International Journal of Safety and Security Engineering
Vol. 14, No. 6, December, 2024, pp. 1803-1816
Journal homepage: http://iieta.org/journals/ijsse

Adoption of Cryptocurrency in India: An Extended Technology Adoption Model

Arpita Sharma[1], Chetan Panse[1], Nishu Gupta[2*], Sunny Dawar[2], Pallavi Kudal[3], Meenakshi Sharma[2]

[1] Symbiosis Institute of Business Management, Pune, Symbiosis International (Deemed University), Pune 412115, India
[2] Faculty of Management & Commerce, Manipal University Jaipur, Jaipur 303007, India
[3] Balaji Institute of International Business, Sri Balaji University, Pune 411033, India

Corresponding Author Email: nishu.gupta@jaipur.manipal.edu

https://doi.org/10.18280/ijsse.140615

Received: 22 February 2024
Revised: 12 November 2024
Accepted: 6 December 2024
Available online: 31 December 2024

Keywords:
cryptocurrency, social influence, perceived risk, behavioral intention, perceived ease of use

ABSTRACT

The whole world has seen enormous growth in the cryptocurrency markets. Indian markets are no less. The increase in exposure to cryptocurrency has attracted the attention of investors and regulators. However, the determinants of the adoption of cryptocurrency require a little more focus in the emerging Indian market. This research investigates the behavioral aspect of Indian investors' intention toward cryptocurrency based on blockchain technology. The study aims to identify the attitude, risk perception, accessibility, behavioral intention, social impact, and trust of Indian investors towards cryptocurrency. The TAM (Technology Acceptance Model) is integrated with peripheral (external) variables such as trust, privacy, and social use to understand the adoption of this innovative fintech technology. A systematic questionnaire was created based on previous research and administered to 140 respondents. Respondents collected data was analyzed using Smart PLS. The study explores that ease of use is directly influenced by "perceived usefulness," which affects the attitude toward the adoption of cryptocurrency. The study also finds that trust is influenced by perceived risk as well as "social influence," which impacts the intention to use cryptocurrency. The findings provide insights into the factors influencing Indian investors' acceptance or abstinence from cryptocurrency, shedding light on their attitudes and perceptions toward this volatile and transformative technology. The contribution of the research to the existing literature on technology adoption provides valuable information for regulators and policymakers in formulating appropriate strategies for the cryptocurrency market in India. The study offers a novel point in understanding the Indian investor adoption of cryptocurrency with extended TAM acceptance or abstinence by considering its usefulness and people's attitudes.

1. INTRODUCTION

Cryptocurrencies are digital assets that incline the interest of investors, whose accessibility is based on blockchain systems and helps in economic coordination mechanisms [1]. The first time in 2008, he talked about cryptocurrency in his study "Bitcoin: A peer-to-peer electronic cash system" [2]. After the 2008 stock market crash, Bitcoin emerged as a digital currency, which means a mechanism in which there are no barriers in terms of Banks and other financial institutions [3]. The first digital coin, i.e., Bitcoin using blockchain technology, offers several benefits in terms of security, low-cost transaction [4], and high returns [5]. Although in infancy and only 10 years old, cryptocurrency is a truly distributed and decentralized technology. As per a technical definition, a cryptocurrency can be defined as a digital currency based on cryptography to develop and operate the currency. This is the creation and verification of stated cash transfer transactions within the network, performed by a decentralized network of peer-to-peer computer nodes operating in unison.

This technology appeared in this new era as a complete transformation of industries worldwide [6]. Blockchain technology affects the thinking of organizations and political power, which induces various countries to develop digital currency [7]. It is gaining importance because of the security measures that link multiple blocks in which one block code becomes the code of another. If one wants to change one block code, the entire block code needs to be redefined, and that process takes time, i.e., the consensus rule means peer-to-peer network [8]. Therefore, this technology stored the same information at a meager cost on multiple servers. Consequently, it is an entirely different system from the present one. This rethought the current financial structure, redesigning the financial system [9].

Bitcoin, which works with blockchain technology, impacts socially, transforming the technology that society is using [10]. The open-source software without a centralized banking system is criticized for its illegal uses but still attracts the community's interest [11]. Bitcoin was first instituted in India in 2012; however, the cryptocurrency began after demonetization when people in the country shifted their digital payment mode. The authorities, such as the Reserve Bank of India, spoke several times regarding the riskiness of crypto. In a recent crucial address, Shri T Rabi Sankar, Deputy

Governor, RBI, on 14 February 2022, regarding "Cryptocurrency an assessment," talked about cryptocurrency's social or economic role (RBI, 2022). Every financial instrument has its role: An equity share, bond, mutual fund, and derivatives. However, the essential role of crypto is claimed to be that of a currency that embarked on a point of question due to its volatility. Due to this, cryptocurrency does not place the same sense of trust that people have in legal tender currencies. The two fundamental risks, i.e., private currencies and structured without government intervention with no formality relating to KYC (Know Your Customer), pose two sides. The risk characteristics and various arguments like blockchain is a technology where Indians have the worldwide upper hand, while other countries have brought cryptocurrency under regulation.

In recent times, many studies have revolved around cryptocurrencies, especially Bitcoin. The findings have explored the effect of cryptocurrencies on the economy, the regulation of cryptos, and trading. Studies have also examined that Bitcoin and other similar entities have been used in businesses because of privacy [12, 13]. An innovative Fintech technology that is volatile with regulatory uncertainty still in the Indian market emerged as a significant player among young ones due to increased usage of smartphones [14, 15]. However, cryptocurrency adoption in India is intricate and influenced by many factors, including technological, social, economic, and regulatory elements, making it a fascinating area for research. Although the adoption of cryptocurrencies has been thoroughly examined in several industrialized economies, less research has been done on developing countries, especially India. Since India's economy, population, and regulatory framework diverge significantly from those of Western markets, broad conclusions drawn from international research are less relevant here. With one of the most significant populations of young, tech-savvy people and a rapidly expanding smartphone user base, India is a prime location for adopting cryptocurrencies. A study is needed to understand the adoption of the technology considering its usefulness and people's attitudes among Indian investors. It offers a novel point in understanding the Indian investor acceptance or abstinence; the study integrates it with the extended Technology Acceptance Model (TAM). Hence, the current study focuses on better understanding the factors influencing cryptocurrency adoption in India by using an extended TAM. An extended TAM can incorporate other variables such as perceived risk, social impact, trust, "perceived usefulness," and simplicity of use.

2. LITERATURE REVIEW

In developing nations, cryptocurrency is an opportunity for financial Inclusion. Cryptocurrencies may reach rural areas that are unbanked yet by providing access to decentralized finance services without traditional banking infrastructure. However, the researchers argued that to reach cryptocurrency, the underbanked demographics of India faced hurdles in education and technology. To analyze user acceptability and engagement, the adoption of cryptocurrencies has drawn a lot of interest as a distinct technological and financial phenomenon. In the literature, there are many theories behind information technology products. The theories are related to the THRA (Theory of Reasoned Action), THPB (Theory of Planned Behavior), TAM (Technology Acceptance Model), TAM 2 [16], and TAM 3 [17], and the Unified Theory of Technology Acceptance and Use (UTAUT) [18]. TAM is widely used in different areas, products, and sectors to study and analyze the adoption intention, adoption process, and intention to use by the consumers, investors, and users of these technology-based products [19]. Researchers analyzed the TAM, UTAUT, and social support Theory and added to the behavioral intentions of the investors towards cryptocurrencies [20]. The theoretical importance and determining factors of the user behavior towards technology are its "perceived usefulness" (PU), "perceived ease of use" (PE), attitude towards technology (A), and the intention to use (ITU). The studies have analysed various factors which are related to the TAM. The TAM defines a model for identifying the end user's intention, which is further modified, and external factors are added to the model to form an extended TAM. According to the TAM, which was first proposed by Davis in 1989, perceived utility and simplicity of use are important determinants of technology acceptance. Research has expanded TAM to include other elements, particularly in situations where perceived risk, "social influence", and trust are important, such as the adoption of cryptocurrencies. Although this model is a starting point, academics frequently extend it to account for the unique aspects of cryptocurrencies and address non-technical issues like security and regulatory uncertainty.

The convolution technology exhibits an integration model TAM with exogenous variables like trust, privacy, social use, and many more [14].

The current study focuses on studies related to Bitcoin and blockchain uses and applications, mining behavior, security systems and privacy issues, and cryptocurrency development [21]. Cryptocurrencies have been researched in different technical, regulatory, economic, behavioral, and psychological frameworks. Apart from the last one, every aspect is significantly explored [22]. The literature also shows that studies on Bitcoin have applied the TAM and related models [19]. The studies have researched the ownership, knowledge, and motives behind cryptocurrencies.

Previous studies employ the TAM and extended TAM model to understand the factors influencing the adoption of cryptocurrency. Table 1 indicates the list of papers that consider various variables that indicate investor perception toward cryptocurrency integrated with TAM. The articles are selected using keywords like "Cryptocurrency," "Bitcoin," and "TAM." Studies are referred to based on their relevance to the current research.

These studies collectively highlight the necessity of extending TAM to better capture the unique characteristics of cryptocurrency, such as trust, perceived risk, and "social influence." They demonstrate that while TAM's traditional factors ("perceived usefulness" and ease of use) are foundational, these are often not sufficient for explaining cryptocurrency adoption, especially in markets with high volatility and evolving regulations like India. Integrating additional constructs such as "social influence," trust, behavioral intention, and attitude allows for a more comprehensive model that can capture the complexity of user adoption behavior in the cryptocurrency market. Thus, the current study aims to contribute novel insights into cryptocurrency adoption in India, filling a gap in the literature on emerging market-specific cryptocurrency adoption behaviors.

Table 1. Important literature reviews

Ref.	Sample	Finding
Androulaki [23]	Privacy provision has been examined by analyzing the Bitcoin system and using a simulator.	Findings indicate that almost 40% of users can be recovered even if they follow Bitcoin's recommended measures.
Abramova and Böhme [24]	Adopted convenience sampling with 86 respondents whose responses were obtained through a questionnaire.	The findings showed the impact of Perceived Behavior, perceived ease of use, and Perceived risk on Bitcoin.
Conti et al. [25]	A systematic survey has been done to examine the feasibility and robustness of the technology under which cryptocurrency works.	Bitcoin using Blockchain technology works on the Consensus rule, but that becomes a point for cyber-crime.
Mendoza et al. [26]	A model has been developed using social support theory, social commerce, and TAM constructs.	Due to social commerce, investors' trust and intention to use cryptocurrency has been increased.
Gazali [27]	A conceptual paper has been published that applies the Theory of reasoned action to determine the factors affecting an investor's intention to invest in cryptocurrency.	Perceive Risk and Perceived Benefits Two mores are added.
Alaeddin and Altounjy [28]	A survey was conducted on 230 students in the final year.	A significant impact was found among students regarding cryptocurrency usage i.e., awareness and trust significantly impact the attitude.
Guych et al. [29]	TAM is used in Taiwanese hotels to analyze cryptocurrency payment adoption.	"Perceived usefulness" (PU) and "perceived ease of use" (PE) play significant roles in payment.
Al-hussaini et al. [30]	Purposive sampling has been used with unstructured and semi-structured interviews in which open-ended questions have been asked.	Due to the unavailability of Islamic law regarding how cryptocurrency is being used, create a legal or illegal machinery transaction tool.
Alqaryouti et al. [31]	Twenty-five (n = 25) specialized individuals in the area of cryptocurrency participated in the electronic survey.	A positive relationship between "perceived ease of use" and usage behavior. no significant relationship between the perceived benefit of cryptocurrency and usage behaviour was found.
Chen et al. [32]	Through structured questionnaire data has been collected from 45 respondents.	The level of risk has been presumed to be an online risk, but risk perception is different in social and financial situations.
Albayati et al. [14]	Technology Acceptance Model (TAM)	The adoption of blockchain depends on external factors such as T, SI, ITU, and the Regulatory environment.
Nuryyev et al. [33]	101 SMEs using a total of 15,831 people in Taiwan. SEM	Self-efficacy, innovativeness, and SI impact the intention to adopt new technology. SI and strategic orientation's effects are mediated by PU. Self-efficacy's impact on the decision to accept cryptocurrency payments is mediated by PE.
Gupta et al. [34]	Fuzzy methodology is being used with UTAUT, TAM and social support theory. Financial Literacy is given in the model as a construct.	"Social influence" [33] is the most significant factor factor.
Voskobojnikov et al. [35]	Research is conducted among users and non-users with a sample size of N=20 through the interview method.	The study's results indicated a misunderstanding between users and non-users regarding risk perception, but the risks associated with crypto assets are specific.
Maciejasz-Swiatkiewicz et al. [36]	A survey was conducted among 81 respondents.	Due to cultural and historical background, the perception between countries and people exists.
Ayedh [37]	200 samples were collected from Muslim respondents from Malaysia.	The Malaysian Muslim community was significantly affected by compatibility, awareness, and facilitating conditions in the Bitcoin market.
Jalal and Leonelli [38]	Target investors belong to the European market, and a convenience sampling technique has been used through an electronic questionnaire.	Overconfidence bias showed a significant impact on perceived efficiency, but self-attribution bias did not affect it.
Palos-Sanchez et al. [39]	248 Business executives from companies and business establishments PLS SEM [TAM].	The authors demonstrated that privacy has an important influence on perceived utility and that trust has a very significant influence on privacy and "perceived ease of use," thus indirectly affecting the intention to use cryptocurrencies.
Böyükaslan and Ecer [40]	The fuzzy Full Consistency Method-Bonferroni (FUCOM-F'B) model is applied to determine the drivers. Twenty-three drivers have been used to examine the investment in cryptocurrency.	The two drivers found to be significant were "strong electronic encryption" and "use of digital signature."
Huong et al. [41]	The total responses collected in the survey was 354, out of which 309 qualified to know the impact of personal innovativeness towards investment in cryptocurrency in the Vietnamese market.	A confirmed relationship was found between the Theory of planned behavior and the moderate effect of personal innovativeness.
Sun et al. [42]	A survey among 253 multinational PE company investment managers is being conducted.	The results indicate that not only drivers, but innovativeness also play a significant role in investment in cryptocurrency.
Pham et al. [43]	275 Italian investors become the respondents in this study.	Factors are significantly contributing such as attitude, herding behavior, perceived behavioral control, and PR. Social and economic characteristics and financial literacy, however, had no discernible effect.

Soomro [44]	An online survey questionnaire was used to collect a sample of 334 respondents.	Attitude, subjective norms, perceived behavioral control (PBC), and trust have significant positive impacts.
Tolu et al. [45]	The study collected the sample from 154 participants.	The purpose of the study is to design TAM to accept financial transactions using blockchain and cryptocurrency. The findings of the study indicate that PE and PU positively and significantly affect attitude.
Islam et al. [46]	The study used snowball sampling and collected data from 346 members of the general public.	The study investigates the factors influencing the adoption of cryptocurrency in Bangladesh Using TAM. The results found that knowledge, PE, attitude, and challenges have a significant impact.
Kocabas, Calik and Cetinguc [47]	The sample includes the participants who never used the cryptocurrency.	The objective of the study is to explain the factors affecting the use of cryptocurrency using extended TAM. The study found that trust and social factors have a direct impact on intention to use in the Turkish economy.
El Chaarani et al. [48]	The study collected a sample from 417 French participants to develop tourism, hospitality, and financial inclusion between developing and developed nations.	The study found that PE, PU, Social factors, and financial literacy enhanced the use of cryptocurrency.

Source: Based on different existing literature reviews.

The current study investigates the behavioral aspect of investors' intention toward cryptocurrency based on blockchain technology. It aims to identify the attitude, perseverance of risk, perception of ease of use, behavioral intention, social impact, and trust of Indian investors toward cryptocurrency.

3. RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

Technology adoptions with different perspectives and models are widely used in the literature. The TAM models in technology are widely researched [19, 49]. The attitude construct was excluded from the TAM and extended to TAM 2 with PU, ease of use, and subjective norms. Various other elements are added to the TAM to make it more comprehensive. The Theory of Reasoned Action (TRA) helps understand technology adoption by derived concepts from social psychology and human behavior [50]. TRA postulates that both behavior intentions and subjective norms influence individual behavior. The Theory of Planned Behaviour extended the TRA model with perceived behavioral control to predict intention and behavior. The acceptance and usage of various technological innovations are understood through the TPB [51-53]. A related and identical model to the TPB is the Decomposed Theory of Behaviour (DTPB), which decomposes perceived behavioral control, subjective norms, and attitude into the belief of technology adoption [54]. The extended TAM models have also been used in earlier research. [16] added the subjective factors to make extended TAM. The inclusion of the attitude and the subjective norms leads to a combined TAM-TPB model [54]. The author suggests that 70% of the variation in the intention is described by TAM and 62% by TPB [51]. TAM usage has also been seen in banking and digital payments [55]. The model has been used with external variables to know the causal relationship with variables like attitude, PE, ITU, PU, risk, and trust [56]. To know the viability and feasibility, the model is always checked with different technologies and tools.

The TAM model explains the causal relationship among different variables PE, PU, A, ITU, and PE. The extended model looks at various external elements and how their perceptions of usefulness and usability affect attitudes toward usage and behavioral intentions to use. One of the external factors is Trust (T), which explains users' conviction in cryptocurrencies. Table 2 explains the variables used in the present study.

To understand individual intention to use, one's attitude means positive and negative feelings need to be analyzed [14]. Studies found the approved correlation between attitude and behavioral intention [61]. Based on the study hypotheses framed, which is illustrated in Figure 1:

H_1: "Attitude towards use (A) influences behavioral intention (ITU) to use in cryptocurrency adoption."

Table 2. Constructs and their definition

Construct	Definition	Ref.
Perceived ease of use (PE)	"The degree to which a person believes that using a particular system would be free of effort." PE factors explain how perception forms and changes over time.	[16, 19]
Perceived usefulness (PU)	"The degree to which a person believes that using a particular system would enhance his or her job performance."	[19]
Attitude toward the use (A)	User feelings towards the new system or technology.	[57]
Behavioral intention to use (ITU)	"A person is the subjective probability that he will perform some behavior." "A behavioral tendency of people to keep using a certain technology, the level can be predicted by their behavior towards that technology."	[19, 50]
Social Influence (SI)	Efforts have been made intentionally or unintentionally to change individual beliefs, attitudes, or behavior.	[58]
Trust (T)	One party's expectations of another party's performance in the future.	[59]
Perceived Risk (PR)	An action or use of technology with uncertain consequences. Risk and trust are associated with others sharing inverse relationships.	[60]

Source: Based on different existing literature reviews.

Innovation and new technology always bring question marks in the minds of individuals regarding ease of use. There are lots of things like ease of learning, controllability, and clarity in understanding, which change the attitude of an individual [62]. Studies suggest the influence of PE with A towards use [57, 63, 64]. These studies result in the hypothesis:

H_2: "Perceived ease of use (PE) influences attitude towards use (A) in cryptocurrency adoption."

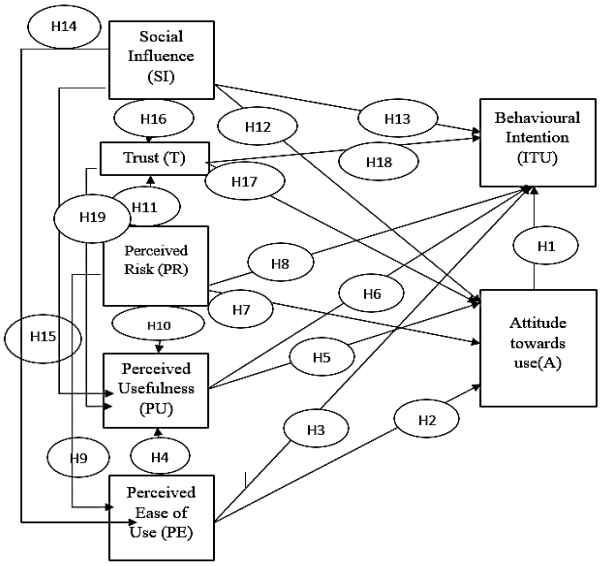

Figure 1. Conceptual model
Source: The authors.

The impact of PE on the ITU in the context of cryptocurrency, a study being executed in China [65]. The positive relation between behavioral intention by PE [66, 67] that formulated a hypothesis:

H_3: "Perceived ease of use (PE) influences behavioral intention (ITU) to use in cryptocurrency adoption."

Individuals are motivated to use technology when it enhances performance, and ease of use defines the way one's effort will be free [68]. Many researchers analyzed the effect of PE on cryptocurrency influences "perceived usefulness" [24], which brings:

H_4: "Perceived ease of use (PE) influences "perceived usefulness" (PU) in cryptocurrency adoption."

Researchers analyzed that PU indirectly affects attitudes towards use in cryptocurrency adoption [27, 31, 69, 70], leading to the formulation of:

H_5: "Perceived usefulness (PU) influences Attitude towards use (A) in cryptocurrency adoption."

To know the individual belief regarding the benefit they may have regarding a technology or system [65], analyzing the impact of PU with intention helps in the formation of:

H_6: "Perceived usefulness (PU) influences behavioral intention (ITU) in cryptocurrency adoption."

The author has taken convenience, perceived, and product risk for online shopping with attitude as a moderating factor [71]. The study found that attitude moderately influenced by PR helps in formulating:

H_7: "Perceived Risk (PR) influences Attitude towards use (A) in cryptocurrency adoption."

The researcher examined 1300 samples and found that perceived benefits and service compatibility support determining the intention [72], but PR does not have much impact result in the undertaken of:

H_8: "Perceived Risk (PR) influences "behavioral intention to use" (ITU) in cryptocurrency adoption."

To know the effect of risk with "perceived ease of use" with respect to the adoption of cryptocurrency in Islamic countries, TAM is used [73]. Perceived risk impact on PE for online shopping during COVID [74] and found insignificant impact result in formation of:

H_9: "Perceived Risk (PR) influences "perceived ease of use" (PE) in cryptocurrency adoption."

Researcher explores the acceptance of blockchain by mining the database from Twitter [70]. The study employed PU, "perceived ease of use," to know the benefits of cryptocurrency. To know the effect of the two, the present study also undertook these by forming a hypothesis.

H_{10}: "Perceived Risk (PR) influences perceived usefulness (PU) in cryptocurrency adoption."

The importance of risk and trust for electronic commerce purchasing decisions by applying SEM [75]. The study found that risk and trust have a strong impact on electronic commerce. Researchers also undertake this present study by forming:

H_{11}: "Perceived Risk (PR) influences Trust (T) in cryptocurrency adoption."

The study researched the attitude SI efficacy model impact on cyberbullying behavior [76]. The short-term effects of Computer-mediated communication on attitude and behavior and the long-term effect of "social influence" [77]. The present study also undertook this by formulating a hypothesis:

H_{12}: "Social influence (SI) impacts Attitude towards use (A) in cryptocurrency adoption."

Studies found that "social influence" led to negative utilization of Bitcoins regarded as the highest predictor of behavioral intention [33, 78]. The study showed the effect of SI, risk, and effort expectancy on "behavioral intention to use" Bitcoins. These studies form the hypothesis given below:

H_{13}: "Social influence (SI) impacts behavioral intention to use (ITU) in cryptocurrency adoption."

The significant and positive relationship with PE signifies that people who are important to me signify the usage of cryptocurrency for payment [18, 33]. Past research study formulates:

H_{14}: "Social influence (SI) impacts perceived ease of use (PE) in cryptocurrency adoption."

The factors affecting the acceptance of Bitcoin in Indonesia [79]. To analyze the technology, the UTAUT model has been used, which considers performance expectancy, "social influence", facilitating condition, and effort expectancy. The study undertakes the mediating factors as gender, age, perceived use, and behavior. This study brings:

H_{15}: "Social influence (SI) impacts perceived usefulness (PU) in cryptocurrency adoption."

The factors influencing the adoption of social media platforms include entertainment values, "social influence", trust, compliance, internationalization, and identification [80]. The dyadic relation of "social influence", Social Psychology, and Social Interaction with trust [81]. The study helps in the formulation of:

H_{16}: "Social influence (SI) impacts Trust (T) in cryptocurrency adoption."

Researchers considered the effect of trust on attitude toward use [58, 82-84]. Studies investigated the strong influence of trust on attitude towards use embarked:

H_{17}: "Trust (T) influences Attitude towards use (A) in cryptocurrency adoption."

Researchers study trust to determine its association with the intention to use it in e-commerce [85, 86] and analyze trust to determine its significance in terms of behavioral intention [63, 87, 89].

H_{18}: "Trust (T) influences behavioral intention to use (ITU) in cryptocurrency adoption."

Researchers [90-92] consider trust's impact on "perceived usefulness" as a mediating effect, and researchers found a positive significant effect which intends to formulate:

H_{19}: "Trust (T) influences perceived usefulness (PU) in cryptocurrency adoption.

4. RESEARCH DESIGN

4.1 Research methodology

The research applied an exploratory quantitative method based on the adaption of the construct adaptations and data collected across India from the cryptocurrencies. The instruments used for the measurement, hypothesis testing, and Smart PLS are employed. The method justifies the sample size, as the respondent who knows about cryptocurrencies are very small. The first part of the study analyzed the literature on technology adoption and its usage, and a questionnaire was constructed. The second part uses the Smart PLS to test the relationships between the regressor and Regress variables. In management science, the quantitative methodology is applied in comparison to blockchain communication.

4.2 Questionnaire

The questionnaire is structured and is built by considering the literature review. It was a self-administered questionnaire. The first section of the questionnaire captures the demographic information with seven questions like gender, highest qualification, monthly income, occupation, and if the respondent is familiar with the cryptocurrency. The second part captures the 25 statements covering seven constructs. A seven-point Likert scale that measures the various constructs from strongly agree [7] to disagree [1] strongly is used. The measures are revised to fit the existing scopes. The set of 150 responses was collected by online survey, and the complete 140 responses were empirically tested for the study. The sample is justified through the literature with a 140-sample size [93] appropriate to attain a statistical power of 70% for calculating the R square value of at least 0.25 at a 5% probability error.

4.3 Respondents characteristics

The frequency charts help to understand the profile of the respondents (Table 3). Out of a randomly filled online survey, 70% are male, and 30% are female. The questionnaire had five interval scales for age. 72.9% of the respondents fall into the age category of 19-30. 19.3% belong to the age category of 31-40. Category 41-50 has 5.7% of the respondents, and only 2.1% belong to the 51-65 age category. No respondents belong to the above 66 age category. There are 66.4 post-graduate respondents, 26.4% of respondents are graduates, and 3.6% are doctorate and technical & professionals. The questionnaire also captured the individual's income status in terms of gross monthly income (GMI). 41.4% of the respondents had less than Rs. 50,000 of GMI, and a 20% fall in the 51,000-80,000 GMI. 19.3% are in 81,000-120,000 GMI. Only 5% are in the range of 121,000150,000 GMI. There are 63.6% of private-salaried employees participated. 28.6% are students. Self-employed is 6.4%. There is 0.7% of respondents are housemakers and unemployed. The study took both users and non-users and asked if the respondents were familiar with the cryptocurrencies. 98.5% are familiar with cryptocurrencies, from a range of slightly to extremely. Only 1.4% were not aware of the subject. There are seven constructs used in the study. These are adapted and modified from the literature.

Table 3. Demographic profiling

Classification	Variable	Frequency	Percent
Gender	Male	98	70
	Female	42	30
Age (In years)	19-30	102	72.9
	31-40	27	19.3
	41-50	8	5.7
	51-65	3	2.1
Highest Educational Qualification	Doctorate	5	3.6
	Graduate	37	26.4
	Post Graduate	93	66.4
	Technical Professional	5	3.6
Gross Monthly Income (Monthly)	Above 150,000	20	14.3
	121,000-150,000	7	5
	81,000-120.000	27	19.3
	51,000-80,000	28	20
	Less than 50,000	58	41.4
Occupation	House maker	1	.7
	Salried –Private	89	63.9
	Self Employed	9	6.4
	Student	40	28.6
	Unemployed	1	.7

Source: The authors.

5. RESULTS AND FINDINGS

5.1 Statistical analysis

Since the conducted research predicts various mutually connected dependencies inside a single study, structural equations modeling (SEM) appears to be an appropriate approach, and SmartPLS3 is employed as a statistical program for data analysis. Further quantitative assessment is performed on this research dataset by utilizing Structural Equation Modeling, where the structural equation model is separated into two distinct models.

1. Measurement Model
2. Structural Model

1. Measurement Model

Under the measurement model analysis of the structural equation model, Cronbach's alpha and composite reliability were used to assess the composite reliability [94]. The whole dataset was evaluated, and components with factor loadings less than 0.600 were removed [95]. Table 4 shows the whole sample's reliability and validity scores and the factor loadings for the associated variables.

Reliability & Validity

If the valuation of a specific factor is higher than 0.700 in the case of alpha and CR, that factor seems to have high

reliability in the proposed model [96], and as readers can see in the following table, all seven constructs of the presented study have alpha and CR values higher than 0.700. Further, the authors used the average variance extracted (AVE) score to measure the convergence of distinct components into its core factors to verify the convergent validity of components in the model [97]. Additionally, suppose the AVE value of factors used in the model is higher than 0.500. In that case, the factors are in convergence with its variables, and the construct is appropriate for the framework [98].

Table 4. Reliability and validity

Construct	Indicator Item	Item	Factor Loading	Cronbach's Alpha (α)	Composite Reliability [94]	AVE
Attitude	A1	There is a good scope to make money by investing in cryptocurrencies.	0.759	0.880	0.918	0.738
	A2	Cryptocurrency is a good investment avenue.	0.887			
	A3	I enjoy investing in cryptocurrencies.	0.871			
	A4	It's a wise decision to invest in cryptocurrencies.	0.912			
ITU	ITU 1	I intend to put money into cryptocurrency.	0.954	0.903	0.954	0.911
	ITU 2	I forecast my investment in cryptocurrencies to continue in the future.	0.955			
PE [94]	PE3	I am interested in cryptocurrencies future.	0.845	0.793	0.875	0.700
	PE1	I am interested in new technologies and innovations like cryptocurrency.	0.846			
	PE2	Cryptocurrency is secure, as it uses blockchain technology, which prevents losses & fraud.	0.820			
PU	PU1	Cryptocurrency allows me to make payments.	0.772	0.705	0.818	0.600
	PU2	Cryptocurrency allows me to buy goods and services.	0.770			
	PU3	Cryptocurrency is a good investment.	0.781			
PR	PR2	I find cryptocurrencies to be secure.	0.941	0.825	0.919	0.849
	PR4	Cryptocurrencies are less secure.	0.902			
SI [33]	SI1	Those who have the power to affect my decisions believe I should invest in cryptocurrency.	0.877	0.806	0.886	0.723
	SI2	Those who are valuable to me think I should invest in cryptocurrencies.	0.913			
	SI4	Investment in cryptocurrencies is considered to be a status symbol in my social network.	0.753			
Trust	T1	Cryptocurrency are trustworthy as an investment.	0.860	0.777	0.868	0.688
	T2	Cryptocurrencies keep their promise: deliver what it says.	0.783			
	T3	Cryptocurrency as an investment keeps investor interest in mind.	0.843			

Note**:** α = Cronbach's alpha, in all constructs α > 0.700, CR = Construct reliability in all constructs value of CR is > 0.700. The items with a factor loading less than 0.7 are removed from the empirical analysis.
Source: The authors.

Table 5. Discriminant Validity (HTMT)

Construct	Attitude	Behavioral Intention to Use (ITU)	Perceived Ease of Use [94]	Perceived Usefulness (PU)	Perceived Risk (PR)	Social Influence [33]	Trust
Attitude	**0.859**						
ITU	0.799	**0.955**					
PE	0.694	0.830	**0.837**				
PU	0.720	0.648	0.538	**0.774**			
PR	0.318	0.343	0.482	0.305	**0.922**		
SI	0.581	0.519	0.491	0.608	0.287	**0.850**	
Trust	0.692	0.536	0.512	0.671	0.456	0.582	**0.829**

Source: The authors.

Discriminant Validity

To distinguish between the construct discriminant validity is used, and it may be proven in three ways.

1. Fornell-Larcker Criterion
2. Cross Loadings
3. Heterotrait-Monotrait Ratio (HTMT)

The authors analyzed seven unique factors in this study: attitude (A), ITU, PE, PU, PR, SI, and T. Discriminant validity helps us establish quantitatively that the given model's factors are distinct from each other. Table 5 shows the discriminant validity of the presented factors in the study.

According to the discriminant validity principle, each factor utilized in the study should be distinct from the others. The fact that the square root of AVE, shown in bold on the diagonal, is bigger than the correlation between the factors and each of the other constructs in the study (vertically and horizontally) confirms the hypothesis.

2. Structural Equation Model

A structural model assessment is performed to determine the importance of the independent variables in the study by calculating R^2 and Q^2 significance, which refers to the model's predictive relevance [99]. Further, the validity of the model is assessed in this paper by analyzing path coefficients, and significant t values in the process of hypothesis testing and mediation analysis. The appropriate fit indexes of the model are determined with the help of a standardized root-mean-square model (RMSE). RMSE indicates the average value of any deviation, and if the model has a smaller value, then the adjustment is needed. In the current study RMSE =0.068, which indicates a good fit between the model and the data.

Results for R^2 and Q^2

The R^2 value of the Regress and variable in a model indicates how much difference in the Regress and variable can be described by the independent variable. In Table 6, as per the thumb rule for PLS analysis, the R^2 value is greater than 0.367 for factors (ITU), [94], (PU), and [22]. This indicates that the regressor variable has a moderating influence on the Regress and variable [95].

Table 6. Results for R^2 and Q^2 predictive relevance

Endogenous Latent Variable	R^2	Q^2
Attitude	0.651	0.460
ITU	0.638	0.577
PE	0.367	0.243
PU	0.547	0.261
Trust	0.430	0.265

Note: The value of $R^2 > 0.10$ and $Q^2 > 0$.
Source: The authors.

Geisser created the Q^2 test to determine the predictive importance of endogenous components. This test determines how effectively the model and its component estimations mimic reported values. The Q^2 value for factors (A), (ITU),[94], (PU), and [22] is higher than 0, which shows the high predictive relevance of factors used in the model.

Hypothesis Testing

Under hypothesis testing, the null hypothesis can be rejected if the path Coefficient's p-value is less than 0.05 (5%), which means the independent factors do not have a considerable impact on the Regress and variable [100].

Table 7. Hypotheses testing

Path Posited	Path Coefficient	T-Value	P-Value
Attitude -> ITU	0.799	22.710	0.000
PE -> Attitude	0.526	8.905	0.000
PE -> ITU	0.420	7.288	0.000
PE -> PU	0.193	2.132	0.033
PU -> Attitude	0.488	8.617	0.000
PU -> ITU	0.390	8.509	0.000
PR -> Attitude	0.259	4.055	0.000
PR -> ITU	0.207	3.891	0.000
PR -> PE	0.371	3.478	0.001
PR -> PU	0.202	3.470	0.001
PR -> Trust	0.315	3.296	0.001
SI -> Attitude	0.434	7.547	0.000
SI -> ITU	0.347	6.775	0.000
SI -> PE	0.384	4.470	0.000
SI -> PU	0.550	7.734	0.000
SI -> Trust	0.492	6.104	0.000
Trust -> Attitude	0.202	4.416	0.000
Trust -> ITU	0.161	4.485	0.000
Trust -> PU	0.414	5.614	0.000

Note: The table shows the 19 hypotheses in the sequence.
Source: The authors.

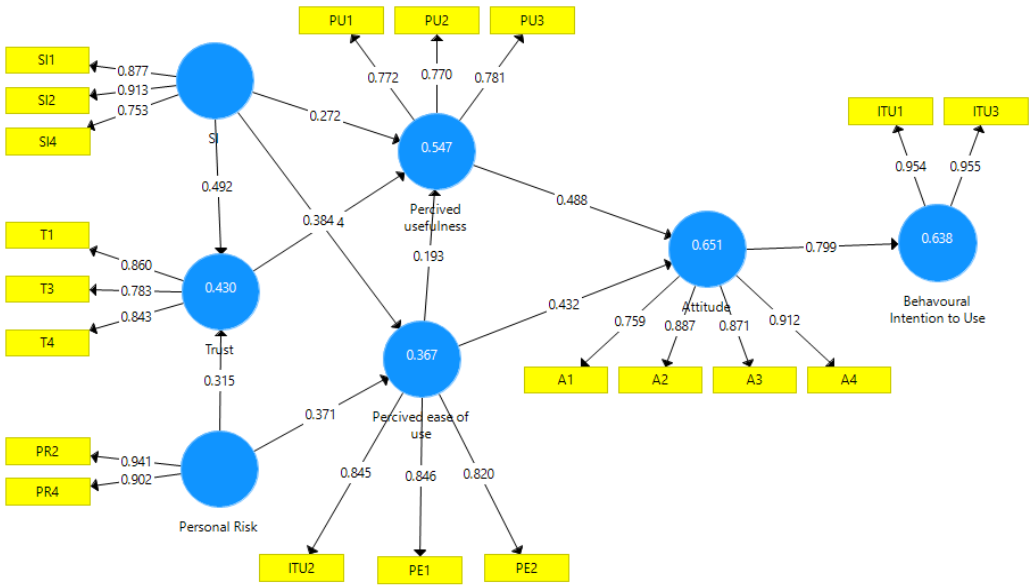

Figure 2. Structural model
Source: The authors.

With a path coefficient of more than 0 and a P value of less than 0.05, Table 7 reveals a positive influence. As a result, the null hypothesis is rejected, and the table's alternative hypotheses are accepted.

Finally, it may be concluded that all of the Regressand variables and Regressor variables in the model's (Figure 2) built paths have a statistically significant and beneficial impact.

Mediation Analysis

The mediator variable is tested to see whether it helps to explain the extent of the link between the independent and dependent factors. Mediation studies are used to investigate the fundamental method or procedure by which one variable impact another via a mediator variable.

Table 8. Mediation analysis

Hypothesis	Total Effect			Direct Effect			Indirect Effect		
	β Value	Sig.	T Value	β Value	Sig.	T Value	β Value	Sig.	T Value
PE -> PU	0.193	0.033	2.132						
PU -> Attitude	0.488	0.000	8.617						
PE -> PU -> Attitude	0.526	0.000	8.905	0.428	0.000	7.102	0.094	0.042	2.037

Note: The table shows the direct and indirect effect.
Source: The authors.

The "behavioral intention to use" has a significant positive relationship with attitude, while "perceived usefulness" and "perceived ease of use" have a significant and positive relationship with attitude. Furthermore, in Table 8, we can see that after applying the process model for mediation analysis. "Perceived usefulness" is mediating between PE and attitude. Here the total direct effect is significant at 0.193 and 0.488, along with a significant indirect effect of 0.094. This indicates a partial mediation effect of PU between PE and Attitude [101].

6. DISCUSSION

6.1 Hypothesis discussion

The present study investigates the adoption of cryptocurrency through the TAM (technology acceptance model). The model is extended with some variables like SI, T, and PR. The study fails to reject all the hypotheses formulated in Table 6. The findings of the study thus support the hypothesis. The study concludes that (A) Attitude leads to the ITU (behavioral intention) to use the cryptocurrency (β=0.799, t=22.710) (H1). The PE of the cryptocurrency shows a significant association and leads to the intention to use, partially mediated by attitude (H2-β=0.526, t=8.905), H3-β=0.420, t=7.288). PE also increases the "perceived usefulness" and the attitude towards the cryptocurrency and has a direct effect (H4-β=0.193, t=2.132, H5-β= 0.488, t=8.617). The PU of the cryptocurrency leads to the positive intention (ITU) towards the use of cryptocurrencies and is also partially mediated by the attitude (A) (H6-β=0.390, t=8.509). Perceived risk (PR), which is an external variable, positively impacts the trust (β=0.315, t=3.296) with 95% significance, thus supporting H11. PR also significantly influences the PU with indirect coefficients (β=0.202, t=3.470) and PE with total effect (β=0.371 supporting H 10 and H9. The risk also significantly impacts the attitude (β=0.259, t=4.055) and intention to use cryptocurrency (β=0.207, t=3.891), which makes risk important for the investors to be considered but due to ease of use and the attitude towards the cryptos positively influences the intention to use and thus support H7, H8.

Another external variable, "social influence" (SI), acts as an exogenous latent variable and a predictor for trust with total effect (β=0.492, t=6.104), which supports the H16. SI also positively influences the "perceived ease of use" (β=0.384, t=4.470) and "perceived usefulness" (β=0.550, t=.734), thus supporting H14, H15. Trust significantly impacts the intention to use (β=0.202) and PU (β=0.414, TT=5.614), and attitude (β=0.202, t=40416) supporting H18, H19, H17. This implies that trust, which is influenced by the risk and SI if it increases, can lead to the use and adoption of cryptocurrencies. The research model indicates behavioral intention (see Table 5) with an R^2 value of 63.8%. The model explains the explanatory power of the adoption of cryptocurrency by Indian investors.

6.2 Relation with existing work

Some of the results are supported by Palos-Sanchez et al. [39], a study done on Bitcoins in Spain, but they found no association between the PR and PU. Trust shows a contrasting result and nonsignificant relationship with the PU. The influence of "social influence" on building trust and thus affecting the usefulness and ease of use for intention to use is the major contribution, supported by the studies done in the supply chain in the Indian context [102] and contrasted when SI does not influence the "behavioral intention to use" of blockchain in the Brazilian supply chain [103].

6.3 Contribution

The study contributes to India's extended TAM and the adoption and acceptance of cryptocurrencies. The model has an excellent explanatory value while showing a good predictive ability with endogenous variable Q2>0 (Table 5). This shows how different factors and external variables affect cryptocurrency adoption in India. The contribution is made on the extended TAM with two exogenous latent variables, SI and PR, and one endogenous latent variable Trust, on adopting the cryptocurrencies in India. The study also finds the partial mediation effect of external variables (AI, T, PR) on ITU via A, PU, and PE. The investors and managers who show intentions to use cryptocurrency in India can be influenced by a social circle and the underlying risk they see and expect high in the market.

7. CONCLUSION

The current research explored the adoption of cryptocurrency in India utilizing the TAM (Technology Acceptance Model) extended with variables like "social influence," perceived risk, and trust. The study concluded that Intention to Use (ITU) is strongly predicted by Attitude, PE, PU, and SI, with Attitude having the greatest impact on ITU. Perceptions and trust are greatly influenced by "social influence", which indirectly supports ITU.

The study supported all formulated hypotheses, providing valuable insights into the factors influencing Indian investors' intention to use cryptocurrency. The research model explains 63.8% of the variance in "behavioral intention to use" cryptocurrency among Indian investors, indicating its strong

explanatory power. The study's results align with some existing research but also reveal contrasting findings regarding the relationships between perceived risk, "perceived usefulness", and trust.

7.1 Theoretical implications

These findings are valuable for investors and managers in India who intend to use cryptocurrencies, as they can be influenced by social circles and the perceived risks associated with the market. Policymakers and regulators can also benefit from these insights to develop appropriate strategies for the cryptocurrency market in India.

7.2 Practical implications

In India, although the government introduced tax liability on cryptocurrency investment profits in the 2022 budget, it has not legalized the currency. The study highlights the potential for regulatory attention, as non-legal status leads to a high adoption rate. Legalization could attract more investors and generate additional tax revenues for the government. Managing risk is crucial and can be addressed through proper regulation and building trust among stakeholders. The study helps the government with awareness programs regarding the adoption of cryptocurrency and the latest developments. Cryptocurrency is a borderless means of payment, which again becomes a necessity to create, adapt, and adjust global monetary and financial systems increased by their fast change.

7.3 Contribution, limitation and future work

The contribution of this study lies in extending the TAM model with "social influence" and perceived risk as external variables and trust as an endogenous latent variable in the perspective of cryptocurrency adoption in India. The research also identifies the partial mediation effect of attitude, trust, and perceived risk on "behavioral intention to use" cryptocurrency.

By establishing a high level of trust and regulatory intervention, Indian society can develop a positive perception of cryptocurrency, promoting widespread acceptance beyond being viewed solely as a speculative tool. Future research can explore advanced adoption models like the (Unified Theory of Acceptance and Use of Technology) UTAUT and incorporate additional external variables to examine cryptocurrency adoption across countries. However, the study does not consider important factors such as regulations, security concerns, and market volatility. The study's relatively small sample size is one of its limitations, which could have an impact on the findings' robustness and generalizability.

Addressing these limitations in future research will enhance the validity and applicability of findings in cryptocurrency adoption and acceptance.

ACKNOWLEDGMENT

The authors would like to express their profound appreciation to the corresponding institutions for their vital help.

REFERENCES

[1] Rauchs, M., Glidden, A., Gordon, B., Pieters, G.C., Recanatini, M., et al. (2018). Distributed ledger technology systems: A conceptual framework. Available at SSRN 3230013. http://doi.org/10.2139/ssrn.3230013

[2] Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system. Decentralized Business Review. http://doi.org/10.2139/ssrn.3440802

[3] Fauzi, M.A., Paiman, N., Othman, Z. (2020). Bitcoin and cryptocurrency: Challenges, opportunities and future works. The Journal of Asian Finance, Economics and Business (JAFEB), 7(8): 695-704. http://doi.org/10.13106/jafeb.2020.vol7.no8.695

[4] Angel, J.J., McCabe, D. (2015). The ethics of payments: Paper, plastic, or Bitcoin? Journal of Business Ethics, 132(3): 603-611. https://doi.org/10.1007/s10551-014-2354-x

[5] Böhme, R., Christin, N., Edelman, B., Moore, T. (2015). Bitcoin: Economics, technology, and governance. Journal of economic Perspectives, 29(2): 213-238. https://doi.org/10.1257/jep.29.2.213

[6] Gil-Cordero, E., Cabrera-Sánchez, J.P., Arrás-Cortés, M. J. (2020). Cryptocurrencies as a financial tool: Acceptance factors. Mathematics, 8(11): 1974. https://doi.org/10.3390/math8111974

[7] Luther, W.J., White, L.H. (2014). Can Bitcoin become a major currency? GMU Working Paper in Economics No. 14-17. http://doi.org/10.2139/ssrn.2446604

[8] Yaga, D., Mell, P., Roby, N., Scarfone, K. (2019). Blockchain technology overview. arXiv preprint arXiv:1906.11078. https://doi.org/10.48550/arXiv.1906.11078

[9] Agarwal, N. (2021). Redefining banking: Exchange traded savings and loans using cryptocurrencies. International Journal of Electronic Banking, 3(1): 1-11. https://doi.org/10.1504/IJEBANK.2021.117376

[10] Aggarwal, G., Patel, V., Varshney, G., Oostman, K. (2019). Understanding the social factors affecting the cryptocurrency market. arXiv preprint arXiv:1901.06245. https://doi.org/10.48550/arXiv.1901.06

[11] Giungato, P., Rana, R., Tarabella, A., Tricase, C. (2017). Current trends in sustainability of Bitcoins and related blockchain technology. Sustainability, 9(12): 2214. https://doi.org/10.3390/su9122214

[12] Hassan, A., Mas' ud, M.Z., Shah, W.M., Abdul-Latip, S.F., Ahmad, R., Ariffin, A., Yunos, Z. (2020). A systematic literature review on the security and privacy of the blockchain and cryptocurrency. OIC-CERT Journal of Cyber Security, 2(1): 1-17.

[13] Herskind, L., Katsikouli, P., Dragoni, N. (2020). Privacy and cryptocurrencies—A systematic literature review. IEEE Access, 8: 54044-54059. https://doi.org/10.1109/ACCESS.2020.2980950

[14] Albayati, H., Kim, S.K., Rho, J.J. (2020). Accepting financial transactions using blockchain technology and cryptocurrency: A customer perspective approach. Technology in Society, 62: 101320. https://doi.org/10.1016/j.techsoc.2020.101320

[15] Venkatesh, V., Speier, C., Morris, M.G. (2002). User acceptance enablers in individual decision making about technology: Toward an integrated model. Decision Sciences, 33(2): 297-316. https://doi.org/10.1111/j.1540-5915.2002.tb01646.x
[16] Venkatesh, V., Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. Management Science, 46(2): 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926
[17] Venkatesh, V., Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2): 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x
[18] Venkatesh, V., Thong, J.Y., Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly, 36(1): 157-178. https://doi.org/10.2307/41410412
[19] Davis, F.D. (1989). "Perceived usefulness", "perceived ease of use", and user acceptance of information technology. MIS Quarterly, 13(3): 319-340. https://doi.org/10.2307/249008
[20] Gupta, S., Gupta, S., Mathew, M., Sama, H.R. (2021). Prioritizing intentions behind investment in cryptocurrency: A fuzzy analytical framework. Journal of Economic Studies, 48(8): 1442-1459. https://doi.org/10.1108/JES-06-2020-0285.
[21] Holub, M., Johnson, J. (2018). Bitcoin research across disciplines. The Information Society, 34(2): 114-126. https://doi.org/10.1080/01972243.2017.1414094
[22] Baur, A.W., Bühler, J., Bick, M., Bonorden, C.S. (2015). Cryptocurrencies as a disruption? Empirical findings on user adoption and future potential of Bitcoin and co. In Open and Big Data Management and Innovation: 14th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2015, Delft, the Netherlands, pp. 63-80. https://doi.org/10.1007/978-3-319-25013-7_6
[23] Androulaki, E., Karame, G.O., Roeschlin, M., Scherer, T., Capkun, S. (2013). Evaluating user privacy in Bitcoin. In Financial Cryptography and Data Security: 17th International Conference, FC 2013, Okinawa, Japan, pp. 34-51. https://doi.org/10.1007/978-3-642-39884-1_4
[24] Abramova, S., Böhme, R. (2016). Perceived benefit and risk as multidimensional determinants of Bitcoin use: A quantitative exploratory study.
[25] Conti, M., Kumar, E.S., Lal, C., Ruj, S. (2018). A survey on security and privacy issues of Bitcoin. IEEE Communications Surveys & Tutorials, 20(4): 3416-3452. https://doi.org/10.1109/COMST.2018.2842460
[26] Mendoza-Tello, J.C., Mora, H., Pujol-López, F.A., Lytras, M. D. (2018). Social commerce as a driver to enhance trust and intention to use cryptocurrencies for electronic payments. IEEE Access, 6: 50737-50751. https://doi.org/10.1109/ACCESS.2018.2869359
[27] Gazali, H.M., Ismail, C.M.H.B.C., Amboala, T. (2018). Exploring the intention to invest in cryptocurrency: The case of Bitcoin. In 2018 International Conference on Information and Communication Technology for the Muslim World (ICT4M), Kuala Lumpur, Malaysia, pp. 64-68. https://doi.org/10.1109/ICT4M.2018.00021
[28] Alaeddin, O., Altounjy, R. (2018). Trust, technology awareness and satisfaction effect into the intention to use cryptocurrency among generation Z in Malaysia. International Journal of Engineering & Technology, 7(4.29): 8-10.
[29] Guych, N., Anastasia, S., Simon, Y., Jennet, A. (2018). Factors influencing the intention to use cryptocurrency payments: An Examination of Blockchain Economy. Munich Personal RePEc Archive, 303-310.
[30] Al-hussaini, A., Ibrahim, A.A., Fauzan, M. (2019). Users Perception of Cryptocurrency System Application from the Islamic Views. International Journal on Islamic Applications in Computer Science and Technology, 7(1): 13-25. http://www.sign-ific-ance.co.uk/index.php/IJASAT/article/view/2019.
[31] Alqaryouti, O., Siyam, N., Alkashri, Z., Shaalan, K. (2019). Cryptocurrency usage impact on perceived benefits and users' behaviour. In European, Mediterranean, and Middle Eastern Conference on Information Systems, Cham: Springer International Publishing, pp. 123-136. https://doi.org/10.1007/978-3-030-44322-1_10
[32] Chen, L.C., Farkas, D. (2019). Individual risk perception and choice using cryptocurrency for transactions. ICIS 2019 Proceedings. 10. https://aisel.aisnet.org/icis2019/blockchain_fintech/blockchain_fintech/10.
[33] Nuryyev, G., Wang, Y.P., Achyldurdyyeva, J., Jaw, B.S., Yeh, Y.S., Lin, H.T., Wu, L.F. (2020). Blockchain technology adoption behavior and sustainability of the business in tourism and hospitality SMEs: An empirical study. Sustainability, 12(3): 1256. https://doi.org/10.3390/su12031256
[34] Gupta, S., Gupta, S., Mathew, M., Sama, H.R. (2021). Prioritizing intentions behind investment in cryptocurrency: a fuzzy analytical framework. Journal of Economic Studies, 48(8): 1442-1459. https://doi.org/10.1108/JES-06-2020-0285
[35] Voskobojnikov, A., Obada-Obieh, B., Huang, Y., Beznosov, K. (2020). Surviving the cryptojungle: Perception and management of risk among North American cryptocurrency (non) users. In International Conference on Financial Cryptography and Data Security, pp. 595-614. https://doi.org/10.1007/978-3-030-51280-4_32
[36] Maciejasz-Świątkiewicz, M., Poskart, R. (2020). Cryptocurrency perception within countries: A comparative analysis. European Research Studies Journal, 23(2): 186-203. https://doi.org/10.35808/ersj/1588
[37] Ayedh, A., Echchabi, A., Battour, M., Omar, M. (2021). Malaysian Muslim investors' behaviour towards the blockchain-based Bitcoin cryptocurrency market. Journal of Islamic Marketing, 12(4): 690-704. https://doi.org/10.1108/JIMA-04-2019-0081
[38] Jalal, R.N.U.D., Leonelli, S. (2021). Does self-attribution impact on investor perception about cryptocurrency market efficiency? The mediating role of overconfidence. In Exploring Innovation in a Digital World: Cultural and Organizational Challenges, pp. 137-150. https://doi.org/10.1007/978-3-030-87842-9_11
[39] Palos-Sanchez, P., Saura, J.R., Ayestaran, R. (2021). An exploratory approach to the adoption process of Bitcoin by business executives. Mathematics, 9(4): 355. https://doi.org/10.3390/math9040355
[40] Böyükaslan, A., Ecer, F. (2021). Determination of drivers for investing in cryptocurrencies through a fuzzy

full consistency method-Bonferroni (FUCOM-F'B) framework. Technology in Society, 67: 101745. https://doi.org/10.1016/j.techsoc.2021.101745
[41] Huong, N.T.L., Oanh, N.T.L., Linh, H.N.N. (2021). Testing impact of personal innovativeness on intention to invest in cryptocurrency products of Vietnamese people: an extension of theory of planned behavior (TPB). In International Conference on Emerging Challenges: Business Transformation and Circular Economy, pp. 147-157. https://doi.org/10.1007/s12144-023-04307-8
[42] Sun, W., Dedahanov, A.T., Shin, H.Y., Li, W.P. (2021). Factors affecting institutional investors to add crypto-currency to asset portfolios. The North American Journal of Economics and Finance, 58: 101499. https://doi.org/10.1016/j.najef.2021.101499
[43] Pham, Q.T., Phan, H.H., Cristofaro, M., Misra, S., Giardino, P.L. (2021). Examining the intention to invest in cryptocurrencies: An extended application of the theory of planned behavior on Italian independent investors. International Journal of Applied Behavioral Economics (IJABE), 10(3): 59-79. https://doi.org/10.4018/IJABE.2021070104
[44] Soomro, B. A., Shah, N., Abdelwahed, N.A.A. (2022). Intention to adopt cryptocurrency: a robust contribution of trust and the theory of planned behavior. Journal of Economic and Administrative Sciences, (ahead-of-print). https://doi.org/10.1108/JEAS-10-2021-0204
[45] Taheri Tolu, M., Yazdanian, N., Hemmati, H., Kordlouoie, H. (2022). Accepting financial transactions using blockchain technology and cryptocurrency based on the TAM model: A case study of Iranian users. Iranian Journal of Accounting, Auditing and Finance, 6(2): 97-109. https://doi.org/109. 10.22067/ijaaf.2022.41763
[46] Islam, H., Rana, M., Saha, S., Khatun, T., Ritu, M.R., Islam, M.R. (2023). Factors influencing the adoption of cryptocurrency in Bangladesh: an investigation using the technology acceptance model (TAM). Technological Sustainability, 2(4): 423-443. https://doi.org/10.1108/TECHS-07-2023-0025
[47] Kocabas, A.D., Calik, E., Cetinguc, B. (2024). Examining cryptocurrency usage by technology acceptance model in the Turkish context. African Journal of Science, Technology, Innovation and Development, 16(5): 630-640. https://doi.org/10.1080/20421338.2024.2364436
[48] El Chaarani, H., EL Abiad, Z., El Nemar, S., Sakka, G. (2024). Factors affecting the adoption of cryptocurrencies for financial transactions. EuroMed Journal of Business, 19(1): 46-61. https://doi.org/10.1108/EMJB-04-2023-0121
[49] Silva, P. (2015). Davis' technology acceptance model (TAM)(1989). In Information Seeking Behavior and Technology Adoption: Theories and Trends, pp.205-219. https://doi.org/10.4018/978-1-4666-8156-9.ch013
[50] Fishbein, M., Ajzen, I. (1977). Belief, attitude, intention, and behavior: An introduction to theory and research. Philosophy and Rhetoric, 10(2): 130-132.
[51] Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. Information Systems Research, 2(3): 173-191. https://doi.org/10.1287/isre.2.3.173
[52] Taylor, S., Todd, P.A. (1995). Understanding information technology usage: A test of competing models. Information systems research, 6(2): 144-176. https://doi.org/10.1287/isre.6.2.144
[53] Harrison, D.A., Mykytyn Jr, P.P., Riemenschneider, C. K. (1997). Executive decisions about adoption of information technology in small business: Theory and empirical tests. Information Systems Research, 8(2): 171-195. https://doi.org/10.1287/isre.8.2.171
[54] Taylor, S., Todd, P. (1995). Assessing IT usage: The role of prior experience. MIS Quarterly, 19(4): 561-570. https://doi.org/10.2307/249633
[55] Munoz-Leiva, F., Climent-Climent, S., Liébana-Cabanillas, F. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. Spanish Journal of Marketing-ESIC, 21(1): 25-38. https://doi.org/10.1016/j.sjme.2016.12.001
[56] Fathema, N., Shannon, D., Ross, M. (2015). Expanding the Technology Acceptance Model (TAM) to examine faculty use of Learning Management Systems (LMSs) in higher education institutions. Journal of Online Learning & Teaching, 11(2): 210-232.
[57] Guritno, S., Siringoringo, H. (2013). "Perceived usefulness", ease of use, and attitude towards online shopping usefulness towards online airlines ticket purchase. Procedia-Social and Behavioral Sciences, 81: 212-216. https://doi.org/10.1016/j.sbspro.2013.06.415
[58] Gass, R.H., Seiter, J.S. (2018). Persuasion: "Social Influence" and Compliance Gaining. Routledge, 7: 500. https://doi.org/10.4324/9781003081388
[59] Li, F., Betts, S.C. (2003). Trust: What it is and what it is not. International Business & Economics Research Journal (IBER). https://doi.org/10.19030/iber.v2i7.3825
[60] Das, T., Teng, B.S. (2004). The risk-based view of trust: A conceptual framework. Journal of Business and Psychology, 19(1): 85-116. https://doi.org/10.1023/B:JOBU.0000040274.23551.1b
[61] Rice, R.E., Aydin, C. (1991). Attitudes toward new organizational technology: Network proximity as a mechanism for social information processing. Administrative Science Quarterly, 36(2): 219-244. https://doi.org/10.2307/2393354
[62] Indarsin, T., Ali, H. (2017). Attitude toward Using m-commerce: The analysis of "perceived usefulness" "perceived ease of use", and perceived trust: Case study in Ikens Wholesale Trade, Jakarta–Indonesia. Saudi Journal of Business and Management Studies, 2(11): 995-1007. https://doi.org/10.21276/sjbms.2017.2.11.7
[63] Karahanna, E., Straub, D.W. (1999). The psychological origins of "perceived usefulness" and ease-of-use. Information & Management, 35(4): 237-250. https://doi.org/10.1016/S0378-7206(98)00096-2
[64] Saadé, R.G., Kira, D. (2007). Mediating the impact of technology usage on "perceived ease of use" by anxiety. Computers & Education, 49(4): 1189-1204. https://doi.org/10.1016/j.compedu.2006.01.009
[65] Shahzad, F., Xiu, G., Wang, J., Shahbaz, M. (2018). An empirical investigation on the adoption of cryptocurrencies among the people of mainland China. Technology in Society, 55: 33-40. https://doi.org/10.1016/j.techsoc.2018.05.006
[66] Aditya, R., Wardhana, A. (2016). Pengaruh "perceived usefulness" dan "perceived ease of use" terhadap behavioral intention dengan pendekatan Technology Acceptance Model (TAM) pada pengguna Instant Messaging LINE di Indonesia. Jurnal Siasat Bisnis,

20(1): 24-32. https://doi.org/10.20885/jsb.vol20.iss1.art3
[67] Mehta, P., Singla, H., Saha, R., Tyagi, S. (2021). A pathway to technology integration: Eliciting consumer's behavioural intention to use Paytm services. Paradigm, 25(1): 7-24. https://doi.org/10.1177/0971890721100371
[68] Abdullah, F., Ward, R., Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' "perceived ease of use" (PEOU) and "perceived usefulness" (PU) of e-portfolios. Computers in Human Behavior, 63: 75-90. https://doi.org/10.1016/j.chb.2016.05.014
[69] Walton, A.J., Johnston, K.A. (2018). Exploring perceptions of Bitcoin adoption: The South African virtual community perspective. Interdisciplinary Journal of Information, Knowledge, and Management, 13: 165. https://doi.org/10.28945/4080
[70] Grover, P., Kar, A.K., Janssen, M., Ilavarasan, P.V. (2019). "Perceived usefulness", ease of use and user acceptance of blockchain technology for digital transactions–insights from user-generated content on Twitter. Enterprise Information Systems, 13(6): 771-800. https://doi.org/10.1080/17517575.2019.1599446
[71] Bhatti, A., Saad, S., Gbadebo, S.M. (2018). Convenience risk, product risk, and perceived risk influence on online shopping: Moderating effect of attitude. International Journal of Business Management, 3(2): 1-11.
[72] Yoo, K., Bae, K., Park, E., Yang, T. (2020). Understanding the diffusion and adoption of Bitcoin transaction services: The integrated approach. Telematics and Informatics, 53: 10130. https://doi.org/10.1016/j.tele.2019.101302
[73] Saleh, A.H.A.I., Ibrahim, A.A., Noordin, M.F., Mohadis, H.M. (2020). Factors influencing adoption of cryptocurrency-based transaction from an Islamic perspective. Global Journal of Computer Science and Technology, 20(4): 1-13.
[74] Iriani, S.S., Andjarwati, A.L. (2020). Analysis of "perceived usefulness", "perceived ease of use", and perceived risk toward online shopping in the era of Covid-19 pandemic. Systematic Reviews in Pharmacy, 11(12): 313-320.
[75] Kim, D.J., Ferrin, D.L., Rao, H.R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. Decision Support Systems, 44(2): 544-564. https://ink.library.smu.edu.sg/lkcsb_research/1147.
[76] Lee, Y.C., Wu, W.L. (2018). Factors in cyber bullying: The attitude-social influence-efficacy model. Anales De Psicología/Annals of Psychology, 34(2): 324-331. https://doi.org/10.6018/analesps.34.2.295411
[77] Sassenberg, K., Jonas, K.J. (2007). Attitude change and "social influence" on the net. Oxford Handbook of Internet Psychology, 273-288.
[78] Almarashdeh, I., Eldaw, K.E., Alsmadi, M., Alghamdi, F., Jaradat, G., et al. (2021). The adoption of Bitcoins technology: The difference between perceived future expectation and intention to use Bitcoins: Does "social influence" matter? International Journal of Electrical & Computer Engineering, 11(6): 2088-8708. https://doi.org/10.11591/ijece.v11i6.pp5351-5366
[79] Gunawan, F.E., Novendra, R. (2017). An analysis of Bitcoin acceptance in Indonesia. ComTech: Computer, Mathematics and Engineering Applications, 8(4): 241-247. https://doi.org/10.21512/comtech.v8i4.3885
[80] Abbas Naqvi, M.H., Jiang, Y., Miao, M., Naqvi, M.H. (2020). The effect of "social influence", trust, and entertainment value on social media use: Evidence from Pakistan. Cogent Business & Management, 7(1): 1723825. https://doi.org/10.1080/23311975.2020.1723825
[81] Schoorman, F.D., Mayer, R.C., Davis, J.H. (1996). Social influence, social interaction, and social psychology in the study of trust. Academy of Management. The Academy of Management Review, 21(2): 337.
[82] Barnett, J., Cooper, H., Senior, V. (2007). Belief in public efficacy, trust, and attitudes toward modern genetic science. Risk Analysis: An International Journal, 27(4): 921-933. https://doi.org/10.1111/j.1539-6924.2007.00932.x
[83] Alraja, M. N., Farooque, M.M.J., Khashab, B. (2019). The effect of security, privacy, familiarity, and trust on users' attitudes toward the use of the IoT-based healthcare: the mediation role of risk perception. IEEE Access, 7: 111341-111354. https://doi.org/10.1109/ACCESS.2019.2904006
[84] Fan, J., Shao, M., Li, Y., Huang, X. (2018). Understanding users' attitude toward mobile payment use: A comparative study between China and the USA. Industrial Management & Data Systems, 118(3): 524-540. https://doi.org/10.1108/IMDS-06-2017-0268
[85] Wu, L., Chen, J.L. (2005). An extension of trust and TAM model with TPB in the initial adoption of on-line tax: an empirical study. International Journal of Human-Computer Studies, 62(6): 784-808. https://doi.org/10.1016/j.ijhcs.2005.03.003.
[86] Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. International Journal of Electronic Commerce, 7(3): 101-134. https://doi.org/10.1080/10864415.2003.11044275
[87] Tung, F.C., Chang, S.C., Chou, C.M. (2008). An extension of trust and TAM model with IDT in the adoption of the electronic logistics information system in HIS in the medical industry. International Journal of Medical Informatics, 77(5): 324-335. https://doi.org/10.1016/j.ijmedinf.2007.06.006
[88] Gefen, D., Karahanna, E., Straub, D.W. (2003). Trust and TAM in online shopping: An integrated model. MIS Quarterly, 27(1): 51-90. https://doi.org/10.2307/30036519
[89] Kim, J.B. (2012). An empirical study on consumer first purchase intention in online shopping: integrating initial trust and TAM. Electronic Commerce Research, 12: 125-150. https://doi.org/10.1007/s10660-012-9089-5
[90] Matute, J., Polo-Redondo, Y., Utrillas, A. (2016). The influence of EWOM characteristics on online repurchase intention: Mediating roles of trust and "perceived usefulness". Online Information Review, 40(7): 1090-1110. https://doi.org/10.1108/OIR-11-2015-0373.
[91] Mou, J., Shin, D.H., Cohen, J. (2017). Understanding trust and "perceived usefulness" in the consumer acceptance of an e-service: A longitudinal investigation. Behaviour & Information Technology, 36(2): 125-139. https://doi.org/10.1080/0144929X.2016.1203024.
[92] Cohen, J. (1992). Statistical power analysis. Current Directions in Psychological Science, 1(3): 98-101.

https://doi.org/10.1111/1467-8721.ep1076878
[93] Ventre, I., Kolbe, D. (2020). The impact of "perceived usefulness" of online reviews, trust and perceived risk on online purchase intention in emerging markets: A Mexican perspective. Journal of International Consumer Marketing, 32(4): 287-299. https://doi.org/10.1080/08961530.2020.1712293
[94] Shachak, A., Kuziemsky, C., Petersen, C. (2019). Beyond TAM and UTAUT: Future directions for HIT implementation research. Journal of Biomedical Informatics, 100: 103315. https://doi.org/10.1016/j.jbi.2019.103315
[95] Hair Jr, J.F., Matthews, L.M., Matthews, R.L., Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. International Journal of Multivariate Data Analysis, 1(2): 107-123. https://doi.org/10.1504/IJMDA.2017.087624
[96] Nunnally, J.C. (1994). Psychometric Theory 3E: Tata McGraw-hill Education.
[97] Bagozzi, R.P., Yi, Y. (1988). On the evaluation of structural equation models. Journal of the Academy of Marketing Science, 16: 74-94. https://doi.org/10.1007/BF02723327
[98] Fornell, C., Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1): 39-50. https://doi.org/10.1177/002224378101800104
[99] Ali, F., Rasoolimanesh, S.M., Sarstedt, M., Ringle, C.M., Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. International Journal of Contemporary Hospitality Management, 30(1): 514-538. https://doi.org/10.1108/IJCHM-10-2016-0568
[100] Chetan Panse, D.S.R., Sharma, A.R.P.I.T.A., Dorji, N.A.M.G.A.Y. (2019). Understanding consumer behaviour towards utilization of online food delivery platforms. Journal of Theoretical and Applied Information Technology, 97(16): 4353-4365.
[101] Zhao, X., Lynch Jr, J.G., Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. Journal of Consumer Research, 37(2): 197-206. https://doi.org/10.1086/651257
[102] Kamble, S., Gunasekaran, A., Arha, H. (2019). Understanding the Blockchain technology adoption in supply chains-Indian context. International Journal of Production Research, 57(7): 2009-2033. https://doi.org/10.1080/00207543.2018.1518610
[103] Queiroz, M.M., Fosso Wamba, S., De Bourmont, M., Telles, R. (2021). Blockchain adoption in operations and supply chain management: empirical evidence from an emerging economy. International Journal of Production Research, 59(20): 6087-6103. https://doi.org/10.1080/00207543.2020.1803511