragua, and Venezuela, could use cryptocurrencies to save their wealth (Folkinshteyn and Lennon, 2016; Presthus and O'Malley, 2017).

4.1.3 Government Policies for Conventional Money

With the expansion of online shops, emerging economies can ship products to remote locations but cannot receive funds due to capital market restraints imposed by governments (Baur et al., 2015; Hyytinen and Toivanen, 2005). For instance, government policies have restricted money transfers between Cuba and the USA (Barberia, 2002). Thus, these government policies hamper the financial freedom of regular money. Therefore, some people shift to cryptocurrency to avoid restrictions from these rigid government policies (Baur et al., 2015).

4.2 Pull Factors

The pull factors include the benefits of cryptocurrency that encourage individuals to adopt and use it. These factors are “perceived ease of use and effort expectancy”, “perceived usefulness, performance expectancy, and perceived benefits”, “alternative banking system, alternative investment method, and alternative payment method”, “high transaction speed and low transaction fees”, “trust, anonymity, and controllability”. Although perceived ease of use and effort expectancy are two different constructs, this study groups them into one category due to their similarities. Similarly, perceived usefulness, perceived benefits and performance expectancy are three other constructs grouped into one category.

4.2.1 Perceived Ease of Use and Effort Expectancy

Perceived ease of use influences information technology acceptance directly or indirectly (Pavlou, 2003). This is because if a new technology is simple to learn and operate, people are more likely to adopt and use it (Yi et al., 2003). We identified eight studies that investigated the relationship between perceived ease of use and cryptocurrency adoption, and all studies found that perceived ease of use significantly and positively influenced cryptocurrency adoption. For example, Saif Almuraqab (2020) has shown that perceived ease of use is a significant factor in the intention of people to utilise cryptocurrencies. More importantly, these studies were conducted in countries such as Australia, China, Spain, South Africa, Slovenia, and the UAE, suggesting that perceived ease of use is a prevailing factor affecting cryptocurrency adoption. One study found that effort expectancy (i.e., how easy it is to learn how to use cryptocurrencies) is positively related to the intention to use cryptocurrency (Arias-Oliva et al., 2021).

However, findings also indicate that some cryptocurrency features may negatively impact the perceived ease of use of cryptocurrency. These features include the non-intuitive nature of cryptocurrencies such as Bitcoin (Abramova and Böhme, 2016), the complexity of the underlying cryptocurrency technology (Sohaib et al., 2020) and the conceptual difference between cryptocurrencies and fiat money (Mendoza-Tello et al., 2019).

4.2.2 Perceived Usefulness, Performance Expectancy and Perceived Benefits

In the payment systems context, perceived usefulness is usually associated with efficiency, performance, and effectiveness (Alalwan et al., 2018). Cryptocurrencies provide fast, secured, and wider global coverage payment and fund transfer systems (Arias-Oliva et al., 2021; Gil-Cordero et al., 2020). Studies found that individuals believe cryptocurrencies have a higher transaction speed (Abramova and Böhme, 2016) than regular currencies. Such belief affects perceived usefulness and, in turn, influences cryptocurrency adoption decisions (Albayati et al., 2020; Lee et al., 2018; Mendoza-Tello et al., 2019; Murko and Vrhovec, 2019; Roussou et al., 2019; Saif Almuraqab, 2020; Shin, 2008; Sohaib et al., 2020). Similar to the influence of perceived ease of use, the influence of perceived usefulness on the intention to use cryptocurrencies was supported by studies across several countries such as Korea, Spain, Slovenia, UAE and Australia (Lee et al., 2018; Mendoza-Tello et al., 2019; Murko and Vrhovec, 2019; Roussou et al., 2019; Saif Almuraqab, 2020; Sohaib et al., 2020). In addition, two studies found a positive relationship between performance expectancy and the intention to use cryptocurrencies (Arias-Oliva et al., 2021; Gil-Cordero et al., 2020).

Two studies found that the perceived benefits of cryptocurrencies influence a customer’s intention to use (Abramova and Böhme, 2016; Yoo et al., 2020). Perceived benefit is a person’s perception that using cryptocurrency will have both direct and indirect favourable consequences (Abramova and Böhme, 2016). Some of the perceived benefits of cryptocurrency are related to its decentralised capability (Abramova and Böhme, 2016; Yoo et al., 2020).

4.2.3 Alternative Banking System, Alternative Investment method, and Alternative Payment Method

Cryptocurrency as a peer-to-peer technology has transformed long-standing financial systems by directly connecting senders and receivers, filling the gaps and helping solve trust, efficiency, and cost issues faced by the traditional banking system (Alqaryouti et al., 2020b; DeVries, 2016).

Five studies examined cryptocurrency as an alternative investment option (Alqaryouti et al., 2020b; Huang, 2019; Khairuddin et al., 2016; Lee et al., 2018; Sas and Khairuddin, 2017). Most cryptocurrencies have limited supply; therefore, based on the law of supply and demand, the overall value of cryptocurrency will increase over time. The analysis of Bitcoin prices has consistently increased over the past few years (Xie, 2019), which may lead individuals to consider cryptocurrencies as an alternate financial asset (Yelowitz and Wilson, 2015).

Some researchers investigated the influence of profitability expectancy, perception of high return on Bitcoin adoption (Alqaryouti et al., 2020b; Huang, 2019; Lee et al., 2018). For example, Alqaryouti et al. (2020b) reported that all participants mentioned, “I have decided to invest some amount to make some profit”, indicating that people consider cryptocurrency as an alternative investment option.

In addition, two studies investigated cryptocurrency as an alternative payment method and found that cryptocurrency may provide a better alternative payment method for online transactions (Alqaryouti et al., 2020b; Sas and Khairuddin, 2017). For example, a participant in Sas and Khairuddin’s (2017) study mentioned that they were able to pay utility bills on the cryptomarket.my website and buy flight tickets and book hotels from cheapair.com using Bitcoin.

4.2.4 High Transaction Speed and Low Transaction Fees

Four studies showed that cryptocurrencies offer a faster transaction speed than regular currencies, which therefore encourages people to move into cryptocurrency (Abramova and Böhme, 2016; Baur et al., 2015; Sas and Khairuddin, 2017; Sobhanifard and Sadatfarizani, 2019). The existing banking system takes a long time to move funds from the sender’s account to the receiver’s account, particularly in international wire transfers (Sas and Khairuddin, 2017). This is mainly because traditional banks require lengthy security clearance for the source of funds based on the amount of money. Cryptocurrency funds transfer from one account to another appear instant, taking only a few minutes (Abramova and Böhme, 2016). In addition, these transfers are available 24 hours a day, seven days a week, and are not affected by centralised system failures.

Another interesting characteristic of cryptocurrencies is low money transfer transaction fees. Cryptocurrency transfer cost is extremely low compared to banks and other intermediaries (Böhme et al., 2015). In a qualitative study, a participant mentioned that “*Bitcoin is a very cheap money transfer*” (Khairuddin et al., 2016, p. 2875).

4.2.5 Trust, Anonymity, and Controllability

Nine studies examined trust-related factors and found they were positively associated with cryptocurrency adoption. For example, four studies found that perceived trust positively influences the intention to use cryptocurrencies (Albayati et al., 2020; Gil-Cordero et al., 2020; Mendoza-Tello et al., 2019; Saif Almuraqab, 2020). Unlike a centralised financial system, blockchain technology does not allow transactions to be reversed once the transaction is finalised (Nakamoto, 2008). This feature improves the system’s reliability (Khairuddin et al., 2016). Government regulations and laws are necessary for dealing with cryptocurrency technology and monitoring the service quality (Albayati et al., 2020). These laws are employed to ensure that all operations run smoothly and fairly. Lu (2018) found that government policies for cryptocurrency technology enhance users’ trust by reducing potential threats and enhancing users’ confidence in cryptocurrencies.

According to Khairuddin et al. (2016), the anonymity of cryptocurrencies has attracted customers to adopt them. Bitcoin and other cryptocurrencies have pseudo-anonymity, which implies that every transaction is recorded; the sender and receivers’ identities are kept private with a digital code called a ‘public key,’ so no one knows who sends or gets money unless the sender or receiver claims ownership of the transaction. The sender’s or receiver’s identity can only be determined when they attempt to cash out their coins at exchange sites and then transfer the money back to their bank account. Therefore, Khairuddin et al. (2016) and Alqaryouti et al. (2020b) found that the anonymity of the people behind transactions is one of the benefits of cryptocurrency.

The decentralised nature of cryptocurrency allows people to transfer and receive money with each other without government restrictions, thus increasing their financial freedom. In addition, blockchain technology can operate without a third-party intervention (Khairuddin et al., 2016). Therefore, cryptocurrency technology empowers individuals by providing better control over their money and reducing the risk of power abuse on personal assets (Sas and Khairuddin, 2017). In addition, Bitcoin gives customers better control over the exchange rate than other foreign exchange markets since there are no intermediaries (Lee et al., 2019).

4.3 Mooring Factors

Mooring factors are those that hamper or facilitate an individual’s cryptocurrency adoption. These factors include risks, security protection and concerns, individual factors, social factors, and technological factors.

4.3.1 Risks

Our analysis identified six risk-related factors, namely perceived risk, irreversibility of the transaction, financial losses due to price fluctuation, fraud, financial losses due to password loss, and legal risks. In our studies, a few studies found that the perceived risk of cryptocurrencies negatively affects the perceived benefit of cryptocurrencies (Gil-Cordero et al., 2020; Mendoza-Tello et al., 2019; Shin, 2008).

Irreversibility is one of the major features of cryptocurrency technology. Irreversibility refers to the fact that it is impossible to alter a transaction once it is added to the blockchain (Nakamoto, 2008). This feature improves the system's reliability because, unlike a centralised financial system, it does not allow transactions to be reversed once the sales are finalised (Nakamoto, 2008). However, according to Sas and Khairuddin (2017), unlike the traditional financial system, the irreversibility feature fails to help consumers recover money if they lose it due to hacking or dishonest trading parties. Therefore, the irreversible nature of cryptocurrency negatively impacts its perceived usefulness, as Sas and Khairuddin (2017) suggested.

Another risk factor is financial losses due to cryptocurrency price fluctuation, which may lead to sudden price crashes. Therefore, financial losses due to the price fluctuation of a cryptocurrency reduce the intention of selecting cryptocurrency as an investment method (Abramova and Böhme, 2016; Ermakova et al., 2017). A cryptocurrency wallet is a software that holds an individual's cryptocurrencies. Every person who has a cryptocurrency wallet has a private key (secret number) that corresponds to the wallet's address. It allows users to send and receive coins while granting access to their cryptocurrency account balance. Since the blockchain does not save the private key of an individual wallet, users will not be able to recover the password if they forget it. As a result, users will lose all their money in the wallet. Protecting the cryptocurrency wallet password is one of the major challenges faced by many cryptocurrency users (Abramova and Böhme, 2016; Ermakova et al., 2017; Sas and Khairuddin, 2017). Therefore, financial losses due to the loss of passwords negatively impact the individuals' decision to select cryptocurrencies as an investment method.

In addition, fraud from dishonest parties is another risk associated with cryptocurrency transactions (Sas and Khairuddin, 2017). Finally, one study found that the legal risk of cryptocurrency or the uncertainty in Bitcoin holders about the possible government intervention restricts the use of Bitcoin (Abramova and Böhme, 2016).

4.3.2 Security Protection and Concerns

Four studies investigated security factors and found that perceived security and security protection positively influence pull factors. Abramova and Böhme (2016) argue that perceived security protection measures in the blockchain positively influence trust in digital currencies. In addition, Sas and Khairuddin (2017) explained that cryptocurrency mining difficulties increase the system's security protection. In cryptocurrency technology, a peer-to-peer network and encryption mechanisms provide security protection to reduce fraud and theft (Coffin, 2003; Nakamoto, 2008). Furthermore, cryptocurrencies do not save personal information on computer systems, unlike conventional payment methods like debit/credit cards, thus providing greater protection from cyberattacks (Antonopoulos, 2014). In addition, the decentralised system does not have a single point of failure. Therefore, a study found that the perceived security of cryptocurrency positively affects its perceived trust towards cryptocurrency adoption (Roussou et al., 2019).

However, some studies found that security concerns negatively influence pull factors. Security concerns refer to how people believe that using the Bitcoin system may generate security problems (Yoon and Barker, 2013). They considered security concerns committed by hackers due to the vulnerability of cryptocurrency services (Yoon and Barker, 2013). Users with higher security concerns are likely to have low trust in cryptocurrency services. In addition, Hwang and Moon (2019) showed that security concerns moderate the performance expectancy of cryptocurrency users.

4.3.3 Individual Factors

Based on our analysis, seven studies identified ten individual factors positively affecting cryptocurrency adoption. These include attitude to new technology, experience with similar technology, technological awareness, hedonic motivation, perceived enjoyment, optimism, innovativeness, technological discomfort, high income, and gender (male).

Attitude is one of the constructs in TPB found to have a significant impact on the intention to use technology (Davis, 1989). Albayati et al. (2020) and Schaupp and Festa (2018) studied the relationship between attitude to new technology and the intention of users to use cryptocurrencies and found that a

person's attitude to new technology positively affects their experience (Albayati et al., 2020), optimism (Sohaib et al., 2020), innovativeness (Sohaib et al., 2020), and hedonic motivation (Hwang and Moon, 2019). In addition, Albayati et al. (2020) and Huang (2019) found that users' experiences with other similar information systems, such as online payment systems, make them confident in using cryptocurrencies. Also, Albayati et al. (2020) found that users' experience positively influences perceived ease of use. One study by Saif Almuraqab (2020) showed that technological awareness mediates the relationship between perceived ease of use and intention to use cryptocurrencies.

Two studies showed that hedonic motivation and perceived enjoyment influence the perceived benefit of cryptocurrency technology (Hwang and Moon, 2019; Nadeem et al., 2020). Hedonic motivation encourages individuals to value the unique features of cryptocurrency (e.g., no central control, anonymity) and influences them to use cryptocurrencies. Nadeem et al. (2020) found that when people enjoy the benefits of cryptocurrencies, such as Bitcoin, their repurchasing attitude will be high.

Optimism, innovativeness, and technological discomfort are individual characteristics discussed in previous cryptocurrency studies (Sohaib et al., 2020). Walczuch et al. (2007) define optimism as the positive view of an individual towards technology. When people have high optimism, their perception of the technology is high. Innovative individuals take risks and try new things (Connolly and Kick, 2015). In particular, these two individual traits positively impact cryptocurrency technology readiness, making individuals more inclined to use it (Sohaib et al., 2020). On the other hand, technological discomfort or a person's feeling of being overloaded by technology often negatively affects technology adoption decisions (Parasuraman, 2000; Walczuch et al., 2007). Sobhanifard and Sadatfarizani (2019) argued that cryptocurrency technology is at the early stage of its introduction. Therefore, technological discomfort negatively influences the perceived ease of use and perceived usefulness, which affects the adoption of cryptocurrencies (Sohaib et al., 2020).

Concerning demographic factors, Huang (2019) reported that gender (male) and higher income influence people's intention to hold cryptocurrencies. This might be because females are less likely to take risks with money than men (Furnham and Okamura, 1999). In addition, people with higher incomes are less concerned about cryptocurrency's perceived future value than lower-income people; therefore, they are more likely to use cryptocurrency than those with low incomes (Huang, 2019).

4.3.4 Social Factors

Nine studies identified four social factors positively affecting cryptocurrency adoption: social influence, subjective norm, e-WOM and observability. For example, Albayati et al. (2020) found that social influence positively influences perceived usefulness toward cryptocurrency adoption. Individuals who view the usefulness of cryptocurrency are willing to explore and evaluate the risks associated with the cryptocurrency technology and then develop trust towards the technology (Hwang and Moon, 2019). Subjective norm is a part of the TRA model used in several technological adoption studies. Subjective norms are defined as the belief that important people think that users should or should not perform the behaviour (Davis, 1989). Three cryptocurrency studies by Baur et al. (2015), Schaupp and Festa (2018), and Murko and Vrhovec (2019) reveal that subjective norms positively affect trust and influence individuals to use cryptocurrency.

A few studies investigated the influence of e-WOM on cryptocurrency adoption. E-WOM refers to "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to many people and institutions via the Internet." (p. 39). Studies found that e-WOM about cryptocurrency positively influences trust toward adopting Bitcoin and other cryptocurrencies (Anser et al., 2020; Gil-Cordero et al., 2020). Finally, one study investigated the observability of Bitcoin (Yoo et al., 2020). Rogers (1995) described observability as the ability of an individual to identify the benefit of a product or service by observing other members of society. When a person observes that other members of society enjoy the social, economic, and individual benefits of Bitcoin, their trust in the technology will be developed. As a result, they will start using Bitcoin (Yoo et al., 2020).

4.3.5 Technological Factors

Technological factors refer to characteristics of the underlying technologies that support a particular system. Therefore, factors related to the cryptocurrency wallet and blockchain technology that influence cryptocurrency adoption were considered technological factors in this study. Five studies identified system design, trialability, facilitating conditions, and lack of wallet usability as technological factors influencing cryptocurrency adoption. Alqaryouti et al. (2020a) found that good design features, such as a user-friendly wallet interface and fast blockchain system response time, positively influence

cryptocurrency's perceived ease of use. Another study by Yoo et al. (2020) suggested that the trialability of cryptocurrency minimised users' fears of cryptocurrency technology and positively impacted perceived ease of use.

Facilitating conditions are the degree to which the required infrastructure is available to run a specific technology (Venkatesh et al., 2003). In the context of cryptocurrency, when the number of mining computers increases in the cryptocurrency network, the network will be more robust (Hwang and Moon, 2019) and faster (Abramova and Böhme, 2016). Therefore, facilitating conditions positively affected the perceived benefit of cryptocurrency towards cryptocurrency adoption (Arias-Oliva et al., 2021).

However, people expect wallet functionality to be similar to online payment systems. For example, a cryptocurrency adoption study by Kazerani et al. (2017) reveals that a participant did not understand that a wallet address should be a string of alphanumeric characters. This participant expected the user interface of the Bitcoin wallet to be similar to her PayPal account's email address to send and receive money. Also, another study conducted by Baur et al. (2015) showed that Bitcoin is difficult to use in general; therefore, users require learning before using it. These usability differences in wallets hamper the perceived ease of use of cryptocurrency technology (Baur et al., 2015; Kazerani et al., 2017).

5 Discussion

Drawing on a PPM model, this study develops a contextualised framework to identify push, pull, and mooring factors that influence cryptocurrency acceptance. Three push factors are associated with limitations or problems with conventional money and the current financial system. The pull factors are associated with the benefits of cryptocurrency which influence its adoption. In addition, five mooring factors associated with risks, security, individual, social, and technological factors either directly influence or indirectly influence cryptocurrency adoption.

People are moving away from conventional money to cryptocurrencies due to the push factors. These factors include economic drivers, insecurity of conventional money (Baur et al., 2015), government policies on conventional money (Sas and Khairuddin, 2017), and government policies on conventional money (Baur et al., 2015). These findings indicate that perceived protection from value loss and government policies to control the fund transfers make people want to consider cryptocurrency as an alternate option.

People adopt cryptocurrency due to several pull factors associated with various benefits of cryptocurrency. The pull factors include perceived ease of use and effort expectancy, perceived usefulness, perceived benefits and performance expectancy, alternative banking system, alternative investment method, alternative payment method, high transaction speed, low transaction fees, trust, anonymity and controllability. The most commonly found pull factors are perceived ease of use and effort expectancy and perceived usefulness, perceived benefits and performance expectancy. This implies that customers are willing to use cryptocurrencies if it is easy to use (Albayati et al., 2020), easy to learn (Arias-Oliva et al., 2021), has direct and indirect benefits (Abramova and Böhme, 2016), can perform financial transactions effectively (Albayati et al., 2020) and efficiently (Arias-Oliva et al., 2021).

Mooring factors are those that hamper or facilitate an individual's cryptocurrency adoption, which include risks, security protection and security concerns, individual factors, social factors, and technological factors. Individual factors are the most commonly found mooring factors. Individuals who are optimistic, innovative and hedonically motivated are more likely to adopt cryptocurrency. The literature suggests that blockchain technology provides better security protection to the users than other payment systems (Abramova and Böhme, 2016; Alqaryouti et al., 2020b; Roussou et al., 2019). However, cryptocurrency is associated with several potential risks, including cyberattacks, financial losses due to price fluctuation, and legal risks that create barriers to its adoption.

5.1 Theoretical Contributions

This study has three theoretical contributions. First, according to Alzahrani and Daim (2019a), existing cryptocurrency adoption studies are fragmented due to the various theories used. Some of these are TAM, UTAUT, TRA, TPB, among others. As a result, different constructs such as technological, behavioural, trust, risk, and security were reported to influence cryptocurrency adoption. This study consolidates previous cryptocurrency acceptance research by using an organising framework based on PPM theory to analyse and synthesise previous cryptocurrency adoption factors together. This framework offers a comprehensive understanding of how weaknesses with conventional money, benefits of cryptocurrency and other factors, including risks, security, individual factors, social factors, and technological factors, directly or indirectly influence cryptocurrency adoption.

Second, this study shows that several benefits of cryptocurrency that are not offered in traditional currencies attract individuals to adopt it. In particular, this study drew these beneficial factors from studies that used different theoretical perspectives and comprehensively combined them as pull factors.

Third, this study identifies mooring factors that directly or indirectly influence people to adopt cryptocurrency. These mooring factors suggest that, in addition to the weaknesses of conventional money and the benefits of cryptocurrency, one needs to consider the importance of mooring factors often associated with social factors, technological factors and individual factors that may shape people's decision to adopt cryptocurrency.

5.2 Practical Implications

This research has three practical implications. First, this study identified that people are frustrated with the existing banking system and financial system, and therefore, they look for an alternative banking system. This finding could encourage cryptocurrency stakeholders, such as banks, exchanges and businesses, to develop strategies that encourage people to use cryptocurrencies in their daily lives.

Second, this study showed the importance of government regulation and support for cryptocurrency adoption. Therefore, it is important for governments to establish appropriate policies and support to promote cryptocurrency adoption while managing risks associated with cryptocurrency.

Finally, this study has identified multiple technical challenges that users face with the existing cryptocurrency platforms. Some challenges are the inability to recover lost passwords, the irreversibility of transactions and wallet usability issues. Those challenges hamper the wide adoption of cryptocurrency. Therefore, it is prudent for cryptocurrency platform developers to understand customer concerns and address these issues to improve the existing cryptocurrency platforms or develop a new one.

6 Conclusion

This study conducted a systematic literature review of 26 journal and conference papers to identify factors influencing cryptocurrency adoption and organise them using a PPM framework.

There are a few limitations of this study. First, this research analysed results based on the data collected from previous cryptocurrency adoption studies. Since we did not collect primary data, those studies' limitations and validity issues may have been reflected in our research (Kitchenham and Charters, 2007). To overcome this limitation, a careful assessment of the quality of the included articles was done as part of the systematic literature review process. Second, this study was based on previous journal articles and conference papers. However, cryptocurrency is a relatively new and dynamic concept; therefore, a vast amount of information is available from other information sources, such as online materials and commercial publications. Although this study did not include those resources, the finding of this study is still relevant since it involved studies from well-recognised, peer-reviewed journals and conferences. Lastly, this study is based on the articles identified from four major databases, including ACM digital library, IEEE Explore, Scopus, and Web of Science. It did not include other databases such as JSTOR, ProQuest (computing) and SpringerLink; therefore, some journal or conference papers available in those databases are not part of this study. Hence, it is another limitation of this study. However, the findings of this study are still applicable since the selected studies were from the four widely used databases that other systematic literature review studies have used (Badawi and Jourdan, 2020).

Most current research on cryptocurrency adoption focuses on technological acceptance or behavioural intention. However, Burton-Jones and Volkoff (2017) showed that technology adoption does not actually reflect effective use. They described effective use as actions and interactions in which the desired outcome can be achieved using IT. Therefore, future studies may want to move beyond adoption decisions and investigate the effective use of cryptocurrencies.

In addition, most cryptocurrency adoption studies focused mainly on Asia, Europe, North America, Africa, and Australia. However, there were no studies conducted in Latin America. Future studies may examine cryptocurrency adoption in the Latin American region and compare the findings with other regions.

7 References

- Abramova, S., and Böhme, R. (2016). "Perceived Benefit and Risk as Multidimensional Determinants of Bitcoin Use: A Quantitative Exploratory Study," *International Conference on Information Systems*, Dublin, Ireland.
- Aggarwal, G., Patel, V., Varshney, G., and Oostman, K. (2019). "Understanding the Social Factors Affecting the Cryptocurrency Market," *International Conference for Internet Technology and Secured Transactions (ICITST)*, London.
- Ajzen, I. (1991). "The Theory Of Planned Behavior," *Organisational Behavior and Human Decision Processes*, (50:2), pp. 179-211 (doi:[10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t)).
- Alalwan, A. A., Baabdullah, A. M., Rana, N. P., Tamilmani, K., and Dwivedi, Y. K. (2018). "Examining Adoption of Mobile Internet in Saudi Arabia: Extending TAM with Perceived Enjoyment, Innovativeness and Trust," *Technology in Society*, (55), pp. 100-110 (doi:[10.1016/j.techsoc.2018.06.007](https://doi.org/10.1016/j.techsoc.2018.06.007)).
- Albayati, H., Kim, S. K., and Rho, J. J. (2020). "Accepting Financial Transactions Using Blockchain Technology and Cryptocurrency: A Customer Perspective Approach," *Technology in Society*, (62), Article 101320 (doi: [10.1016/j.techsoc.2020.101320](https://doi.org/10.1016/j.techsoc.2020.101320)).
- Alqaryouti, O., Siyam, N., Alkashri, Z., and Shaalan, K. (2020a). "Cryptocurrency Usage Impact on Perceived Benefits and Users' Behaviour," *European, Mediterranean and Middle Eastern Conference*.
- Alqaryouti, O., Siyam, N., Alkashri, Z., and Shaalan, K. (2020b). "Users' Knowledge and Motivation on Using Cryptocurrency," *Information Systems Lecture Notes in Business Information Processing*, (381), pp. 113-122 (doi: [10.1007/978-3-030-44322-1_9](https://doi.org/10.1007/978-3-030-44322-1_9)).
- Alzahrani, S., and Daim, T. U. (2019b). "Evaluation of The Cryptocurrency Adoption Decision Using Hierarchical Decision Modeling (HDM)," *Portland International Conference on Management of Engineering and Technology (PICMET)*.
- Anser, M. K., Zaigham, G. H. K., Imran Rasheed, M., Pitafi, A. H., Iqbal, J., and Luqman, A. (2020). "Social Media Usage and Individuals' Intentions toward Adopting Bitcoin: The Role of the Theory of Planned Behavior and Perceived Risk," *International Journal of Communication Systems*, (33:17), Article e4590 (doi: [10.1002/dac.4590](https://doi.org/10.1002/dac.4590)).
- Antonopoulos, A. M. (2014). *Mastering Bitcoin: Unlocking digital cryptocurrencies*. O'Reilly Media.
- Arias-Oliva, M., de Andrés-Sánchez, J., and Pelegrín-Borondo, J. (2021). "Fuzzy Set Qualitative Comparative Analysis of Factors Influencing the Use of Cryptocurrencies in Spanish Households," *Mathematics*, (9:4), pp. 1-19, Article 324 (doi: [10.3390/math9040324](https://doi.org/10.3390/math9040324)).
- Aries, S., Agil, H., and Nia Budi, P. (2020). "Push-Pull-Mooring Framework for E-Commerce Adoption in Small and Medium Enterprises," *Journal of Enterprise Information Management*, (33:2), pp. 381-406 (doi: [10.1108/JEIM-08-2019-0227](https://doi.org/10.1108/JEIM-08-2019-0227)).
- Badawi, E., and Jourdan, G. V. (2020). "Cryptocurrencies Emerging Threats and Defensive Mechanisms: A Systematic Literature Review," *IEEE Access*, (8), pp. 200021-200037 (doi: [10.1109/ACCESS.2020.3034816](https://doi.org/10.1109/ACCESS.2020.3034816)).
- Bandara, W., Furtmueller, E., Miskon, S., Gorbacheva, E., and Beekhuyzen, J. (2015). "Achieving Rigor in Literature Reviews: Insights from Qualitative Data Analysis and Tool-Support," *Communications of the Association for Information Systems*, (37), pp. 154-204.
- Bansal, H. S., Taylor, S. F., and James, Y. S. (2005). "Migrating to New Service Providers: Toward a Unifying Framework of Consumers' Switching Behaviors," *Journal of the Academy of Marketing Science*, (33:1), pp. 95-115 (doi: [10.1177/0092070304267928](https://doi.org/10.1177/0092070304267928)).
- Barberia, L. (2002). "Remittances to Cuba: An Evaluation of Cuban and US Government Policy Measures," *The Cuban Economy at the Start of the Twenty-First Century*, pp. 353-412.
- Baur, A. W., Bühler, J., Bick, M., and Bonorden, C. S. (2015). "Cryptocurrencies as a Disruption? Empirical Findings on User Adoption and Future Potential of Bitcoin and Co," *Conference on E-business, E-services and E-society*, Springer.

- Böhme, R., Christin, N., Edelman, B., and Moore, T. (2015). "Bitcoin: Economics, Technology, and Governance," *Journal of Economic Perspectives*, (29:2), pp. 213-238.
- Bohr, J., and Bashir, M. (2014). "Who Uses Bitcoin? An Exploration of the Bitcoin Community," *Twelfth Annual International Conference on Privacy, Security and Trust*.
- Boyle, P., Halfacree, K., and Robinson, V. (2014). *Exploring Contemporary Migration*. Routledge.
- Burton-Jones, A., and Volkoff, O. (2017). "How can We Develop Contextualised Theories of Effective Use? A Demonstration in the Context of Community-Care Electronic Health Records," *Information Systems Research*, (28:3), pp. 468-489 (doi: [10.1287/isre.2017.0702](https://doi.org/10.1287/isre.2017.0702)).
- Coffin, B. (2003). "Breaking the Silence on White Collar Crime," *Risk Management*, (50:9), pp. 8-9.
- CoinMarketCap. (2023). "Cryptocurrency Prices, Charts and Market Capitalizations." (<https://coinmarketcap.com/>, accessed August 25, 2023)
- Connolly, A., and Kick, A. (2015). "What Differentiates Early Organization Adopters of Bitcoin from Non-Adopters?," *American Conference of Information Systems*, Puerto Rico.
- Corbet, S., Lucey, B., Urquhart, A., and Yarovaya, L. (2019). "Cryptocurrencies as a Financial Asset: A Systematic Analysis," *International Review of Financial Analysis*, (62), pp. 182-199 (doi: [10.1016/j.irfa.2018.09.003](https://doi.org/10.1016/j.irfa.2018.09.003)).
- Davis, F. D. (1989). "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly*, (13:3), pp. 319-340 (doi: [10.2307/249008](https://doi.org/10.2307/249008)).
- DeVries, P. (2016). "An Analysis of Cryptocurrency, Bitcoin, and the Future," *International Journal of Business Management and Commerce*, (1:2), pp. 1-9.
- ElBaharawy, A., Alessandretti, A. K., Pastor-Sattoras, R., and Baronchelli, A. (2017). "Evolutionary Dynamics of the Cryptocurrency Market," *Royal Society Open Science*, (4:11) (doi: [10.1098/rsos.170623](https://doi.org/10.1098/rsos.170623)).
- Ermakova, T., Fabian, B., Baumann, A., Izmailov, M., and Krasnova, H. (2017). "Bitcoin: Drivers and Impediments," *SSRN Electronic Journal* (doi: [10.2139/ssrn.3017190](https://doi.org/10.2139/ssrn.3017190)).
- Fan, L., Zhang, X., Rai, L., and Du, Y. (2021). "Mobile Payment: The Next Frontier of Payment Systems? An Empirical Study based on Push-Pull-Mooring Framework," *Journal of Theoretical and Applied Electronic Commerce Research*, (16:2), pp. 155-169 (doi: [10.4067/S0718-18762021000200111](https://doi.org/10.4067/S0718-18762021000200111)).
- Fishbein, M., and Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research* (Vol. 27). Addison-Wesley.
- Folkinshteyn, D., and Lennon, M. (2016). "Braving Bitcoin: A Technology Acceptance Model (TAM) Analysis," *Journal of Information Technology Case and Application Research*, (18:4), pp. 220-249 (doi: [10.1080/15228053.2016.1275242](https://doi.org/10.1080/15228053.2016.1275242)).
- Fu, J.-R. (2011). "Understanding Career Commitment of IT Professionals: Perspectives of Push-Pull-Mooring Framework and Investment Model," *International Journal of Information Management*, (31:3), pp. 279-293 (doi: [10.1016/j.ijinfomgt.2010.08.008](https://doi.org/10.1016/j.ijinfomgt.2010.08.008)).
- Furnham, A., and Okamura, R. (1999). "Your Money or Your Life: Behavioral and Emotional Predictors of Money Pathology," *Human Relations*, (52:9), pp. 1157-1177 (doi: [10.1177/001872679905200903](https://doi.org/10.1177/001872679905200903)).
- Gil-Cordero, E., Cabrera-Sánchez, J. P., and Arrás-Cortés, M. J. (2020). "Cryptocurrencies as a Financial Tool: Acceptance Factors," *Mathematics*, (8:11), pp. 1-16, Article 1974 (doi: [10.3390/math8111974](https://doi.org/10.3390/math8111974)).
- Gupta, J., and Garg, K. (2021). "Reflections on Blended Learning in Management Education: A Qualitative Study with a Push-Pull Migration Perspective," *FIIB Business Review*, pp. 1-14 (doi: [10.1177/23197145211013686](https://doi.org/10.1177/23197145211013686)).
- Handarkho, Y. D., and Harjoseputro, Y. (2019). "Intention to Adopt Mobile Payment in Physical Stores: Individual Switching Behavior Perspective based on Push-Pull-Mooring (PPM) Theory," *Journal of Enterprise Information Management*, (33:2), pp. 285-308 (doi: [10.1108/JEIM-06-2019-0179](https://doi.org/10.1108/JEIM-06-2019-0179)).

- Hsieh, J., Hsieh, Y., Chiu, H., and Feng, Y. (2012). "Post-adoption Switching Behavior for Online Service Substitutes: A perspective of the Push-Pull-Mooring Framework," *Computers in Human Behavior*, (28), pp. 1912-1920.
- Huang, W. L. (2019). "The Impact on People's Holding Intention of Bitcoin by Their Perceived Risk and Value," *Economic Research-Ekonomska Istrazivanja*, (32:1), pp. 3570-3585 (doi: [10.1080/1331677x.2019.1667257](https://doi.org/10.1080/1331677x.2019.1667257)).
- Hwang, Y. H., and Moon, Y. J. (2019). "A quantitative Model of Determinants of Use Behavior for the Cryptocurrency System in Terms of Security Concerns and Risks," *Journal of Theoretical and Applied Information Technology*, (97:17), pp. 4623-4635.
- Hyytinen, A., and Toivanen, O. (2005). "Do financial Constraints Hold Back Innovation and Growth?: Evidence on the Role of Public Policy," *Research Policy*, (34:9), pp. 1385-1403 (doi: [10.1016/j.respol.2005.06.004](https://doi.org/10.1016/j.respol.2005.06.004)).
- Kazerani, A., Rosati, D., and Lesser, B. (2017). "Determining the Usability of Bitcoin for Beginners using Change Tip and Coinbase," *Proceedings of the 35th ACM International Conference on the Design of Communication*, Nova Scotia, Canada.
- Khairuddin, I. E., Sas, C., Clinch, S., and Davies, N. (2016). "Exploring Motivations for Bitcoin Technology Usage," *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, California, USA.
- Kitchenham, B., and Charters, S. (2007). "Guidelines for Performing Systematic Literature Reviews in Software Engineering," *EBSE Technical Report* (doi: [10.1016/j.jss.2006.07.009](https://doi.org/10.1016/j.jss.2006.07.009)).
- Lee, W.-J., Hong, S.-T., and Min, T. (2018). "Bitcoin Distribution in the Age of Digital Transformation: Dual-path Approach," *Journal of Distribution Science*, (16:12), pp. 47-56 (doi: [10.15722/jds.16.12.201812.47](https://doi.org/10.15722/jds.16.12.201812.47)).
- Lee, S., Yoon, C., Kang, H., Kim, Y., Kim, Y., Han, D., Son, S., and Shin, S. (2019). "Cybercriminal Minds: An Investigative Study of Cryptocurrency Abuses in the Dark Web," *Network & Distributed System Security Symposium*, pp. 1-15 (doi: [10.14722/ndss.2019.23055](https://doi.org/10.14722/ndss.2019.23055)).
- Lei, S. U., Yuwei, J., Zhansheng, C., and Dewall, C. N. (2017). "Social Exclusion and Consumer Switching Behavior: A Control Restoration Mechanism," *Journal of Consumer Research*, (44:1), pp. 99-117 (doi: [10.1093/jcr/ucw075](https://doi.org/10.1093/jcr/ucw075)).
- Lenz, J., Bozakov, Z., Wendzel, S., and Vrhovec, S. (2023). "Why People Replace their Aging Smart Devices: A Push-Pull-Mooring Perspective," *Computers & Security*, (130), 103258.
- Liu, Z., Chen, S., Song, S., Zhu, Q., Zhao, Y., and Hansen, P. (2021). "Exploring Askers' Switching from Free to Paid Social Q&A Services: A Perspective on the Push-Pull-Mooring Framework," *Information Processing and Management*, (58:1) (doi: [10.1016/j.ipm.2020.102396](https://doi.org/10.1016/j.ipm.2020.102396)).
- Lu, Y. (2018). "Blockchain: A Survey on Functions, Applications and Open Issues," *Journal of Industrial Integration and Management*, (3:4), 1850015 (doi: [10.1142/s242486221850015x](https://doi.org/10.1142/s242486221850015x)).
- Mendoza-Tello, J. C., Mora, H., Pujol-López, F. A., and Lytras, M. D. (2019). "Disruptive Innovation of Cryptocurrencies in Consumer Acceptance and Trust," *Information Systems and e-Business Management*, (17:2-4), pp. 195-222 (doi: [10.1007/s10257-019-00415-w](https://doi.org/10.1007/s10257-019-00415-w)).
- Morkunas, V. J., Paschen, J., and Boon, E. (2019). "How Blockchain Technologies Impact Your Business Model," *Business Horizons*, (62:3), pp. 295-306 (doi: [10.1016/j.bushor.2019.01.009](https://doi.org/10.1016/j.bushor.2019.01.009)).
- Murko, A., and Vrhovec, S. L. R. (2019). "Bitcoin Adoption: Scams and Anonymity May Not Matter but Trust into Bitcoin Security Does," *Proceedings of the Third Central European Cybersecurity Conference*, Munich, Germany.
- Nabilou, H. (2019). "How to Regulate Bitcoin? Decentralised Regulation for a Decentralised Cryptocurrency," *International Journal of Law and Information Technology*, (27:3), pp. 266-291 (doi: [10.1093/ijlit/eaz008](https://doi.org/10.1093/ijlit/eaz008)).
- Nadeem, M. A., Liu, Z. Y., Pitafi, A. H., Younis, A., and Xu, Y. (2020). "Investigating the Repurchase Intention of Bitcoin: Empirical Evidence from China" *Data Technologies and Applications*, (54:5), pp. 625-642 (doi: [10.1108/dta-10-2019-0182](https://doi.org/10.1108/dta-10-2019-0182)).

- Nakamoto, S. (2008). "Bitcoin: A Peer-To-Peer Electronic Cash System," *Decentralised Business Review*, Article 21260 (<https://www.debr.io/article/21260-bitcoin-a-peer-to-peer-electronic-cash-system>).
- Nimako, S., and Ntim, B. (2013). "Construct Specification and Misspecification within the Application of Push-Pull-Mooring Theory of Switching Behaviour," *Journal of Business and Management Sciences*, (1), pp. 83-95 (doi: [10.12691/jbms-1-5-2](https://doi.org/10.12691/jbms-1-5-2)).
- Parasuraman, A. (2000). "Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies," *Journal of Service Research*, (2:4), pp. 307-320 (doi: [10.1177/109467050024001](https://doi.org/10.1177/109467050024001)).
- Paré, G., Trudel, M. C., Jaana, M., and Kitsiou, S. (2015). "Synthesizing Information Systems Knowledge: A Typology of Literature Reviews," *Information and Management*, (52:2), pp. 183-199 (doi: [j.im.2014.08.008](https://doi.org/j.im.2014.08.008)).
- Pavlou, P. (2003). "Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model," *International Journal of Electronic Commerce*, (7:3), pp. 101-134 (doi: [10.1080/10864415.2003.11044275](https://doi.org/10.1080/10864415.2003.11044275)).
- Presthus, W., and O'Malley, N. O. (2017). "Motivations and Barriers for End-User Adoption of Bitcoin as Digital Currency," *Procedia Computer Science*, (121), pp. 89-97 (doi: [10.1016/j.procs.2017.11.013](https://doi.org/10.1016/j.procs.2017.11.013)).
- Rogers, E. M. (1995). *Diffusion of Innovations*. The Free Press.
- Roussou, I., Stiakakis, E., and Sifaleras, A. (2019). "An Empirical Study on the Commercial Adoption of Digital Currencies," *Information Systems and e-Business Management*, (17:2-4), pp. 223-259 (doi: [10.1007/s10257-019-00426-7](https://doi.org/10.1007/s10257-019-00426-7)).
- Saif Almuraqab, N. A. (2020). "Predicting Determinants of the Intention to Use Digital Currency in the UAE: An Empirical Study," *Electronic Journal of Information Systems in Developing Countries*, (86:3), Article e12125 (doi: [10.1002/isd2.12125](https://doi.org/10.1002/isd2.12125)).
- Sas, C., and Khairuddin, I. E. (2017). "Design for Trust: An Exploration of the Challenges and Opportunities of Bitcoin Users," *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, Denver, Colorado, USA.
- Schaupp, L. C., and Festa, M. (2018). "Cryptocurrency Adoption and the Road to Regulation," *Proceedings of the 19th Annual International Conference on Digital Government Research: Governance in the Data Age*, Delft, The Netherlands.
- Shahzad, F., Xiu, G., Wang, J., and Shahbaz, M. (2018). "An Empirical Investigation on the Adoption of Cryptocurrencies among the People of Mainland China," *Technology in Society*, (55), pp. 33-40.
- Shen, X. L., Zhang, K. Z. K., and Zhao, S. J. (2016). "Herd Behavior in Consumers' Adoption of Online Reviews," *Journal of the Association for Information Science & Technology*, (67:11), pp. 2754-2765 (doi: [10.1002/asi.23602](https://doi.org/10.1002/asi.23602)).
- Shin, D. H. (2008). "Understanding Purchasing Behaviors in a Virtual Economy: Consumer Behavior Involving Virtual Currency in Web 2.0 Communities," *Interacting with Computers*, (20:4-5), pp. 433-446 (doi: [10.1016/S0953-5438\(08\)00025-8](https://doi.org/10.1016/S0953-5438(08)00025-8)).
- Sobhanifard, Y., and Sadatfarizani, S. (2019). "Consumer-Based Modeling and Ranking of the Consumption Factors of Cryptocurrencies," *Physica A: Statistical Mechanics and its Applications*, (528), Article 121263 (doi: [10.1016/j.physa.2019.121263](https://doi.org/10.1016/j.physa.2019.121263)).
- Sohaib, O., Hussain, W., Asif, M., Ahmad, M., and Mazzara, M. (2020). "A PLS-SEM Neural Network Approach for Understanding Cryptocurrency Adoption," *IEEE Access*, (8), pp. 13138-13150, Article 8933370 (doi: [10.1109/ACCESS.2019.2960083](https://doi.org/10.1109/ACCESS.2019.2960083)).
- Spiridonov, V. (2015). "Economical Approach to the Reasons of the Political Conflict in Libya: Analysis," *International Relations*, (1), pp. 109-116 (doi: [10.7256/2305-560X.2015.1.11280](https://doi.org/10.7256/2305-560X.2015.1.11280)).
- Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly*, (27:3), pp. 425-478 (doi: [10.2307/30036540](https://doi.org/10.2307/30036540)).

- Venkatesh, V., Thong, J. Y. L., and Xu, X. (2012). "Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology," *MIS Quarterly*, (36:1), pp. 157-178 (doi: [10.2307/41410412](https://doi.org/10.2307/41410412)).
- Walczuch, R., Lemmink, J., and Streukens, S. (2007). "The Effect of Service Employees' Technology Readiness on Technology Acceptance," *Information and Management*, (44:2), pp. 206-215 (doi: [10.1016/j.im.2006.12.005](https://doi.org/10.1016/j.im.2006.12.005)).
- Xie, R. (2019). "Why China Had to Ban Cryptocurrency but the US Did Not: A Comparative Analysis of Regulations on Crypto-Markets between the US and China," *Washington University of Global Studies Law Review*, (18), 457.
- Xin, L., and Run-Ze, W. (2021). "An Empirical Study on the Dairy Product Consumers' Intention to Adopt the Food Traceability's Technology: Push-Pull-Mooring Model Integrated by D&M ISS Model and TPB With ITM," *Frontiers in Psychology*, (11) (doi: [10.3389/fpsyg.2020.612889](https://doi.org/10.3389/fpsyg.2020.612889)).
- Yeong, Y. C., Kalid, K. S., and Sugathan, S. K. (2019). "Cryptocurrency Adoption in Malaysia: Does Age, Income and Education Level Matter?," *International Journal of Innovative Technology and Exploring Engineering*, (8:11), pp. 2179-2184 (doi: [10.35940/ijitee.K2035.0981119](https://doi.org/10.35940/ijitee.K2035.0981119)).
- Yi, hyphen, Shun, W., Yu, hyphen, Min, W., Hsin, hyphen, Hui, L., Tzung, hyphen, and Tang, I. (2003). "Determinants of User Acceptance of Internet Banking: An Empirical Study," *International Journal of Service Industry Management*, (14:5), pp. 501-519 (doi: [10.1108/09564230310500192](https://doi.org/10.1108/09564230310500192)).
- Yelowitz, A., and Wilson, M. (2015). "Characteristics of Bitcoin Users: An Analysis of Google Search Data," *Applied Economics Letters*, (22:13), pp. 1030-1036 (doi: [10.1080/13504851.2014.995359](https://doi.org/10.1080/13504851.2014.995359)).
- Yoo, K., Bae, K., Park, E., and Yang, T. (2020). "Understanding the Diffusion and Adoption of Bitcoin Transaction Services: The Integrated Approach," *Telematics and Informatics*, (53), Article 101302 (doi: [10.1016/j.tele.2019.101302](https://doi.org/10.1016/j.tele.2019.101302)).
- Yoon, H. S., and Barker, S. L. M. (2013). "Development of a Quantitative Model of the Impact of Customers' Personality and Perceptions on Internet Banking Use," *Computers in Human Behavior*, (29:3), pp. 1133-1141 (doi: [10.1016/j.chb.2012.10.005](https://doi.org/10.1016/j.chb.2012.10.005)).
- Zhang, K. Z. K., Cheung, C. M. K., Lee, M. K. O., and Chen, H. (2008). "Understanding the Blog Service Switching in Hong Kong: An Empirical Investigation," *Proceedings of the 41st Annual Hawaii International Conference on System Sciences (HICSS)*.
- Zulhuda, S., and Binti Sayuti, A. (2017). "Whither Policing Cryptocurrency in Malaysia?," *IIUM Law Journal*, (25:2), pp. 179-196 (doi: [10.31436/iiumlj.v25i2.342](https://doi.org/10.31436/iiumlj.v25i2.342)).

Copyright

Copyright © 2023 [Hemantha & Techatassanasoontorn]. This is an open-access article licensed under a [Creative Commons Attribution-Non-Commercial 3.0 Australia License](https://creativecommons.org/licenses/by-nc/3.0/australia/), which permits non-commercial use, distribution, and reproduction in any medium, provided the original author and ACIS are credited.