Investigating the unexpected determinants of cryptocurrency adoption in the UAE

Devid Jegerson and Charilaos Mertzanis
Abu Dhabi University, Abu Dhabi, United Arab Emirates, and
Mehmood Khan
University of Sharjah, Sharjah, United Arab Emirates

Received 11 June 2023
Revised 8 August 2023
Accepted 26 September 2023

Abstract

Purpose – Financial inclusion provides access to financial infrastructure, facilitating money transfers. Therefore, blockchain and cryptocurrencies might boost worldwide financial acceptance. However, the UAE has one of the lowest cryptocurrency adoption rates. This study explores the UAE customer adoption and use of cryptocurrencies.
Design/methodology/approach – Using a scale, the authors created a structural model and obtained 270 responses from a snowball-distributed online questionnaire, assessed by five cryptocurrency specialists.
Findings – Performance expectations (PE), price value (PV), Hedonic motivation (HM) and consumer innovativeness (CI) were the most significant predictors of behavioural intention (BI). Surprisingly, BI is not a reliable indication of actual consumption. Facilitating conditions (FC) are the most accurate predictor of cryptocurrency usage (CU), indicating that adoption might be increased by providing the necessary structures and processes to lead users.
Research limitations/implications – This research adds to the body of knowledge by examining the adoption and implementation of cryptocurrencies in the UAE and by developing and evaluating new constructs based on current notions. The study also contributes to the current understanding of cryptocurrencies and blockchain adoption.
Practical implications – The conclusions of the research advise marketers on how to boost the commercialisation of cryptocurrencies in the UAE market and may pave the way for other studies to assist impending developments in the UAE cryptocurrency industry.
Originality/value – This research offers novel insights into significant predictors of cryptocurrency product uptake in the financial and banking business.

Keywords Cryptocurrencies, Blockchain, Technology adoption, Financial inclusion
Paper type Research paper

(1) The study investigates cryptocurrency adoption in the United Arab Emirates (UAE), a region with notably low adoption rates.

(2) A structural model was developed using a scale, with data collected from 270 responses to an online questionnaire distributed via snowball sampling and assessed by five cryptocurrency specialists.

(3) Key determinants of Behavioural Intention (BI) were identified as Performance Expectations (PE), Price Value (PV), Hedonic Motivation (HM), and Consumer Innovativeness (CI).

(4) Unexpectedly, BI was found to be an unreliable indicator of actual cryptocurrency consumption.

(5) Facilitating Conditions (FC) emerged as the most accurate predictor of Cryptocurrency Usage (CU), suggesting that adoption can be increased by providing necessary structures and processes.

(6) The research contributes to understanding cryptocurrency and blockchain adoption in the UAE by examining and evaluating new constructs.

International Journal of Emerging Markets

1746-8809
DOI 10.1108/IJOEM-06-2023-0924

(7) Practical implications include informing marketers on strategies to boost cryptocurrency commercialisation in the UAE market and paving the way for future studies in the region's cryptocurrency industry.

(8) The study offers original insights into significant predictors of cryptocurrency product adoption in the financial and banking sector.

1. Introduction

1.1 Overview

Financial inclusion is vital for enabling people to transfer money because it allows access to the economic infrastructure that permits transfers between senders and receivers (Marcelin *et al.*, 2021). The money transfers between different countries are called remittances. Modernisation of financial institutions and other technological advancements have increased the need for digital currencies to facilitate smooth and real-time financial transactions (Zakaria *et al.*, 2019). In addition, individuals are an integral part of any digital system, such as smart cities, wise governments and economic systems, and their adoption preferences for digital currencies will determine the success of the technology. Consequently, digital currencies are a financial tool employed in the cybernetic market and the global economy (Almuraqab, 2020). In addition, different types of digital currencies are created via a peer-to-peer (P2P) mechanism to meet the financial needs of the market in the digital age (Taleizadeh *et al.*, 2022). However, due to the lack of government assistance, the existing financial structure and people do not accept this new technology. Consequently, government intervention is crucial in such a phenomenon (Rodima-Taylor and Grimes, 2017). In addition, this casts doubt on the likelihood of people adopting digital currency as an alternative form of currency.

According to Chainalysis (2022), as presented in Figure 1, global cryptocurrency use is growing, albeit with a slowdown since mid-2019. The Global Crypto Adoption Index (GCAI) suggests increased quarterly adoption across 154 countries, with Vietnam leading worldwide. The US ranked fifth, excelling in all sub-indices except population and purchasing power-adjusted P2P exchange usage. China re-entered the top ten with a solid performance in centralised service consumption. The Middle East and North Africa (MENA) region displayed a 1,500% growth in activity in 2021, yet the adoption rates in individual countries like UAE and KSA still needs to be higher.

Central banks are exploring digital currencies in response to cryptocurrency's rising popularity among investors. The UAE Central Bank, for instance, has initiated its Digital Dirham plan to enhance the country's financial infrastructure ("UAE Central Bank starts implementing

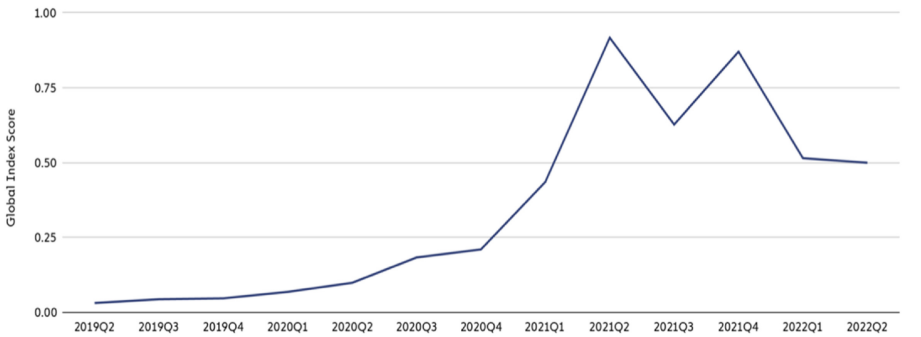


Figure 1.
Global Crypto Adoption Index time scaled quarterly from Q2 2019

Source(s): Chainalisys (2022)

Digital Dirham strategy", n.d.). Aimed at easing domestic and cross-border payments, increasing financial inclusion and transitioning to a cashless society, the Digital Dirham is an instance of Central Bank Digital Currencies (CBDCs) (Bis, 2022). As digital representations of government-issued currencies, CBDCs are anticipated to bring stability to the turbulent cryptocurrency sector and provide a safer mechanism for digital asset transfers (Ozili, 2023).

Blockchain and cryptocurrency technologies are popular topics for many new payment platforms, notably financial apps, although the UAE consumer adoption is minimal (Chainalysis, 2022). Researchers are investigating why consumers still avoid cryptocurrency. To prevent data loss and control, most consumers utilise expensive conventional banking services (Martins *et al.*, 2014). Thus, this study studied the UAE consumer cryptocurrency adoption behaviours and usage.

In the UAE, cryptocurrency adoption is navigating a complex regulatory landscape and cultural dynamics, reflecting a cautious yet growing interest (Almuraqab, 2020). Understanding these factors is pivotal, given the UAE's strategic position in global finance and its ambitious vision to become a leading hub for innovative financial technologies.

The study uses IDT (innovation diffusion theory) and UTAUT2 (unified theory of acceptance and use of technology) to address the following research questions:

(1) Are the UAE consumers willing to utilise cryptocurrency?

(2) What variables impact consumer intention to use cryptocurrency?

(3) What factors influence people's actual usage of cryptocurrency?

The UAE pioneered blockchain technology and virtual currencies but must adopt cryptocurrencies fully. The study builds on the foundational technology adoption theories, extending prior findings by focusing on cryptocurrency usage in the UAE. Unlike previous works, we explore specific behavioural intentions and usage, offering a novel quantitative assessment that yields fresh insights into consumer adoption patterns.

The study identifies performance expectations (PE), price value (PV) and facilitating conditions (FC) as essential factors influencing cryptocurrency intention to adopt, despite only FC being significant for cryptocurrency usage (CU). Being evidence that the country is prepared to engage in more comprehensive reforms and structural modifications, this research uniquely extends and supplies the existing academic literature and industry professional knowledge by quantitatively assessing consumer adoption of cryptocurrencies in the UAE, revealing novel predictors and challenging traditional technology acceptance models.

The paper unfolds sequentially, encompassing literature on cryptocurrency in Section 2 and adoption theories in Sections 3 and 4, with subsequent sections delineating findings, discussions and a conclusion.

2. Literature review

Cryptocurrencies enable fast, anonymous and decentralised transactions through cryptographically signed digital tokens, presenting as both a technology and a service (Shin and Rice, 2022). Bitcoin, introduced by Satoshi Nakamoto, is a trustless currency, eradicating the need for transaction verification by intermediaries (Nakamoto, 2008). Nakamoto aimed to resolve issues such as excessive transaction fees and double spending in digital exchanges, utilising a distributed network to maintain a central, timestamped public ledger of trades (Abramova and Böhme, 2016; Khedr *et al.*, 2021).

Bitcoin employs public-private key encryption, a common practice in electronic commerce and communication (Alsalami and Zhang, 2019). Each cryptocurrency owner has a key pair, with the public key likened to an email address and the private key granting the authority to send received cryptocurrencies (Almuraqab, 2020; Gil-Cordero *et al.*, 2020). The cryptocurrency

industry consists of exchanges, wallets, payments and mining. Users trade fiat money for digital coins through exchanges and store private keys in their wallets. Use cases include the medium of exchange, non-monetary uses, speculative digital asset/investment and payment rail for cross-border transactions. Economists need more taxonomy consensus to clarify (Schuh and Shy, 2016).

Cryptocurrencies impact individuals, businesses and regulators, offering a trust-less network for value transfer, which can expedite payments at advantageous exchange rates and reduce transaction costs (Elbahrawy *et al.*, 2017; Rejeb *et al.*, 2024; Sobhanifard and Sadatfarizani, 2019).

Research on cryptocurrency adoption is varied, focusing on acceptance as adoption decisions and examining trust, security and perceived risk as adoption antecedents (Albayati *et al.*, 2020; Alqaryouti *et al.*, 2020; Alzahrani and Daim, 2019; Arias-Oliva *et al.*, 2021; Nadeem *et al.*, 2020). Comprehensive understanding necessitates a combined analysis of these studies.

3. Theoretical background

This study scrutinises the drivers of cryptocurrency adoption and usage in the UAE. Prior research on cryptocurrency adoption is mainly inconclusive, with some studies focusing on behavioural intent rather than actual adoption (Santhanamery and Ramayah, 2018; Viswanath Venkatesh, 2012). Theories like the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT) have been widely used to explain initial acceptance and sustained usage of new technologies (Venkatesh *et al.*, 2003).

The C-TAM-TPB model, developed by Taylor and Todd (1995), combines TAM and theory planned behaviour (TPB) to predict attitudes and behaviours (Safeena *et al.*, 2013). However, theories like TAM and UTAUT and social cognitive theory (SCT) must improve their ability to fully explain users' engagement beyond initial exposure (Garg *et al.*, 2021).

UTAUT, first formulated in 2003, provides a comprehensive view of IT usage, identifying performance expectations, effort expectations, social influence and facilitating conditions as critical to technology adoption (Venkatesh *et al.*, 2003). UTAUT was further refined to UTAUT2 by Viswanath Venkatesh (2012) to better address consumer technology adoption, especially in the mobile applications context, by including hedonic motivation, price value and habit.

However, UTAUT2's novelty and consumer-centric approach has not been extensively tested in varied contexts or with different technologies (Gil-Cordero *et al.*, 2020). Thus, understanding the factors affecting cryptocurrency adoption necessitates further investigation.

3.1 Perceived risk

Trust is crucial for financial transactions and perceived risk (PR), the notion of potential negative consequences, is an influential factor in consumer behaviour (Wu and Du, 2017). PR significantly influences the adoption of new technologies, such as internet banking, mobile payments and now cryptocurrencies. However, positive user emotions can reduce PR, enhancing perceived utility (Wu *et al.*, 2017).

PR's role is pronounced in offline and online commerce due to potential privacy concerns (Yan and Pan, 2015). Koenig-Lewis *et al.* (2015) confirmed the importance of security in financial services. Trust, perceived usefulness and utility are critical for e-commerce transactions (Hossain and Zhou, 2018a). Zhou (2012) and Yan and Pan (2015) concluded that structural security significantly affects trust and PR.

However, the diversity of providers and technologies in the cryptocurrency sector could increase PR (Slade *et al.*, 2013). PR and trust influence price stability, a significant barrier to wide cryptocurrency adoption (Haran, 2017). Given the precise impact of PR in fostering user adoption, understanding its role in cryptocurrency adoption is dominant (Alalwan *et al.*, 2017).

3.2 Innovation

IDT states that people's propensity to innovate affects the information sources they use when adopting technology (Rogers, 1995). Many researchers have defined IDT as innovation based. Rogers and Shoemaker (1971) defined inventive capacity as the degree to which a person grasps new ideas before others in the social system. According to Midgley and Dowling (1978), innovation depends on people's willingness to try new things and make decisions without considering others' experiences. Hurt *et al.* (1977) define innovation as change. Agarwal and Prasad (1998) explained innovation as trying new information technology. Innovation affects the history and results of system perspectives; hence, more studies employ it as both an independent variable and a moderator (Agarwal and Prasad, 1998; San Martín and Herrero, 2012). Agarwal and Prasad (1998) found that imaginative people judge innovations more favourably given the same informational conditions. According to research, consumer innovativeness (CI) impacts cognition and decision-making (Gatignon and Robertson, 1985; Rogers, 1995). Agarwal and Prasad (1998) and Dabholkar and Bagozzi (2002) found that information technology innovation moderates system perceptions.

3.3 Research model and hypothesis development

After studying the cryptocurrency and technology adoption literature, we opted to base our study on Alalwan *et al.* (2017) and Almuraqab (2020) mobile banking and cryptocurrency acceptance research with slight revisions. The research was based on IDT's CI construct, Gefen *et al.* (2005)'s PR construct and Venkatesh *et al.* (2012)'s UTAUT2. It was chosen since the initial UTAUT2 instrument had concept and item validity. Given Malaysia's cryptocurrency uncertainty and risk, PR was considered essential (Omane-Adjepong and Alagidede, 2020; Zakaria *et al.*, 2019). This study does not employ the UTAUT2 model structures. Alalwan *et al.* (2017) and Koenig-Lewis *et al.* (2015) argue that adding additional ideas to the conceptual framework will complicate the research instrument. Our research model eliminated most UTAUT2 components since Bitcoin is still young. Since creative people are more likely to take technological risks, researchers suggest including CI in studies (Oliveira *et al.*, 2016).

In contrast to Alalwan *et al.* (2017) and based on Venkatesh *et al.* (2012), we considered the moderating effects of age and gender, but due to our small sample size, this was unlikely to be practical. The analytical procedure outlined later in the text was used to ascertain how theoretical concepts influenced the relationships between constructs. Thus, how PR influences behavioural intention (BI) was not adequately examined. Statistics alone cannot analyse causality (Kline, 2016). The following theories are supported by statistical testing and UTAUT2 and previous studies.

3.4 Hypotheses

Godoe and Johansen (2012) found that innovation improves technology usability and usefulness. Thus, this individual component improves cryptocurrency readiness and encourages its use (Sohaib *et al.*, 2020). Following IDT, this research hypothesised that the capacity to innovate would be the most significant indication of intent to utilise cryptocurrencies:

H1. CI positively affects BI.

Because of financial technology, PR affects mobile banking and Internet commerce (Alalwan *et al.*, 2017; Gefen *et al.*, 2005; Yan and Pan, 2015; Zhou, 2012). Cryptocurrency mainstreaming has caused several issues. PR should hinder Bitcoin adoption. This study neglected possible antecedents and considered PR as a unitary entity since it focused on generic processes rather than PR:

H2. PR negatively influences consumers' BI.

PE is how much technology can provide benefits like customizability, simplicity and decreased overhead (Viswanath Venkatesh, 2012). PE drives user and usage behaviour in information technology (IT) and information systems (IS) literature (Davis, 1989). It was found that clients generally perform cost-benefit evaluations while implementing new technologies (Venkatesh *et al.*, 2016). Thus, users value more features and advantages, notably in online banking, to increase the price of such equipment (Venkatesh *et al.*, 2003). Rogers (Rogers, 1995b) believed customers needed to accept innovation to gain from it. As said, these benefits match performance expectations.

Since new types of cryptocurrency usage compete with established ones, it stands to reason that users' expectations of how well cryptocurrencies would perform play a role in shaping their propensity to engage in a particular action. Furthermore, it was shown that PE reliably and significantly predicted BI. The third hypothesis that emerges from this is as follows:

H3. PE will significantly influence a consumer's BI.

The effort required in UTAUT2 characterises the ease with which consumers may use new technologies (Viswanath Venkatesh, 2012), which creates a positive attitude and intention towards such an innovative medium (Merhi *et al.*, 2019). Numerous empirical studies have shown that effort expectation or associated factors like perceived ease of use (Rodrigues *et al.*, 2016; Zhou, 2018) positively affect user intent to utilise technology. However, according to Davis (1989), users must still weigh the time and effort required to utilise technology effectively against its benefits and advantages. Furthermore, according to an empirical study, customers' performance expectations are higher if the technology is easy to use, which affects its adoption (Alalwan *et al.*, 2017; Beh *et al.*, 2021).

Cryptocurrencies need technical knowledge due to the complexity of technology and business offers. Thus, its use requires expertise with a dynamic ecosystem of cryptocurrencies, each with its exchanges, wallets and quirks. In addition, governments, financial institutions and retailers who accept cryptocurrencies occasionally require information regarding cryptocurrency management or acceptance organisations. Thus, cryptocurrency troubles are expected. This supports the following hypothesis:

H4. EE will significantly influence a consumer's BI.

Social influence (SI) is familial pressure to use technology (Viswanath Venkatesh, 2012). Many scholars' studies on SI showed its importance in predicting a person's desire to use and accept various technological advancements, such as wearable technology (Lunney *et al.*, 2016), mobile wallets (Patil *et al.*, 2020), mobile health adoption (Duarte and Pinho, 2019), mobile commerce (Shaw and Sergueeva, 2019), mobile (Merhi *et al.*, 2019) and internet banking (Alalwan *et al.*, 2017). In addition, new products and services in early development may have a significant social effect, especially if they need more technological understanding (Adapa *et al.*, 2018).

Cryptocurrencies' decentralised transaction structure, blockchain networks and consensus process imply social impact (Dickinger *et al.*, 2008). Network effects drive Bitcoin growth and the community encourages adoption. Money is the broad social contract that exchanges items with inherent value for promissory notes with expected future value (Bjerg, 2016). Therefore, the social impact of adoption is crucial, at least financially. Social factors also impact mobile banking and m-payments. Thus, the social impact should enhance behaviour. The fifth hypothesis is supported:

H5. SI will significantly influence a consumer's BI.

Hedonic motivation (HM), according to Viswanath Venkatesh (2012), is the pleasure of employing technology. These feelings—the users' hedonic incentive—drive technological adoption (van der Heijden, 2004). Cryptocurrencies are also a part of contemporary life, which benefits consumers who want innovation and novelty (Riffai *et al.*, 2012). Studies also

demonstrate that customers are likelier to utilise technology while doing fun things. Thus, technology gets value (e.g. inexpensive value and performance expectancy). In customer-related studies, HM is predictive. Despite cryptocurrency's advantages, research shows that hedonic incentive is contextual and impacts intent. This study's focus on consumer acceptance may benefit. Thus, the sixth hypothesis:

H6. HM will significantly influence a consumer's BI.

PV is the cognitive balance between financial cost and technological adoption (Viswanath Venkatesh, 2012). Individuals pay for new technologies. Thus, users consider cost-benefit analysis before adopting technology. People are more inclined to adopt pricey technologies than cheap ones (Beh *et al.*, 2021). Studies have revealed that user acceptance intention is inexpensive (Alalwan *et al.*, 2017; Merhi *et al.*, 2019). Current marketing literature balances cost-price analysis with product quality and user advantages when analysing the product value (Beza *et al.*, 2018; Merhi *et al.*, 2019). The seventh hypothesis:

H7. PV will significantly influence a consumer's BI.

Having relief conditions means believing a new technology's technical infrastructure is ready to utilise (Viswanath Venkatesh, 2012). Several studies suggest that alleviating situations is the main reason users use technology (Beh *et al.*, 2021; Beza *et al.*, 2018; Venkatesh *et al.*, 2003). Thus, in this research, FC refers to the resources needed (interconnectivity and flexibility of usage on any IT device, including smartphones, tablets and others) and the essential abilities required to complete a cryptocurrency transaction. Cryptocurrencies can only be utilised with other systems. Thus, FC should be a critical factor in the cryptocurrency's purpose. The eighth hypothesis states:

H8. FC will significantly influence a consumer's BI.

H9. FC will significantly influence cryptocurrency usage.

Following Wu and Du (2017), this research examines both impacts on BI and CU in two phases since BI predicts actual usage. It's important to note that BI does not directly predict CU. However, UTAUT2 suggests a significant influence. The tenth hypothesis states:

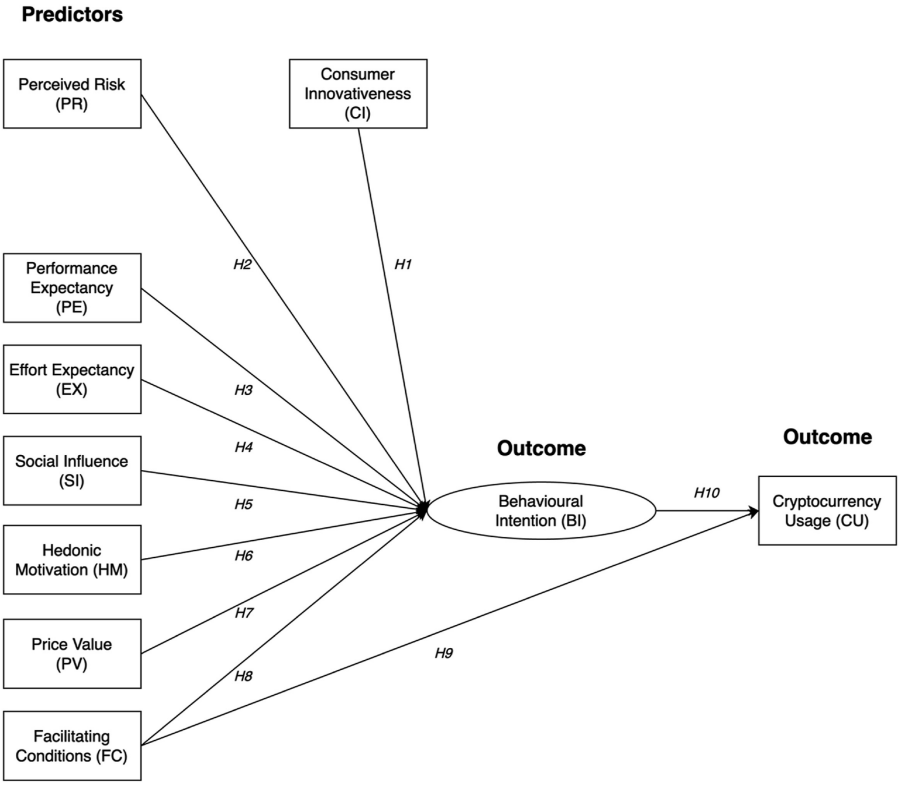
H10. BI will significantly influence the consumer's usage of cryptocurrency.

The following conceptual model, presented in Figure 2, is offered based on the assumptions above and the hypotheses.

4. Materials and methods

4.1 Methodology

This study used a focused, quantitative deductive approach to investigate the UTAUT2 adoption hypothesis regarding BI and CU, specifically Bitcoin, due to its popularity and the complexity of cryptocurrencies (Saunders and Lewis, 2018). The sample was concentrated on Internet users familiar with Bitcoin to differentiate the adoption of Internet technologies and cryptocurrencies. The sample consisted of young, wealthy, tech-savvy male participants predominantly utilising internet banking in the UAE. Considering the anonymity of cryptocurrency users, snowball sampling was employed, leveraging previous respondents to identify new ones. While effective in reaching a specific audience, this method may limit the generalizability of findings to broader demographics. Despite potential biases leading to sample homogeneity, this approach was chosen due to the ease of electronic survey distribution and the prohibitive costs of alternative methods. In addition, a stratified random sampling technique ensures representativeness across different demographic groups in selecting the sample for this study. Statistical analyses, including chi-square tests for categorical variables and *t*-tests for continuous variables, determine the data's relationships



Source(s): Figure by authors

Figure 2.
Research model of the study with expected predictors and outcome

and differences. The study aimed to discern the influencing variables driving consumer acceptance, intended use and actual use of cryptocurrencies.

4.2 Population and sample size

The survey has at least 20 responses per condition (Wegner, 2016). Structural equation modelling required a 20:1 sample-to-data ratio to evaluate interactions (Osborne and Costello, 2004). Testing three hypotheses needed 60 responses. We increased the sample size to 100 to account for pointless instances. We tentatively projected a 20% response rate. A minimum sample size of 100 responses required 500 respondents. Time constraints forced this aim.

4.3 Survey design

This study utilised an electronic survey to gauge cryptocurrency use, addressing the pseudo-anonymous nature of such technologies (Bohr and Bashir, 2014). The survey, offered in English and Arabic, was piloted among a small group of Bitcoin users. The survey incorporated Likert-scale items from established scales to measure PR, CI and BI (Agarwal and Prasad, 1998; Gefen *et al.*, 2003; Lee, 2009; Viswanath Venkatesh, 2012). Semi-structured interviews with the UAE Bitcoin startup staff and industry experts validated the scales. Demographic data, though not part of the model, were deemed essential. Table 1 summarises the measurement items used for the scale.

Constructs	Items		Sources
Perceived risk (PR)	PR1	I think it is risky to use cryptocurrencies without any legal framework to back them up	Lee (2009), Gefen *et al.* (2003)
	PR2	I think it is dangerous to use cryptocurrencies because they are volatile	
	PR3	I think it is risky to use cryptocurrencies because of attacks and illegal activities	
	PR4	I consider the use of cryptocurrencies risky due to cryptographic failures in electronic devices	
Consumer innovativeness (CI)	CI1	I heard about a new information technology of the cryptocurrency, I would look for ways to experiment with it	Agarwal and Prasad (1998)
	CI2	Among my peers, I am the first one to try out new information technologies	
	CI3	In general, I am not hesitant to try out new information technologies	
	CI4	I like to experiment with new technologies	
Performance expectancy (PE)	PE1	I find cryptocurrencies useful in my daily life	Alalwan *et al.* (2017), Viswanath Venkatesh (2012)
	PE2	Using cryptocurrencies increases my chances of achieving tasks that are important to me	
	PE3	Using cryptocurrencies and related services (wallets, exchanges) helps me accomplish tasks more quickly	
	PE4	Using Cryptocurrencies increases my productivity	
Effort expectancy (EE)	EE1	Learning how to use cryptocurrencies is easy for me	Alalwan *et al.* (2017), Davis (1989), Shahzad *et al.* (2018), Venkatesh and Davis (2000), Viswanath Venkatesh (2012)
	EE2	My interaction with cryptocurrencies and related services is clear and understandable	
	EE3	I find cryptocurrencies and related services easy to use	
	EE4	It is easy for me to become skilful at using cryptocurrencies	
Social influence (SI)	SI1	People who are important to me think that I should use cryptocurrencies	Ajzen (1991), Alalwan *et al.* (2017), Thompson *et al.* (1991), Viswanath Venkatesh (2012)
	SI2	People who influence my behaviour think that I should use cryptocurrencies	
	SI3	People whose opinions I value prefer that I use cryptocurrencies	
Facilitating conditions (FC)	FC1	I have the resources necessary to use cryptocurrencies	Ajzen (1991), Beza *et al.* (2018), Taylor and Todd (1995), Thompson *et al.* (1991), Venkatesh *et al.* (2003, 2012)
	FC2	I have the knowledge necessary to use cryptocurrencies	
	FC3	Cryptocurrencies and related services are compatible with other technologies I use	
	FC4	I can get help from others when I have difficulties using cryptocurrencies and related services	
Hedonic motivation (HM)	HM1	Using cryptocurrencies is fun	Beza *et al.* (2018), Escobar-Rodríguez and Carvajal-Trujillo (2014), Venkatesh *et al.* (2012)
	HM2	Using cryptocurrencies is enjoyable	
	HM3	Using cryptocurrencies is entertaining	

(*continued*)

Table 1. Measurement items

Constructs	Items		Sources
Price value (PV)	PV1	Cryptocurrencies services (e.g. wallets and exchanges) are reasonably priced	Beza *et al.* (2018), Escobar-Rodríguez and Carvajal-Trujillo (2014), Viswanath Venkatesh (2012), Wen (2009)
	PV2	Cryptocurrencies services (e.g. wallets and exchanges) offer good value for money	
	PV3	At the current price, using cryptocurrencies and related services provides good value	
Behavioural intention (BI)	BI1	I intend to use cryptocurrencies in the future	Chen (2016), Davis (1989), Hossain and Zhou (2018b), Shareef *et al.* (2011), Venkatesh *et al.* (2003, 2012, 2016)
	BI2	I plan to use cryptocurrencies in future	
	B3	I currently prefer to use cryptocurrencies	
	B4	If cryptocurrency is unavailable as a payment method, I would request it	

Table 1. **Source(s):** Table by authors

5. Results

A structural equation modeling (SEM) approach was utilised in our study. The model's construction involved defining relationships between variables, following a step-by-step iterative process, and ensuring alignment with our research objectives.

5.1 Descriptive analysis

We utilised the Google Form survey administration platform to gather data and IBM® SPSS® AMOS software to analyse the data (version 26). As a result, 270 of the 300 respondents to the online poll were members of the target demographic and were familiar with Bitcoin and other cryptocurrencies. Table 2 summarises demographic information. "Frequency" is the number of respondents, while "Valid percent" is the percentage of respondents that provided accurate responses.

5.2 Measures of reliability

The study's data screening began by addressing missing values, unengaged responses and potential irregularities using median substitution, ocular evaluation and SPSS boxplots. Subsequent normality tests indicated acceptable skewness and kurtosis. Construct reliability was confirmed by Cronbach's alpha values exceeding 0.70, indicating internal statement consistency (Andy Field, 2012). This affirmed the reliability of the study model for all latent variables. A Kaiser–Meyer–Olkin measure of 0.931 and significant Bartlett's tests supported the model's adequacy. In the CFA results presented in Table 3, significant factor loadings range from 0.65 to 0.92, indicating a solid alignment with our theoretical expectations. The high loadings affirm the constructs' robustness, while low loadings on certain items highlight areas for further exploration, providing nuanced insights into the underlying structure of the variables.

Confirmatory factor analysis was conducted to validate the measurement model, calculating various fit indices like χ^2/DF, GFI, RFI, NFI, CFI, TLI, IFI and RMSEA, alongside assessing confirmatory factor loadings, average variance extracted (AVE) and composite reliability (CR). Results indicated the model's adequate fit to the data. For instance, the χ^2/DF ratio and RMSEA index were within the acceptable thresholds (Kline, 2016). Similarly, factor loadings exceeded the 0.70 threshold, and correlation coefficients were below 0.80. Following recent methodological advancements, we employed the χ^2/DF ratio and RMSEA indices, rather than using the χ^2/DF ratio alone, to comprehensively evaluate the model fit (Giglio and De Maio, 2022).

	Frequency	Valid percent
Gender		
Female	82	30.7
Male	181	67.8
Prefer not to say	4	1.5
Total	267	100.0
Age		
18–29	77	28.8
30–44	131	49.1
45–59	56	21.0
60+	3	1.1
Total	267	100.0
Nationality		
Non-UAE national	193	72.3
UAE national	74	27.7
Total	267	100.0
Level of education		
Bachelors	88	33.0
High school/diploma	34	12.7
Masters	130	48.7
PhD/DBA/equivalent	15	5.6
Total	267	100.0
Cryptocurrency usage frequency		
Never	143	53.6
Once a year	29	10.9
Several times a year	44	16.5
Once a month	7	2.6
Several times a month	21	7.9
Several times a week	18	6.7
Several times a day	5	1.9
Total	267	100.0

Source(s): Table by authors

Table 2. Respondents' demographic and use profiles

Convergent and discriminant validity were confirmed with AVE values above 0.5 and CR values surpassing AVE values, with the latter also affirming that the squared correlations between constructs were smaller than the AVE for each construct. CR values exceeded the 0.6 threshold, indicating the model's acceptable reliability (Kline, 2016). The fit indices in Table 4, including CFI, TLI and RMSEA, collectively confirm a satisfactory fit of the measurement model, validating our methodological approach.

5.3 Hypothesis testing

Two outcome variables are included in the hypothesised model; hence two primary multiple linear regressions are done. BI, which is predicted by PR, CI, PE, SI, HM and Effort Expectancy (EE), PV, FC and CU, which BI and FC predict, are the two outcome variables.

The first outcome variable BI addresses hypotheses H1 (CI), H2 (PR), H3 (PE), H4 (EE), H5 (SI), H6 (HM), H7 (PV) and H8 (FC). Except for PR, which has a negative impact on BI, all expected effects are positive, i.e. raising BI. Table 3 displays the bivariate Pearson correlations, which reveal statistically significant positive correlations with a 99.99% confidence level for all constructs. The number of bivariate correlation coefficients is zero or

Table 3. Cronbach alpha value, composite reliability (CR), average variance extracted (AVE) and intercorrelation matrix

	M	SD	α	CR	AVE	BI	PR	CI	PE	EE	SI	FC	HM	PV
BI	3.29	1.08	0.871	0.851	0.658	–								
PR	3.56	0.96	0.837	0.839	0.568	−0.233**	–							
CI	3.64	0.91	0.773	0.730	0.478	0.510**	0.246**	–						
PE	2.62	1.13	0.942	0.939	0.794	0.659**	−0.200*	0.458**	–					
EE	3.00	1.09	0.923	0.916	0.733	0.526**	−0.191*	0.523**	0.622**	–				
SI	2.82	1.05	0.890	0.890	0.730	0.556**	−0.142	0.347**	0.622**	0.476**	–			
FC	3.16	0.09	0.824	0.772	0.531	0.471**	−0.166*	0.499**	0.479**	0.730**	0.446**	–		
HM	2.91	1.13	0.942	0.940	0.839	0.615**	0.231**	0.460**	0.638**	0.621**	0.507**	0.513**	–	
PV	2.98	0.99	0.877	0.857	0.667	0.620**	−0.153	0.398**	0.637**	0.566**	0.551**	0.589**	0.568**	–

Source(s): Table by authors

Fit indices	Proposed theoretical framework	Acceptable level	Recommended value
χ^2	1649.096		N/A
Scaled χ^2/df	1.489		>1 and < 3
Goodness of fit index (GFI)	0.872	0 (no fit) to 1 (perfect fit)	0.90
Comparative fit index (CFI)	0.967	0 (no fit) to 1 (perfect fit)	0.90
Relative fit index (RFI)	0.895	0 (no fit) to 1 (perfect fit)	0.90
Tucker–Lewis index (TLI)	0.961	0 (no fit) to 1 (perfect fit)	0.90
Normed fit index (NFI)	0.911	0 (no fit) to 1 (perfect fit)	0.90
Incremental fit index (IFI)	0.967	0 (no fit) to 1 (perfect fit)	0.90
Root mean square approximation method (RMSEA)	0.045	0.05 to 0.08	0.08

Source(s): Table by authors

Table 4. Fit indices of the proposed model

less. This confirms the validity of the predicted effect study. We utilised regression coefficients to see if the contribution of each variable was statistically significant, so testing the hypothesis' validity further. The variance reflected the total contribution of the variables explained (R2), indicating that the six predictor factors account for 56.3% of the variance in BI. ANOVA must be used for significance testing. With a p-value of less than 0.001 ($F = 43{,}773$), the result is statistically significant and a good fit for the data.

Since PR, EE, SI and FC do not have a statistically significant effect at the 95% confidence interval ($p > 0.05$), Table 5 findings disprove the hypotheses H2, H4, H5 and H6. PV is the best predictor among the statistically significant effects, followed by PE and CI. Therefore, H1, H3, H7 and H8 are acceptable hypothesis.

CU's second outcome variable addresses hypotheses H9 (FC) and H10 (BI). A correlation matrix exhibiting statistically significant relationships is provided in Table 6. According to multiple regression findings, BI and FC account for 10.3% of the CU variance. ANOVA analysis suggests that the model is significant. The coefficient table is shown in Table 7.

Model	Unstandardized coef B	Unstandardized coef Std. Error	Standard Beta	t	Sig	Hypotheses decision
(Constant)	0.562	0.297		1.891	0.060	
Consumer innovativeness (CI)	0.222	0.060	0.187	3.706	0.000	H1 Accepted
Perceived risk (PR)	−0.055	0.047	−0.049	−1.168	0.244	H2 Rejected
Performance expectation (PE)	0.226	0.062	0.236	3.612	0.000	H3 Accepted
Effort expectancy (EE)	−0.031	0.068	−0.031	−0.450	0.653	H4 Rejected
Social influence (SI)	0.137	0.056	0.133	2.444	0.015	H5 Accepted
Hedonic motivation (HM)	0.189	0.056	0.198	3.369	0.001	H6 Accepted
Price value (PV)	0.249	0.065	0.229	3.847	0.000	H7 Accepted
Facilitating conditions (FC)	−0.019	0.073	−0.017	−0.266	0.790	H8 Rejected

Source(s): Table by authors

Table 5. Regression coefficient outcomes and hypothesis decisions for the dependent variable of behavioural intention (BI)

Hypothesis H9 is an acceptable hypothesis being statistically significant (0.000), meaning that the FC positively affects CU. However, BI has no statistically significant effect at the 95% confidence interval ($p > 0.05$); hence, H9 is rejected.

6. Discussion

The model could explain 57.8% of the variation in BI and 10.3% of CU (p-value 0.05). Each of the two regressions is significant. Figure 3 represents the final model with all the factors' impacts.

This study sampled young, wealthy, tech-savvy male participants, predominantly using internet banking, deemed valid for multiple linear regression. The research aimed to identify factors influencing consumers' decisions to use cryptocurrencies. PE, PV, HM, and CI emerged as the strongest predictors of BI for cryptocurrency use, thus challenging the reliance on perceived ease of use. Consistent with existing literature, CI and FC substantially predicted BI, while SI also significantly influenced BI, aligning with the IDT. Interestingly, BI did not reliably indicate actual adoption, supporting Wu and Du (2017) argument that BI does not substitute for actual usage. FC most reliably predicted CU, suggesting that directed mechanisms and procedures may boost adoption. However, further research is needed to explain usage, as the adjusted R-squared score is only 10.3% comprehensively.

7. Conclusion

This study presents the first quantitative assessment of the characteristics influencing consumer adoption and usage of cryptocurrencies in the UAE, using a modern framework of technology adoption theory. Consequently, this study is the first step in statistically analysing a unique consumer technology with no resemblance to its antecedents. The given data should thus be viewed in light of the current state of cryptocurrencies at the time of presentation.

The purpose of this study was to address the following research questions:

RQ1. Are consumers willing to utilise cryptocurrency?

RQ2. What variables impact consumer intention to use cryptocurrency?

RQ3. What factors influence people's actual usage of cryptocurrency?

Table 6. The correlation matrix for the dependent variable for cryptocurrency use

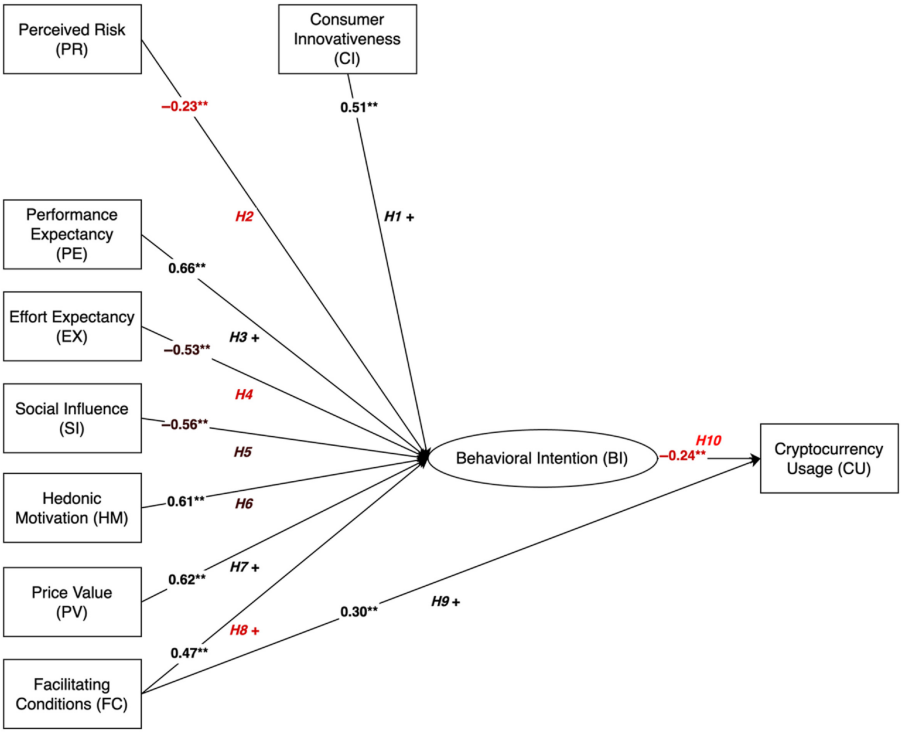
	CU	BI	FC
CU	–		
BI	−0.239**	–	
FC	0.302**	0.471**	

Note(s): **Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)
Source(s): Table by authors

Table 7. Cryptocurrencies usage (CU) as the dependent variable for determining regression coefficients and testing hypotheses

Model	B	Std. Error	Beta	t	Sig	Hypotheses decision
(Constant)	0.088	0.539		0.164	0.870	
Facilitating conditions (FC)	0.153	0.042	0.244	3.688	0.000	H9 Accepted
Behavioural intention (BI)	0.069	0.037	0.125	1.889	0.060	H10 Rejected

Source(s): Table by authors



Source(s): Figure by authors

Figure 3.
Final model including all impacts

Early data supported the results of earlier researchers who determined that investments were the most prevalent use. Consequently, users seldom see cryptocurrencies as money, impacting the technology's status. The solution to RQ3 is that facilitating circumstances centred on FC have the most significant potential to enhance adoption.

The findings of this study, which were utilised to answer the research mentioned above question (RQ2), revealed that PE, PV, HM, SI and CI were the most accurate predictors of future cryptocurrency intention to adopt in the context of international money transfers. Still, only the FC predicts the practical usage. This study reveals insights into cryptocurrency adoption and usage, challenging and enriching existing theories (Alqaryouti *et al.*, 2020; Wu and Du, 2017). These findings uniquely contribute to the existing literature by examining a context-specific application in the UAE, extending the theoretical framework to include region-specific nuances (Almuraqab, 2020). The findings thus offer fresh insight into this innovative technique. However, examining complementary models and components is necessary to increase the model's explanatory power.

In terms of practical implications, given PE, PV, HM, SI, CI and FC as primary drivers of intention and usage towards cryptocurrency, this indicates that intrinsic value perceptions are motivating factors suggesting that, by streamlining the user experience, promoting reliability, gamifying services and offering cost-effective market simulators businesses encourage adoption. PR did not significantly affect BI in this study, but efforts to mitigate PR, such as underlining safety measures, could still boost adoption intent. Despite cryptocurrency providers offering security options, responsibilities often fall on the user,

which might impede FC. Enhancing PR and FC might best be achieved through provider-side measures like SSL, two-factor authentication and trust assurances (Sobhanifard and Sadatfarizani, 2019; Wu *et al.*, 2022). SI significantly impacts BI, implying that peer discussions could amplify effects. Therefore, businesses should prioritise word-of-mouth advertising and engage in platforms where opinion leaders gather. Gamification and collective savings initiatives might further leverage SI effects. Finally, only FC was found to directly predict use, suggesting that resource support and consumer education about cryptocurrencies can enhance adoption and reduce perceived risks (Jabbar *et al.*, 2021).

Finally, as characteristic of many research projects, this study has several limitations that prevent it from having a more extensive scope:

(1) Small sample size: Future study may look at how results vary as the number of respondents increase or it may look at a specific sample moderator like age, gender, experience and voluntariness of use.

(2) Information from a single country: Future research may compare these results to those from industrialised countries to provide solutions specific to certain markets.

(3) Cross-sectional research: Future studies may employ a mixed-methods approach to understand the issues with cryptocurrency adoption further.

(4) Lack of commitment: Future research should examine the extent to which cryptocurrency and blockchain activities are integrated into UAE organisations.

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, ICIS 2016*.

Adapa, A., Nah, F.F.H., Hall, R.H., Siau, K. and Smith, S.N. (2018), "Factors influencing the adoption of smart wearable devices", *International Journal of Human-Computer Interaction*, Vol. 34 No. 5, pp. 399-409, doi: 10.1080/10447318.2017.1357902.

Agarwal, R. and Prasad, J. (1998), "A conceptual and operational definition of personal innovativeness in the domain of information technology", *Information Systems Research*, Vol. 9 No. 2, pp. 204-215, INFORMS, doi: 10.1287/isre.9.2.204.

Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211, doi: 10.1016/0749-5978(91)90020-T.

Alalwan, A.A., Dwivedi, Y.K. and Rana, N.P. (2017), "Factors influencing adoption of mobile banking by Jordanian bank customers: extending UTAUT2 with trust", *International Journal of Information Management*, Vol. 37 No. 3, pp. 99-110, doi: 10.1016/j.ijinfomgt.2017.01.002.

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*, Vol. 62 December 2019, 101320, doi: 10.1016/j.techsoc.2020.101320.

Almuraqab, N.A.S. (2020), "Predicting determinants of the intention to use digital currency in the UAE: an empirical study", *Electronic Journal of Information Systems in Developing Countries*, Vol. 86 No. 3, pp. 1-12, doi: 10.1002/isd2.12125.

Alqaryouti, O., Siyam, N., Alkashri, Z. and Shaalan, K. (2020), "Cryptocurrency usage impact on perceived benefits and users' behaviour", *Lecture Notes in Business Information Processing*, Vol. 381 LNBIP April, pp. 123-136, doi: 10.1007/978-3-030-44322-1_10.

Alsalami, N. and Zhang, B. (2019), "SoK: a systematic study of anonymity in cryptocurrencies", *2019 IEEE Conference on Dependable and Secure Computing, DSC 2019 - Proceedings*, doi: 10.1109/DSC47296.2019.8937681.

Alzahrani, S. and Daim, T.U. (2019), "Evaluation of the cryptocurrency adoption decision using hierarchical decision modeling (HDM)", *PICMET 2019 - Portland International Conference on Management of Engineering and Technology: Technology Management in the World of Intelligent Systems, Proceedings*, Institute of Electrical and Electronics Engineers, doi: 10.23919/PICMET.2019.8893897.

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*, Vol. 9 No. 4, pp. 1-19, doi: 10.3390/math9040324.

Beh, P.K., Ganesan, Y., Iranmanesh, M. and Foroughi, B. (2021), "Using smartwatches for fitness and health monitoring: the UTAUT2 combined with threat appraisal as moderators", *Behaviour and Information Technology*, Vol. 40 No. 3, pp. 282-299, doi: 10.1080/0144929X.2019.1685597.

Beza, E., Reidsma, P., Poortvliet, P.M., Belay, M.M., Bijen, B.S. and Kooistra, L. (2018), "Exploring farmers' intentions to adopt mobile Short Message Service (SMS) for citizen science in agriculture", *Computers and Electronics in Agriculture*, Vol. 151, pp. 295-310, doi: 10.1016/j.compag.2018.06.015.

Bis (2022), "CBDCs in emerging market economies", Bank for International Settlements.

Bjerg, O. (2016), "How is Bitcoin money?", *Theory, Culture and Society*, Vol. 33 No. 1, pp. 53-72, SAGE PublicationsSage UK: London, England, doi: 10.1177/0263276415619015.

Bohr, J. and Bashir, M. (2014), "Who uses Bitcoin? An exploration of the Bitcoin community", *2014 12th Annual Conference on Privacy, Security and Trust, PST 2014*, Institute of Electrical and Electronics Engineers, pp. 94-101, doi: 10.1109/PST.2014.6890928.

Chainalysis (2022), *The 2022 Global Cryptocurrency Adoption Index*, Chainalysis.

Chen, M.F. (2016), "Extending the theory of planned behavior model to explain people's energy savings and carbon reduction behavioral intentions to mitigate climate change in Taiwan–moral obligation matters", *Journal of Cleaner Production*, Vol. 112, pp. 1746-1753, doi: 10.1016/J.JCLEPRO.2015.07.043.

Dabholkar, P.A. and Bagozzi, R.P. (2002), "An attitudinal model of technology-based self-service: moderating effects of consumer traits and situational factors", *Journal of the Academy of Marketing Science*, Vol. 30 No. 3, pp. 184-201, Springer, doi: 10.1177/0092070302303001.

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly: Management Information Systems*, Vol. 13 No. 3, pp. 319-339, doi: 10.2307/249008.

Dickinger, A., Arami, M. and Meyer, D. (2008), "The role of perceived enjoyment and social norm in the adoption of technology with network externalities", *European Journal of Information Systems*, Vol. 17 No. 1, pp. 4-11, doi: 10.1057/palgrave.ejis.3000726.

Duarte, P. and Pinho, J.C. (2019), "A mixed methods UTAUT2-based approach to assess mobile health adoption", *Journal of Business Research*, Vol. 102, pp. 140-150, doi: 10.1016/j.jbusres.2019.05.022.

Elbahrawy, A., Alessandretti, L., Kandler, A., Pastor-Satorras, R. and Baronchelli, A. (2017), "Evolutionary dynamics of the cryptocurrency market", *Royal Society Open Science*, Vol. 4 No. 11, doi: 10.1098/RSOS.170623.

Escobar-Rodríguez, T. and Carvajal-Trujillo, E. (2014), "Online purchasing tickets for low cost carriers: an application of the unified theory of acceptance and use of technology (UTAUT) model", *Tourism Management*, Vol. 43, pp. 70-88, Pergamon, doi: 10.1016/J.TOURMAN.2014.01.017.

Andy Field (2012), *Discovering Statistics With IBM and SPSS*, Vol. 66, SAGE Publications, London.

Garg, P., Gupta, B., Chauhan, A.K., Sivarajah, U., Gupta, S. and Modgil, S. (2021), "Measuring the perceived benefits of implementing blockchain technology in the banking sector", *Technological Forecasting and Social Change*, Vol. 163, 120407, North-Holland, doi: 10.1016/J.TECHFORE.2020.120407.

Gatignon, H. and Robertson, T.S. (1985), "A propositional inventory for new diffusion research", *Journal of Consumer Research*, Vol. 11 No. 4, p. 849, Oxford Academic, doi: 10.1086/209021.

Gefen, D., Karahanna, E. and Straub, D.W. (2003), "Trust and tam in online shopping: AN integrated model", *MIS Quarterly: Management Information Systems*, Vol. 27 No. 1, pp. 51-90, Management Information Systems Research Center, doi: 10.2307/30036519.

Gefen, D., Straub, D., Gefen, D. and Straub, D. (2005), "A practical guide to factorial validity using PLS-graph: tutorial and annotated example", *Communications of the Association for Information Systems*, Vol. 16 No. 1, p. 5, Association for Information Systems, doi: 10.17705/1CAIS.01605.

Giglio, C. and De Maio, A. (2022), "A structural equation model for analysing the determinants of crowdshipping adoption in the last-mile delivery within university cities", *International Journal of Applied Decision Sciences*, Vol. 15 No. 2, pp. 117-142, doi: 10.1504/IJADS.2022.121563.

Gil-Cordero, E., Cabrera-Sánchez, J.P. and Arrás-Cortés, M.J. (2020), "Cryptocurrencies as a financial tool: acceptance factors", *Mathematics*, Vol. 8 No. 11, pp. 1-16, doi: 10.3390/math8111974.

Godoe, P. and Johansen, T.S. (2012), "Understanding adoption of new technologies: technology readiness and technology acceptance as an integrated concept", *Journal of European Psychology Students*, Vol. 3 No. 1, p. 38, EFPSA, doi: 10.5334/jeps.aq.

Haran, N. (2017), "What's keeping cryptocurrencies from mass adoption?", *TechCrunch*, available at: https://techcrunch.com/2017/04/20/whats-keeping-cryptocurrencies-from-mass-adoption/ (accessed 19 June 2022).

Hossain, Md.S. and Zhou, X. (2018a), "Impact of m-payments on purchase intention and customer satisfaction : perceived flow as mediator", *International Journal of Science and Business*, Vol. 2 No. 3, pp. 503-517, doi: 10.5281/zenodo.1408692.

Hossain, Md.S. and Zhou, X. (2018b), "Impact of m-payments on purchase intention and customer satisfaction : perceived flow as mediator", *International Journal of Science and Business*, Vol. 2 No. 3, pp. 503-517, doi: 10.5281/zenodo.1408692.

Hurt, H.T., Joseph, K. and Cook, C.D. (1977), "Scales for the measurement of innovativeness", *Human Communication Research*, Vol. 4 No. 1, pp. 58-65, Oxford Academic, doi: 10.1111/j.1468-2958.1977.tb00597.x.

Jabbar, S., Lloyd, H., Hammoudeh, M., Adebisi, B. and Raza, U. (2021), "Blockchain-enabled supply chain: analysis, challenges, and future directions", *Multimedia Systems*, Vol. 27 No. 4, pp. 787-806, Springer Science and Business Media Deutschland GmbH, doi: 10.1007/S00530-020-00687-0/FIGURES/9.

Khedr, A.M., Arif, I., Pravija Raj, P.v., El-Bannany, M., Alhashmi, S.M. and Sreedharan, M. (2021), "Cryptocurrency price prediction using traditional statistical and machine-learning techniques: a survey", *Intelligent Systems in Accounting, Finance and Management*, Vol. 28 No. 1, pp. 3-34, doi: 10.1002/isaf.1488.

Kline, R.B. (2016), *Principles and Practice of Structural Equation Modeling*, Guilford Publications, New York, NY.

Koenig-Lewis, N., Marquet, M., Palmer, A. and Zhao, A.L. (2015), "Enjoyment and social influence: predicting mobile payment adoption", *Service Industries Journal*, Vol. 35 No. 10, pp. 537-554, Routledge, doi: 10.1080/02642069.2015.1043278.

Lee, M.C. (2009), "Factors influencing the adoption of internet banking: an integration of TAM and TPB with perceived risk and perceived benefit", *Electronic Commerce Research and Applications*, Vol. 8 No. 3, pp. 130-141, doi: 10.1016/J.ELERAP.2008.11.006.

Lunney, A., Cunningham, N.R. and Eastin, M.S. (2016), "Wearable fitness technology: a structural investigation into acceptance and perceived fitness outcomes", *Computers in Human Behavior*, Vol. 65, pp. 114-120, Pergamon, doi: 10.1016/j.chb.2016.08.007.

Marcelin, I., Egbendewe, A.Y.G., Oloufade, D.K. and Sun, W. (2021), "Financial inclusion, bank ownership, and economy performance: evidence from developing countries", *Finance Research Letters*, Vol. 46 March, 102322, doi: 10.1016/j.frl.2021.102322.

Martins, C., Oliveira, T. and Popovič, A. (2014), "Understanding the internet banking adoption: a unified theory of acceptance and use of technology and perceived risk application", *International Journal of Information Management*, Vol. 34 No. 1, pp. 1-13, doi: 10.1016/j.ijinfomgt.2013.06.002.

Merhi, M., Hone, K. and 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", *Technology in Society*, Vol. 59, 101151, Pergamon, doi: 10.1016/J.TECHSOC.2019.101151.

Midgley, D.F. and Dowling, G.R. (1978), "Innovativeness: the concept and its measurement", *Journal of Consumer Research*, Vol. 4 No. 4, pp. 229-242, Oxford Academic, doi: 10.1086/208701.

Nadeem, M.A., Liu, Z., Pitafi, A.H., Younis, A. and Xu, Y. (2020), "Investigating the repurchase intention of Bitcoin: empirical evidence from China", *Data Technologies and Applications*, Vol. 54 No. 5, pp. 625-642, doi: 10.1108/DTA-10-2019-0182.

Nakamoto, S. (2008), "Bitcoin: a peer-to-peer electronic cash system", *Decentralized Business Review*. doi: 10.2139/ssrn.3977007.

Oliveira, T., Thomas, M., Baptista, G. and Campos, F. (2016), "Mobile payment: understanding the determinants of customer adoption and intention to recommend the technology", *Computers in Human Behavior*, Vol. 61, pp. 404-414, Pergamon, doi: 10.1016/j.chb.2016.03.030.

Omane-Adjepong, M. and Alagidede, I.P. (2020), "High- and low-level chaos in the time and frequency market returns of leading cryptocurrencies and emerging assets", *Chaos, Solitons and Fractals*, Vol. 132, 109563, Pergamon, doi: 10.1016/j.chaos.2019.109563.

Osborne, J.W. and Costello, A.B. (2004), "Sample size and subject to item ratio in principal components analysis", *Practical Assessment, Research, and Evaluation*, Vol. 9, p. 11, doi: 10.7275/ktzq-jq66.

Ozili, P.K. (2023), "CBDC, Fintech and cryptocurrency for financial inclusion and financial stability", *Digital Policy, Regulation and Governance*, Vol. 25 No. 1, pp. 40-57, Governors Department, Central Bank of Nigeria, Abuja, Nigeria ; Governors Department, Central Bank of Nigeria, Abuja, Nigeria, doi: 10.1108/DPRG-04-2022-0033.

Patil, P., Tamilmani, K., Rana, N.P. and Raghavan, V. (2020), "Understanding consumer adoption of mobile payment in India: extending Meta-UTAUT model with personal innovativeness, anxiety, trust, and grievance redressal", *International Journal of Information Management*, Vol. 54, 102144, Pergamon, doi: 10.1016/j.ijinfomgt.2020.102144.

Rejeb, A., Rejeb, K., Appolloni, A., Jagtap, S., Iranmanesh, M., Alghamdi, S., Alhasawi, Y. and Kayikci, Y. (2024), "Unleashing the power of internet of things and blockchain: a comprehensive analysis and future directions", *Internet of Things and Cyber-Physical Systems*, Vol. 4, pp. 1-18, doi: 10.1016/J.IOTCPS.2023.06.003.

Riffai, M.M.M.A., Grant, K. and Edgar, D. (2012), "Big TAM in Oman: exploring the promise of on-line banking, its adoption by customers and the challenges of banking in Oman", *International Journal of Information Management*, Vol. 32 No. 3, pp. 239-250, Pergamon, doi: 10.1016/j.ijinfomgt.2011.11.007.

Rodima-Taylor, D. and Grimes, W.W. (2017), "Cryptocurrencies and digital payment rails in networked global governance: perspectives on inclusion and innovation", *Bitcoin and beyond: Cryptocurrencies, Blockchains, and Global Governance*, pp. 109-132, doi: 10.4324/9781315211909.

Rodrigues, L.F., Oliveira, A. and Costa, C.J. (2016), "Does ease-of-use contributes to the perception of enjoyment? A case of gamification in e-banking", *Computers in Human Behavior*, Vol. 61, pp. 114-126, Pergamon, doi: 10.1016/j.chb.2016.03.015.

Rogers, E.M. (1995), "Diffusion of innovations", in *An Integrated Approach to Communication Theory and Research*, 3rd ed.

Rogers, E.M. and Shoemaker, F. (1971), "Communication of innovations: a cross-cultural approach", *ERIC*, Vol. 9 No. 2, p. 331, doi: 10.2307/2800105.

Safeena, R., Date, H., Hundewale, N. and Kammani, A. (2013), "Combination of TAM and TPB in internet banking adoption", *International Journal of Computer Theory and Engineering*, Vol. 5 No. 1, pp. 146-150, doi: 10.7763/IJCTE.2013.V5.665.

San Martín, H. and Herrero, Á. (2012), "Influence of the user's psychological factors on the online purchase intention in rural tourism: integrating innovativeness to the UTAUT framework", *Tourism Management*, Vol. 33 No. 2, pp. 341-350, Pergamon, doi: 10.1016/j.tourman.2011.04.003.

Santhanamery, T. and Ramayah, T. (2018), in "Trust in the system: the mediating effect of perceived usefulness of the E-filing system", *User Centric E-Government: Challenges and Opportunities*, Springer, Cham, pp. 89-103.

Saunders, M. and Lewis, P. (2018), *Doing Research in Business and Management*, 2nd ed., SAGE Publication, LONDON.

Schuh, S. and Shy, O. (2016), *U.S. Consumers' Adoption and Use of Bitcoin and Other Virtual Currencies*, Bank of Canada, Ottawa, pp. 17-22.

Shahzad, F., Xiu, G.Y., Wang, J. and Shahbaz, M. (2018), "An empirical investigation on the adoption of cryptocurrencies among the people of mainland China", *Technology in Society*, Vol. 55 June, pp. 33-40, doi: 10.1016/j.techsoc.2018.05.006.

Shareef, M.A., Kumar, V., Kumar, U. and Dwivedi, Y.K. (2011), "e-Government Adoption Model (GAM): differing service maturity levels", *Government Information Quarterly*, Vol. 28 No. 1, pp. 17-35, JAI, doi: 10.1016/J.GIQ.2010.05.006.

Shaw, N. and Sergueeva, K. (2019), "The non-monetary benefits of mobile commerce: extending UTAUT2 with perceived value", *International Journal of Information Management*, Vol. 45, pp. 44-55, Pergamon, doi: 10.1016/J.IJINFOMGT.2018.10.024.

Shin, D. and Rice, J. (2022), "Cryptocurrency: a panacea for economic growth and sustainability? A critical review of crypto innovation", *Telematics and Informatics*, Vol. 71, 101830, doi: 10.1016/j.tele.2022.101830.

Slade, E., Williams, M. and Dwivdei, Y. (2013), "Extending UTAUT2 to explore consumer adoption of mobile payments", *UK Academy for Information Systems Conference Proceedings*, 19 March.

Sobhanifard, Y. and Sadatfarizani, S. (2019), "Consumer-based modeling and ranking of the consumption factors of cryptocurrencies", *Physica A: Statistical Mechanics and Its Applications*, Vol. 528, 121263, doi: 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*, Vol. 8, pp. 13138-13150, doi: 10.1109/ACCESS.2019.2960083.

Taleizadeh, A.A., Safaei, A.Z., Bhattacharya, A. and Amjadian, A. (2022), "Online peer-to-peer lending platform and supply chain finance decisions and strategies", *Annals of Operations Research*, Vol. 315 No. 1, pp. 397-427, doi: 10.1007/s10479-022-04648-w.

Taylor, S. and Todd, P.A. (1995), "Understanding information technology usage: a test of competing models", *Information Systems Research*, Vol. 6 No. 2, pp. 144-176, INFORMS, doi: 10.1287/isre.6.2.144.

Thompson, R.L., Higgins, C.A. and Howell, J.M. (1991), "Personal computing: toward a conceptual model of utilization", *MIS Quarterly: Management Information Systems*, Vol. 15 No. 1, pp. 125-142, Management Information Systems Research Center, doi: 10.2307/249443.

van der Heijden, H. (2004), "User acceptance of hedonic information systems", *MIS Quarterly: Management Information Systems*, Vol. 28 No. 4, pp. 695-704, Management Information Systems Research Center, doi: 10.2307/25148660.

Venkatesh, V. and Davis, F.D. (2000), "Theoretical extension of the technology acceptance model: four longitudinal field studies", *Management Science*, Vol. 46 No. 2, pp. 186-204, doi: 10.1287/mnsc.46.2.186.11926.

Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003), "User acceptance of information technology: toward a unified view", *MIS Quarterly: Management Information Systems*, Vol. 27 No. 3, pp. 425-478, Management Information Systems Research Center, doi: 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: Management Information Systems*, Vol. 36 No. 1, pp. 157-178, University of Minnesota, doi: 10.2307/41410412.

Venkatesh, V., Thong, J.Y.L. and Xu, X. (2016), "Unified theory of acceptance and use of technology: a synthesis and the road ahead", *Journal of the Association for Information Systems*, Vol. 17 No. 5, pp. 328-376, doi: 10.17705/1jais.00428.

Viswanath Venkatesh, J.Y.L.T. and Xu, X. (2012), "Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology", *MIS Quarter*, Vol. 36 No. 1, pp. 155-178.

Wegner, T. (2016), "Applied business statistics methods and excel-based applications", *Journal of the American Statistical Association*, Vol. 68 No. 343.

Wen, Y.F. (2009), "An effectiveness measurement model for knowledge management", *Knowledge-Based Systems*, Vol. 22 No. 5, pp. 363-367, doi: 10.1016/j.knosys.2009.02.007.

Wu, J. and Du, H. (2017), "Toward a better understanding of behavioral intention and system usage constructs", *European Journal of Information Systems*, Vol. 21 No. 6, pp. 680-698, doi: 10.1057/ejis.2012.15.

Wu, J., Liu, L. and Huang, L. (2017), "Consumer acceptance of mobile payment across time Antecedents and moderating role of diffusion stages", *Industrial Management and Data Systems*, Vol. 117 No. 8, pp. 1761-1776, doi: 10.1108/IMDS-08-2016-0312.

Wu, R., Ishfaq, K., Hussain, S., Asmi, F., Siddiquei, A.N. and Anwar, M.A. (2022), "Investigating e-retailers' intentions to adopt cryptocurrency considering the mediation of technostress and technology involvement", *Sustainability 2022*, Vol. 14 No. 2, p. 641, Vol. 14, Page 641, Multidisciplinary Digital Publishing Institute, doi: 10.3390/SU14020641.

Yan, H. and Pan, K. (2015), "Examining mobile payment user adoption from the perspective of trust transfer", *International Journal of Networking and Virtual Organisations*, Vol. 15 Nos 2/3, p. 136, doi: 10.1504/IJNVO.2015.070423.

Zakaria, N.H., Habbal, A. and Hassan, S. (2019), "Cryptocurrency adoption: current stage, opportunities, and open challenges", Article in, *International Journal of Advanced Computer Research*, Vol. 9 No. 44, pp. 293-307, doi: 10.19101/IJACR.PID43.

Zhou, T. (2012), "Examining mobile banking user adoption from the perspectives of trust and flow experience", *Information Technology and Management*, Vol. 13 No. 1, pp. 27-37, doi: 10.1007/s10799-011-0111-8.

Zhou, T. (2018), "Examining users' switch from online banking to mobile banking", *International Journal of Networking and Virtual Organisations*, Vol. 18 No. 1, pp. 51-66, doi: 10.1504/IJNVO.2018.090675.

About the authors

Devid Jegerson is DBA candidate at the College of Business, Abu Dhabi University. He holds MBA from MIP Politecnico di Milano (Italy) and master's degree in Market Strategy from Universita' Cattolica di Milano (Italy). His research interests are business strategy, business management and technology. He is Chief Operating Officer at Invest Bank, UAE. Devid Jegerson is the corresponding author and can be contacted at: djegerson@gmail.com

Dr. Charilaos Mertzanis is Professor of Finance at Abu Dhabi University. His current research interests are mainly the role of institutions in financial decision-making across countries, crises, institutional determinants of tourist flows, energy flows and international financial transactions. His work has been presented at international conferences and peer-reviewed journals, such as the *Journal of Economic Behavior and Organization*, *Journal of Banking and Finance, Energy, Corporate Governance*: *An International Review and Cambridge Journal of Economics*.

Dr. Mehmood Khan is Professor of Management at the University of Sharjah and has served as Director of the Center of Excellence in Sustainable Business Processes at Abu Dhabi University. He holds Ph.D. in Industrial Engineering from Ryerson University, Canada. He has taught various courses in Operations Research/Management and Supply Chain Management at King Fahd University, Saudi Arabia; Brock University, Canada; Ryerson University, Canada. His research interests span the role of technology, the Internet of Things, quality control and sustainable supply chains. His work has been published in various top-ranked journals.