Readiness Drivers of Blockchain Technology in the UAE Financial Markets: Organizational, Technical, and Attitudinal Perspectives

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Abstract

This study examines the pre-adoption determinants of blockchain technology in financial markets and investigates how institutional, organizational, and technological factors influence users' readiness and behavioral intentions prior to system implementation in the United Arab Emirates (UAE). The research integrates the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the DeLone–McLean Information Systems Success Model, and Institutional Theory to develop a multidimensional framework linking institutional and organizational readiness, technical system quality, perceived ease of use, user attitudes, and behavioral intention. An explanatory quantitative research design was employed using survey data collected from 106 individual stockholders participating in the UAE financial markets. The proposed relationships were tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that institutional and organizational readiness, technical system quality, and perceived ease of use significantly influence users' attitudes toward blockchain. Attitude emerges as the strongest predictor of behavioral intention and fully mediates the relationship between readiness factors and adoption intentions. These findings extend technology adoption research by examining blockchain readiness in a pre-adoption context, where users rely primarily on perceptions rather than direct experience. From a practical perspective, the study provides guidance for policymakers, financial institutions, and technology developers seeking to enhance blockchain readiness through improved governance frameworks, technical reliability, and user-centered system design in emerging digital financial ecosystems.

Keywords: Blockchain, financial markets, behavioral intention, technology adoption, PLS-SEM, UAE.

1. Introduction

Blockchain is considered one of the most innovative technologies that has made significant transformative innovations in financial ecosystems. It employs decentralized, tamper-resistant, and distributed ledgers to improve transaction authentication, transparency, and auditability (Biais et al., 2023). Decentralized Finance (DeFi), which is a financial ecosystem built on blockchain, is linked to processes whose speed, security, integrity, and traceability can win the attention of regulators, investors, and intermediaries in international markets, liberating it from the existence of traditional institutional mechanisms. Actually, Blockchain would streamline all existing clearing and settlement processes, international payments, and real-time audit systems on the same account into a powerful disruptive innovation in the industry (Abdennadher et al. 2022, alifa2024; Agarwal et al., 2024).

Despite the likely transformational change that blockchain offers, its adoption in financial markets remains limited, particularly in developing countries. Although pilot initiatives and experimental use cases

have increased, fully developed incorporation of blockchain into financial markets remains at an early stage (Abdennadher et al., 2022, 2024; Sasitharan et al., 2023). Much of the existing literature and institutional practice focuses on post-adoption evaluation, analyzing how operational efficiencies have improved, increases in cybersecurity, or outcomes achieved in terms of compliance with regulation after a given blockchain has been installed (Haleem et al., 2020). However, without adequate levels of readiness, willingness, and behavioral intention from key market participants, widespread adoption will not take place. Pre-adoption becomes a highly important area of investigation for this reason. Indeed, it is at this early stage that users form their initial perceptions, expectations, and acceptance tendencies that they will ultimately serve to shape adoption trajectories (Haleem et al., 2020).

The UAE is an interesting perspective in terms of assessing blockchain readiness, with a strong national focus on digital transformation. The UAE Blockchain Strategy 2031 lays down an ambitious way to shift 50% of government transactions to blockchain-enabled platforms (Lyu et al., 2025). Such strategic intent exerts pressure on financial institutions, brokers, listed companies, and investors alike to align proactively with the technological transformation of capital markets. How these players view the value, usability, and institutional feasibility of blockchain is important not only for understanding adoption scenarios but also for coming up with supportive policies, technological infrastructure, and regulatory interventions in order to orient the market toward adoption.

Although some scholars have pointed out that blockchain adoption cannot be understood solely from a technological or operational perspective, socio-cognitive and institutional factors are essential (Powell and DiMaggio, 1983). This study is derived from a multitude of well-established frameworks that capture the multidimensional aspects of these influences. The Technology Acceptance Model (TAM) outlines the impact of perceived usefulness and perceived ease of use in establishing attitudes toward technology and subsequent behavior intentions (Davis, 1989). Meanwhile, the Unified Theory of Acceptance and Use of Technology (UTAUT) builds on this premise by adding the social influence, facilitating conditions, and user expectancy beliefs (Venkatesh et al., 2003, 2016). The DeLone and McLean Information Systems Success Model states that system quality, information quality, and service quality are important factors influencing user satisfaction and overall information system success (Delone and McLean, 2003). These technology-oriented frameworks together accentuate the significance of perceived ease of use, system quality, and user cognitions for pre-adoption evaluations.

Unfortunately, technological and perceptual factors cannot fully explain adoption behavior in a highly regulated environment, such as that of financial markets. Thus, we considered Institutional Theory, which speaks to the regulatory, normative, and mimetic pressures that influence collective organizational or individual decision-making (Powell and DiMaggio, 1983). The existence of institutional forces, such as regulation, industry standards, and legitimacy expectations, plays a crucial role in shaping the attitudes and diminishing uncertainties concerning the emergence of new technologies. The stronger the institutional support and preparatory organizational posture, the greater the inclination for users to appraise blockchain positively and with stronger dispositions toward adoption.

The incorporation of these theoretical perspectives gives a more integrated and multidimensional understanding of blockchain readiness with respect to the UAE financial market ecosystem. The full spectrum is considered, including institutional versus organizational readiness, technical quality, perceived ease of use, attitude formation, and behavioral intention. Indirectly focusing on potential users-investors involves a user-centered perspective that is often deemed absent from blockchain research, which traditionally appears to emphasize a system-based or regulatory analysis.

This study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data sourced from key stakeholders in the UAE's financial market. This form of causal analysis allows complex causal interdependency structures to be evaluated with good estimation in exploratory models, thus giving it an advantageous position for emerging research areas with evolving theoretical frameworks. The UAE's policy direction on blockchain, the early stage of adoption in financial markets, and the theoretical underpinning that aims to understand processes before adoption, all highlight the relevance and importance of this study. Accordingly, this study aims to examine the institutional and organizational factors that affect technical quality and perceived ease of use, which, in turn, influence users' attitudes and behavioral intentions toward blockchain adoption in the UAE financial markets, with special attention to the attitude pre-adoption phase mediating effect.

2. Literature Review

Rising global interest in the use of blockchain has motivated increasing attention in academia to the determinants influencing user readiness or behavioral intentions, particularly in financial markets. This strong strategic commitment and initiatives, driven by policies such as the UAE government's integration of

blockchain into its digital economy agenda, are not currently matched with comprehensive empirical studies on blockchain adoption in the UAE. In particular, it is still limited concerning possible adoption scenarios, such as the pre-adoption phase, during which stakeholders analyze the feasibility and intended use of the technology (Abdennadher et al., 2024). Early perceptions are vital to understand, as pre-adoption beliefs can accelerate or constrain later integration into financial infrastructures.

The Technology Acceptance Model provides the lens through which to view blockchain adoption. According to TAM, behavioral intention is shaped by perceived usefulness and perceived ease of use (Davis, 1989). Perceived Ease of Use (PEU) has particular resonance in the context of blockchain, which can be dissuaded by complexity and technical novelty. Empirical evidence indicates that when users perceive adopting blockchain applications with less effort, they generally hold positive attitudes and intentions towards their adoption (Alazab et al., 2021; Taherdoost, 2022). The Unified Theory of Acceptance and Use of Technology expands on this, adding performance expectancy, effort expectancy, social influence, and facilitating conditions as additional predictors of intention (Venkatesh et al., 2003, 2016). All of these extensions show that individual cognitive beliefs and environmental support structures have their influence on readiness for blockchain adoption.

The increasing emphasis given to Institutional and Organizational Factors (IOF) by the literature regarding technology adoption is beyond what is perceived at the individual level. Adoption decisions, according to institutional theory, are caused by coercive and normative pressures, as well as mimetic pressures, coupled with support from regulatory frameworks aimed at alleviating uncertainty (Huangfu et al., 2022; Mishra et al., 2025). Organizational readiness, comprising human capital skilled in technology, supportive leadership, and existing practices, adds to favorable attitudes toward emerging technologies (Huangfu et al., 2022; Mishra et al., 2025). Lack of institutional support or regulatory misalignment would increase perceived risk in the use of blockchain technology and undermine intentions to adopt the technology.

A third major stream of literature examines Technical Factors (TF), which denote the quality of the blockchain infrastructure. Derived from the DeLone and McLean Information Systems Success Model, system quality-in particular, scalability, interoperability, reliability, and security-serves as a key foundation for building user satisfaction and perceived ease of use (Shahzad et al, 2024; Taherdoost, 2022). Studies show that poor technical performance increases perceived effort and negatively affects positive attitudes (Zainab et al., 2018). While strong system capabilities reduce uncertainty, bring about more perceived usefulness, and strengthen expectations for smooth performance (Quattrocchi and Plebani, 2024; Herzallah et al., 2025).

The UAE financial market, like many developing economies that have witnessed rapid digitization, presents a fascinating setting for observing the relationships amongst IOF, TF, and PEU in a very fast-evolving climate characterized by unprecedented policy innovation and technological maturity (Abdennadher et al., 2022). While innovations have been encouraged through regulatory sandboxes and government support, traditional challenges persist, including legacy system integration and a shortage of skills. Therefore, this contextual reality requires a comprehensive form of readiness framework that integrates individual, organizational, and technical determinants. By synthesizing the findings from the TAM, the UTAUT, and the DeLone-McLean model, this present research develops an integrated conceptual model to analyze how institutional and organizational factors, technical factors, and perceived ease of use shape attitudes toward blockchain and ultimately drive behavioral intentions in the UAE financial markets.

3. Hypotheses Development

3.1. Institutional and Organizational Factors & Attitude toward Blockchain

According to the Institutional Theory, the business environment consists of coercive, normative, and mimetic pressures that affect the legitimacy and acceptance of new technologies. The theory states that when statutory bodies provide explicit guidelines, when professional norms support an innovation, and when peer organizations adopt similar practices and standardize the use of an innovation, uncertainty decreases and confidence in the technology increases (Risi et al., 2023). In addition, the Technology-Organization-Environment (TOE) framework emphasizes that factors internal to the organization, such as supportive leadership, availability of adequate resources, training, and governance mechanisms, serve as critical antecedents to technology adoption (Oliveira and Martins, 2011; Nguyen and Le, 2022). For example, prior information systems research literature has shown that readiness factors such as management commitment, technical competence, and clear regulations are important in forming positive user perceptions (Hodapp and Hanelt, 2022). Moreover, empirical evidence suggests that organizational-level determinants directly affect adoption outcomes (Cannavale et al., 2022), while studies on blockchain indicate that regulatory clarity and organizational trust positively influence user intention by strengthening

perceived legitimacy (Esfahbodi et al., 2022). Additionally, studies have shown that organizational legitimacy pressures stimulate innovation adoption in SMEs (Yuan et al., 2023). All these insights collectively indicate that institutional and organizational foundations help create favorable conditions for users to develop a positive disposition toward blockchain adoption.

H1: Institutional and organizational factors positively influence attitude toward blockchain.

3.2. Technical Factors and Attitude

The broad view of technical quality has played an important role in determining user evaluations in information systems research. According to the DeLone and McLean IS Success Model, system quality, which includes reliability, performance, interoperability, security, and responsiveness, represents a key driver of user perceptions, influencing both user satisfaction and subsequent information-system usage behavior (Delone and McLean, 2003). Strong technical characteristics would lead users to consider technology as credible and efficient; therefore, they would find it less complex, thus contributing to a more favorable attitude toward technology. In the Technology Acceptance Model (TAM), high technical quality reduces perceived complexity and raises perceived ease of use, thereby promoting a favorable attitude. In the case of blockchain, the main technical factors that support or detract from adoption are increased scalability or improved throughput, consensus security, and compatibility with today´s infrastructures. Empirical studies show that strong technical performance directly leads to higher user intention to adopt the blockchain system. [28]. Technical deficiencies, especially those related to insecurity, however, can deter user confidence and lead to negative attitudes and intentions, as demonstrated in a blockchain agricultural supply chain. [29]. Moreover, distinct attributes of the blockchain, mainly transparency and traceability, as well as privacy and trust, are closely tied with system quality and have been linked with adoption outcomes. Altogether, previous evidence supports the assumption that strong technical characteristics reduce uncertainty, reinforce trust, and lead to favorable attitudes toward blockchain technology.

H2: Technical factors positively influence attitude toward blockchain.

3.3. Perceived Ease of Use (PEU) and Attitude

Perceived ease of use (PEU) is considered the most important construct in the technology acceptance model (TAM) and states that the more users perceive a technology to be easy to use and intuitively operated, the more likely they are to develop positive attitudes toward it (Davis, 1989). Lower cognitive load and training requirements not only reduce user resistance; they foster feelings of competence and control, which in turn allow for more positive evaluations. This mechanism is particularly important when it comes to blockchain, a technology very much associated with high novelty and perceived complexity. Hence, in the pre-adoption phase, attitudes of users are significantly determined by their perception of usability. PEU has continued to maintain significant empirical support for attitude formation in blockchain environments. [7] confirmed the influence of perceived ease of use on blockchain attitudes in the context of financial transactions, establishing that ease of use, regarding the interface and processes, is crucial to gaining acceptance of such systems. Esfahbodi et al. (2022) found similar results concerning the strong prediction of choosing to adopt blockchain systems in e-commerce applications, thus further enforcing PEU's key characteristic in the subsequent applications of blockchain systems. In essence, these results hold that when subjects express an opinion that blockchain systems are easy to comprehend and operate, their attitude becomes significantly more favorable.

H3: Perceived ease of use positively influences attitude toward blockchain.

3.4. Attitude and Behavioral Intention (BI)

The attitude has always been a prominent predictor of behavioral intention in the significant theories of technology adoption like the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and the Unified Theory of Acceptance and Use of Technology (UTAUT). These frameworks argue that favorable evaluations of a technology create strong intentions to use it. Attitude acts as a key cognitive filter that shapes how users translate their beliefs, such as perceived usefulness and perceived ease of use, into behavioral tendencies. Even where users view a technology as advantageous or simple to use, their declared intention may be weak as long as the appropriate attitudinal disposition has not been achieved. Especially under such conditions, attitude becomes key, as the blockchain environment is often characterized by complexity, uncertainty, and high perceived risk. An empirical proof from [30] established that attitudes towards blockchain significantly increase intention to adopt blockchain for financial services. Thus, this hypothesis substantiated its position as a strong attitudinal driver. Similarly, in a fintech environment, perceived usefulness and ease of use affect their influence on the intention to adopt mainly through

attitude, as shown by Esfahbodi et al. (2022). Huangfu et al. (2022) showed that, across diverse blockchain applications, attitude was found to be a significant and consistent predictor of behavioral intention. Altogether, these results in a way reaffirm that positive attitudes are fundamental in inciting strong behavioral intentions towards adopting blockchain technologies.

H4: Attitude toward blockchain positively influences behavioral intention to use blockchain.

3.5. IOF, ATT, and BI

Institutional and Organizational Factors (IOF) are critical in determining the conditions under which technology is adopted, but their influences on behavioral intention are typically indirect, working mainly through the attitudinal evaluations that users form of the technologies. In extensions of the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), it is shown that supportive environments include regulatory clarity, supportive policies, organizational legitimacy, organizational readiness, resource availability, and training. These factors create conditions that make users feel comfortable with technology, thereby improving attitudes. All these enhance the creation of psychological grounds for the users' confidence and comfort with new technologies. Such conditions do not necessarily lead directly to intentions, but to favorable attitudes that, able to build up to much stronger behavioral intentions. This mechanism parallels UTAUT's conceptualization of facilitating conditions, which has an indirect effect on intention through performance and effort-related beliefs.

Empirical research in the different technological contexts strengthens this mediating logic. Research in educational technology shows that the presence of some form of institution mainly facilitates one's intention to adopt technologies through positive internal beliefs that are created and not by direct influence (Hazzan, 2025). It finds that readiness and legitimation pressures available within the organization strengthen acceptance of a technology-creating evaluative judgments, then directly shape intention than environmental factors themselves. In blockchain adoption, with pervasively high uncertainty as well as perceived complexity, favorable attitudes are necessary for converting institutional and organizational readiness into actual adoption decisions. In this case, all point to the proposition that attitude mediates the IOF-behavioral intention relationship.

H5: Attitude mediates the relationship between IOF and BI.

3.6. TF, ATT, and BI

Technical Factors (TF) are very powerful factors in determining how users use evaluation for emerging technologies, particularly those that are highly complex, like blockchain. System quality variables, such as reliability, security, performance, and interoperability, have a significant impact on satisfaction with the system and consequent behavioral outcomes with reference to the DeLone and McLean IS Success Model. These technical attributes act as outside variables in technology acceptance models such as TAM by transmitting their influences primarily through core cognitive beliefs, which ultimately form attitudes toward such a technology. For instance, such a user develops a positive evaluative judgment towards a system when it is deemed technically sound; the user is then directed toward a behavioral intention. Technical deficiencies increase perceived risk and uncertainty and consequently reduce positive attitudes while weakening intentions. Empirical evidence shows that this is the mechanism of mediation. Al-Okaily (2025) declares that users acquire negative attitudes toward blockchain systems due to technical inadequacies, subsequently diminishing intention to adopt such technologies. Queiroz and Wamba (2019) have discovered that system-level inefficiencies in the blockchain implementations weaken confidence and negatively affect adoption decisions, primarily by influencing users’ attitudes. Users would not adopt, therefore, only because of technical advancement; they perhaps adopt when that technical performance strengthens their attitudinal disposition. Technical quality, therefore, indirectly shapes intention by positing positive or negative attitude development toward the technology in question.

H6: Attitude mediates the relationship between TF and BI.

3.7. PEU, ATT, and BI

Perceived Ease of Use (PEU) is a fundamental construct considered in the Technology Acceptance Model (TAM) for its direct or possibly indirect impact through attitude formation on behavioral intention (Davis, 1989). Thus, the more users perceive a technology to be easy, simple, and intuitive, requiring little effort from their side in learning or using it, the more likely they are to develop positive attitudes that reinforce their intention to act on the basis of this technology. The attitude formation is particularly relevant for blockchain systems, where perceived complexity, technical novelty, and psychological barriers may become impediments to intention development. Hence, ease of use appears to work not only as a cognitive belief but also as a mechanism for enhancing an individual's affective evaluation, which

finally determines behavioral outcomes.

The mediating path, thus, finds empirical support. In blockchain, it has been found that an improving PEU directly enhances user attitudes, and those attitudes are the most significant mediator of intention. Albayati (2020) noted that the adoption intention would be strengthened by ease of use since it first enhances users' attitudes toward blockchain-enabled financial transactions. [29] found that, in e-commerce applications, PEU tends to have a positive influence on blockchain acceptance mainly through attitude formation. These studies lend further credence to the tenets of TAM, which assume that positive feelings serve as the vehicle through which ease of use translates into intention. The mediating role of attitude is thus key in explaining how perceived ease of use can contribute to the intention to adopt blockchain systems.

H7: Attitude mediates the relationship between PEU and BI.

4. Methodology

4.1. Research Approach and Design

This research employs rigorous quantitative methodology to examine the pre-adoption determinants of blockchain technology among financial market participants in the UAE. The methodology is driven by the study's objective, which goes beyond institutional, organizational, technological, and perceptual factors to understand how these determinants influence pre-implementation attitudes and the intention to adopt blockchain. In this respect, an explanatory cross-sectional design was used, as it allows for the study of several latent constructs with their relationships at a single point in time. The structural framework of this study is derived from TAM, UTAUT, the DeLone and McLean IS Success Model, and Institutional Theory. These four theories cumulatively provide the foundation for the development of the proposed conceptual model. Accordingly, a quantitative survey method was employed, since it would be appropriate for measuring behavioral perceptions and testing the hypothesized relationships.

The target population for the study comprised active participants in the UAE financial market ecosystem, including individual stockholders who represent the potential future blockchain adopters. Because no complete sampling frame of these financial participants was publicly available, a non-probability convenience sampling technique was used. This approach allowed practical access to a broad and diverse pool of respondents while remaining appropriate for the study context. Data collection was done through a structured online questionnaire distributed via professional networks, financial forums, and institutional channels (e.g., brokerage firms through the Abu Dhabi Securities Exchange). After completion, cleaning, and scoring, 106 valid responses remained for analysis. These responses were then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM).

4.2. Measures

The measurement instrument was developed by using the multi-item scales adapted from previously validated studies in the context of the blockchain pre-adoption environment within the UAE financial markets. Each statement was rated on a five-point Likert-type scale from 1 (Strongly Disagree) to 5 (Strongly Agree), ensuring consistency, common interpretation, and comparability for the respondents. All constructs were measured reflectively, consistent with their theoretical specification.

Institutional and Organizational Factors (IOF) are measured using five items taken from the perspective of Institutional Theory and the Technology-Organization-Environment (TOE) framework. These items offered dispositional value to regulatory clarity, organizational readiness, legitimacy pressure, and policy support. The conceptual framing of IOF relies on (Risi et al., 2023), who accentuate coercive, normative, and mimetic influences over technology adoption. On the other side, Technical Factors (TF) were measured through five items adapted from DeLone and McLean's Information Systems Success Model and through relevant blockchain quality literature. The items measured aspects, among others, of system reliability, security, interoperability, performance, and response efficiency. The rationale behind their development is supported by (Delone and McLean, 2003), who emphasized the importance of system quality in determining user evaluations of new technologies.

Perceived Ease of Use (PEU) consisted of seven validated items adapted from Davis (1989) for this study; these items captured users' perceptions of the effort required to learn, understand, and operate blockchain systems. Prior investigations on blockchain adoption (e.g., Esfahbodi et al., 2022; Albayati, 2020) provided additional guidance to contextualize PEU within the financial technology sector. Attitude toward Blockchain (ATT) was operationalized using four items grounded in the Theory of Reasoned Action (Ajzen, 1991), Theory of Planned Behavior, and TAM-based attitude measures. These items assessed respondents' overall positive or negative evaluations of blockchain adoption. Behavioral Intention (BI) was measured with four items based on the TAM and UTAUT literature. These items capture the degree to which respondents intended or expected to use blockchain applications for future financial endeavors. Additional blockchain-specific intention measures

were adapted from Esfahbodi et al. (2022) and Al-Okaily (2025).

5. Results

5.1. Demographic Profile

The study captured responses from 106 individual stockholders and revealed a well-diversified demographic. As shown in Table 1, the large majority were citizens (69.8%), with residents (24.5%) and a small group of non-residents (5.7%), ensuring a strong local representation. In terms of affiliation, Accounting and finance areas (46.2%), Strategy and planning (12.3%), Communication and investor retention (6.6%), Information systems (5.7%), and Top management (2.8%). Professionally, respondents include private shareholders (30.2%), traders (17.9%), managers (14.1%), and financial firm executives (7.5%), with smaller proportions of brokers and other roles. Nearly half of respondents reported 1-3 years' experience (46.5%), while 22% had 3-10 years, 19.2% 10-15 years, and 11.6% more than 15 years, showing a workforce dominated by early career professionals. Age distribution aligned with these trends, as 34% were under 25 years, 25.5% were 25-35 years, 29.2% were 35-50 years, and 4.7% were 50-65 years. The sample was male 70.8%) and female (29.2%). Educational level was high, with 50.9% holding undergraduate bachelor's/diplomas, and 34% having postgraduate qualifications, and the most common fields of study were business (55.7%), engineering (17.9%, and IT/sciences (6.6% each).

Table 1: Respondents' profile

Variable	Category	Count	Percentage
Nationality	Citizen	74	69.8%
	Resident	26	24.5%
	Non-resident	6	5.7%
Department / Area	Accounting & Finance	49	46.2%
	Other	28	26.4%
	Strategy and Planning	13	12.3%
	Communication & Investor Relations	7	6.6%
	Information Systems	6	5.7%
	Top Management	3	2.8%
Job Position	Private Shareholder	32	30.2%
	Trader	19	17.9%
	Other (specified)	17	16.0%
	Manager	15	14.1%
	Manager of Financial Firm	8	7.5%
	Broker	7	6.6%
	Other (Arabic entry)	6	5.7%
	Manager of Listed Company	2	1.9%
Years of Experience	1-3 years	49	46.5%
	3-10 years	23	22.01%
	10-15 years	20	19.18%
	More than 15 years	12	11.64%
Age Group	Less than 25	36	34.0%
	25-35 years	31	25.5%
	35-50 years	27	29.2%
	50-65 years	5	4.7%
	Mixed ages	7	6.6%
Gender	Male	75	70.8%
	Female	31	29.2%
Education Level	Undergraduate diploma (Bachelor's or less)	54	50.9%
	Post-graduate diploma (Master's/MBA)	36	34.0%
	Professional certificate	6	5.7%
	Certified/chartered diploma (e.g., CFA)	3	2.8%
	Other	7	6.6%
Field of Study	Business Studies	59	55.7%
	Engineering Studies	19	17.9%
	IT & Computer Systems	7	6.6%
	Sciences Studies	7	6.6%
	Other	7	6.6%
	Law Studies	3	2.8%
	Health & Medicine	3	2.8%
	Tourism & Hospitality	1	0.9%

5.2. Measurement Model

The assessment of the measurement model was done through construct reliability as well as validity - including convergent and discriminant validity. For construct validity, the study tested individual Cronbach's alpha coefficients to measure the reliability of each of the variables in the measurement model. The results reveal that all the variable coefficients, ranging from 0.794 to 0.933, were higher than the suggested value of 0.7. Furthermore, for testing construct reliability, the composite reliability (CR) values ranging from 0.815 to 0.935 were higher than 0.7 (Kline, 2010), which indicates that construct validity was fulfilled as shown in Table 2. Factor loading was used to test indicator reliability; high loadings on a

construct indicate that the associated indicators seem to have much in common, which is captured by the construct. Factor loadings greater than 0.50 were considered to be very significant (Hair et al., 2017). The loading for all items exceeded the recommended value of 0.50. For testing convergent validity, this study used average variance extracted (AVE), and it indicated that all AVE values were higher than the suggested value of 0.5 (Hair et al., 2017), ranging from 0.541 to 0.768, indicating that the convergent validity for all constructs is successfully fulfilled.

Table 2: Convergent validity

Construct	Code	Loading	A	CR	AVE	VIF
Attitude	**ATT1**	0.923	0.822	0.873	0.666	3.942
	ATT2	0.546				1.215
	ATT3	0.917				3.836
	ATT4	0.822				1.851
Behavioral Intention	**BI1**	0.867	0.899	0.904	0.768	2.409
	BI2	0.889				2.959
	BI3	0.905				3.179
	BI4	0.842				2.324
Institutional and Organizational Factors	**IOF1**	0.802	0.823	0.882	0.575	1.813
	IOF2	0.766				1.879
	IOF3	0.887				2.647
	IOF4	0.641				1.738
	IOF5	0.667				1.796
Perceived Ease of Use	**PEU1**	0.761	0.933	0.935	0.714	2.232
	PEU2	0.823				2.555
	PEU3	0.874				3.422
	PEU4	0.880				3.950
	PEU5	0.815				2.511
	PEU6	0.871				3.813
	PEU7	0.885				3.752
Technical Factors	**TF1**	0.717	0.794	0.815	0.541	1.295
	TF2	0.809				1.926
	TF3	0.777				1.745
	TF4	0.753				2.371
	TF5	0.605				1.705

The discriminant validity of the measurement model was checked using two criteria, namely Fornell-Larcker and Heterotrait-monotrait ratio (HTMT). The results of discriminant validity using the Fornell-Larcker criterion as shown in Table 3, where the square root of the AVEs on the diagonal, as represented by the bolded values, are higher than the correlations between constructs. This indicates that the constructs are strongly related to their respective indicators compared to other constructs in the model (Chin, 1998), thus suggesting good validity (Hair et al., 2017). The HTMT ratio was used to assess discriminant validity. While the discriminant validity has a problem when the HTMT value is greater than the HTMT0.90 value of 0.90, all values in Table 3 show that HTMT values are less than the recommended value of 0.90, indicating that the discriminant validity of all constructs has been fulfilled.

Table 3: Discriminant validity

Fornell-Larcker criterion					
	ATT	**BI**	**IOF**	**PEU**	**TF**
ATT	**0.816**				
BI	0.758	**0.876**			
IOF	0.682	0.528	**0.758**		
PEU	0.783	0.817	0.565	**0.845**	
TF	0.698	0.513	0.679	0.617	**0.736**
Heterotrait-monotrait ratio (HTMT)					
ATT					
BI	0.812				
IOF	0.802	0.533			
PEU	0.822	0.846	0.568		
TF	0.775	0.538	0.759	0.649	

5.3. Structure Model Assessment

Hair et al. (2017) suggested assessing the structural model by looking at the beta (β), R2, and the corresponding t-values via a bootstrapping procedure with a sample of 5000. Moreover, they recommend reporting the effect sizes (f2) as well as the predictive relevance (Q2).

5.4. Hypotheses Testing Results

The structural model shown in Figure 1 and Table 5 indicates the hypothesis's tests, with 4 out of 4 direct hypotheses supported. Institutional and organizational factors, Technical Factors, and Perceived Ease of Use significantly predict attitudes with (β=0.200, t=5.334, p-value=0.000), (β=0.142, t=3.756, p-value=0.000), and (β=0.683, t=18.058, p-value=0.000) respectively. Hence, H1, H2, and H3 are supported. Attitude significantly predicts behavioral intention. Hence, H4 is supported with (β=0.858, t=61.665, p-value=0.000).

Institutional and organizational factors, Technical Factors, and Perceived Ease of Use explain 83.8% of the variance in attitude. Attitude explains 73.7% of the variance in behavioral intention. The r2 values achieved an acceptable level of explanatory power as recommended by Chin (1998), indicating a substantial model. The study additionally assessed effect size (f2). The effect size f2 determines whether the impact of the exogenous latent construct has on the endogenous latent variable (Gefen and Rigdon, 2011). The results of f2 in Table 4 show that two relationships with large effect sizes and two with medium effect sizes.

Furthermore, the blindfolding procedure was used to examine the power of the proposed model regarding the predictive relevance, as recommended by Hair et al. (2017). Q2 results for this study show that the two endogenous variables have large predictive relevance. Additionally, the multicollinearity diagnostic through VIF results indicates that there is no evidence of significant multicollinearity among the study exogenous constructs because all VIF values are less than 5. It means that the variance of exogenous variables explains the endogenous variables that do not overlap with each other.

Table 4. Hypotheses Testing Results

H	Relationship	β	ST-DEV	t-value	P-values
H1	IOF -> ATT	0.200	0.037	5.334	0.000
H2	TF -> ATT	0.142	0.038	3.756	0.000
H3	PEU -> ATT	0.683	0.038	18.058	0.000
H4	ATT -> BI	0.858	0.014	61.665	0.000
H5	IOF -> ATT -> BI	0.172	0.031	5.507	0.000
H6	TF -> ATT -> BI	0.122	0.032	3.803	0.000
H7	PEU -> ATT -> BI	0.586	0.039	15.068	0.000

Table 5. Hypotheses Results

H	Relationship	B	ST-DEV	t-value	P-values	R^2	F^2	Q^2
H1	IOF -> ATT	0.2	0.037	5.33	0.000	0.838	0.125	0.558
H2	TF -> ATT	0.142	0.038	3.8	0.000		0.057	
H3	PEU -> ATT	0 683	0.038	18.1	0.000		0.672	
H4	ATT -> BI	0.858	0.014	61.665	0.000	0.737	0.799	0.553
H5	IOF -> ATT -> BI	0.172	0.031	5.507	0.000			
H6	TF -> ATT -> BI	0.122	0.032	3.803	0.000			
H7	PEU -> ATT -> BI	0.586	0.039	15.068	0.000			

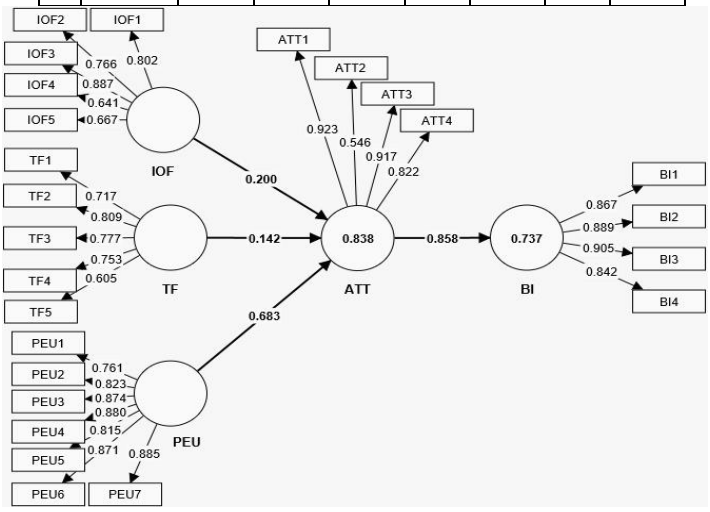

Figure 1. Structural model results

The mediation test of H5-H7, the method of Preacher & Hayes (2008) of bootstrapping, was employed. The bootstrapping analysis showed that the indirect effect of Institutional and organizational factors, Technical Factors, and Perceived Ease of Use on Behavioral intention through attitude was significant. Hence, H5, H6, and H7 were supported with (β=0. 172, t=5.507, p-value=0.000), (β=0.122, t=3.803, p-value=0.000), (β=0.586, t=15.068, p-value=0.000) respectively.

6. Discussion

The empirical results, derived from the PLS-SEM analysis of 106 stockholders and investors in the UAE, provide specific insights into the behavioral mechanisms driving the pre-adoption intention of the financial end-user for blockchain technology. The significant influence of Perceived Ease of Use (PEOU) and Technical System Quality on the investor's Attitude highlights the pragmatic nature of this user group. Investors are not just interested in the theoretical benefits of blockchain; they demand systems that are effortless to navigate and technically robust. The positive relationship found across all tested antecedents (Institutional, Organizational, Technical, PEOU) and Attitude confirms that a positive evaluation of blockchain requires holistic preparation across the ecosystem. The core finding that Attitude fully mediates the influence of all antecedents on Behavioral Intention is especially relevant for investors. Since stockholders are highly exposed to market volatility and risk, their decision to accept a new technology is less about functional necessity and more about subjective confidence and trust. Before committing capital, their emotional and cognitive assessment (Attitude) must be fully convinced by the external signals (readiness factors). This study provides one of the earliest empirical examinations of blockchain pre-adoption within the UAE financial market, focusing specifically on readiness before technological implementation, thus distinguishing it from prior research conducted in sectors where blockchain has already been deployed (Kline, 2010; Hair et al., 2017). By integrating the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the DeLone–McLean IS Success Model, and the Institutional Theory, the research provides a comprehensive, analytical, and integrative lens rarely applied in financial market research (Sasitharan et al., 2023; Haleem et al., 2020). This approach offers a solid conceptual foundation for assessing readiness in emerging technologies before formal implementation, contributing to the expanding literature on anticipatory adoption behavior (Gefen and Rigdon, 2011; Janssen et al., 2020). The core findings establish that institutional and organizational readiness, technical robustness (Venkatesh et al., 2003, 2016),

and perceived ease of use (PEU) (Ajzen, 1991; Venkatesh and Davis, 2000) collectively shape positive attitudes, which subsequently serve as the strongest predictors of behavioral intention toward adoption. These results reaffirm the integrative value of theoretical models in explaining early-stage decision-making. Specifically, the findings highlight the decisive role of Institutional and Organizational Factors (IOF) in shaping early perceptions through legitimacy pressures (Powell and DiMaggio, 1983), aligning with previous studies on supportive governance structures (Risi et al., 2023). Furthermore, the study underscores the critical importance of technical quality, as blockchain studies consistently identify scalability, security, and interoperability as key adoption barriers (Zhang et al., 2019; Kumar et al., 2023). However, empirical research confirms that robust system quality reduces perceived risk and enhances acceptance (Queiroz and Wamba, 2019; Saberi, 2019), while high technological quality also increases user trust and adoption (Talwar, 2020; Nguyen and Ha, 2021). The importance of PEU is similarly affirmed, as research in consumer behavior and technology-enabled service settings strengthens the link between perceived usability, affective attitudes, and subsequent acceptance (Lyu et al., 2025; Khalifa and Elnagar, 2025). Furthermore, the study establishes complete mediation of the relationships between IOF, technical quality, PEU, and behavioral intention, which are all funneled through attitude (Davis, 1989; Ajzen, 1991; Kannana and Tan, 2005). This strong mediation reflects the psychological readiness in the pre-acceptance phase, offering valuable insights for policymakers and regulators by showing that improving governance clarity, enhancing technical interoperability, and strengthening user training can foster favorable attitudes even before market rollout (Lyu et al., 2025; Abou-Shouk and Khalifa, 2017), thereby bridging the gap between perception and action.

7. Conclusion

The present research constitutes one of the preliminary empirical investigations of pre-adoptive antecedents of blockchain technology in the UAE financial markets. Integrating the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), the DeLone–McLean Information Systems Success Model, and Institutional Theory, the study provides a clearly constructed theoretical model of how institutional influence, organizational capabilities, technical quality, and user perceptions individually and jointly shape attitudes and behavioral intentions toward the adoption of blockchain technology. The findings indicate that both institutional and organizational factors, alongside technical robustness and perceived ease of use, strongly influence attitudes towards blockchain, while attitude is the key mechanism through which these antecedents impact behavioral intention. This implies that, in a pre-adoption situation where experiential knowledge is scarce, influences through perception and psychology act as critical determinants of acceptance.

7.1. Theoretical Implications

This study makes four distinct theoretical contributions to the literature on technology adoption and financial innovation, specifically centered on the end-user investor/stockholder.

a. Novel Stakeholder Focus (Individual Investor): This research offers a distinctive theoretical contribution by focusing its analysis on individual investors, a critical stakeholder group rarely analyzed in prior blockchain adoption research. These end-users, who represent our sample and constitute the primary actors in future blockchain-enabled trading, have perceptions and behavioral intentions that remain largely unexplored. By capturing this data, the study significantly broadens the theoretical scope of adoption research in digital finance.

b. Advancing Acceptance Models to the Investor's Anticipatory Context: This work significantly extends foundational user acceptance models, such as the Technology Acceptance Model (TAM) and UTAUT, by validating their core mechanisms within the novel anticipatory (pre-adoption) context of the individual investor. Our focus is not on organizational adoption but on the individual end-user's intention to utilize a future system for trading and settlement transactions. This study reinforces longstanding assumptions within TAM, TRA, and TPB by showing that User Attitude fully mediates the effects of all readiness factors (Institutional, Organizational, and Technical) on Behavioral Intention. This is a crucial finding that establishes the theoretical position of evaluative judgments as the strongest predictors of acceptance when users, such as individual investors, have not yet fully interacted with the technology. For the investor, who lacks hands-on experience with a nascent system, their perceptions of its reliability and ease become the sole, confirmed predictor of their willingness to commit to the technology, thus establishing the pivotal role of attitude in the initial decision-making of the stockholder.

c. Bridging the Micro-Macro Context for Investor Behavior: This research addresses a key theoretical gap by integrating the micro-level focus of individual adoption models (e.g., individual ease of use) with the macro-level influences of Institutional Theory. The study successfully integrates these dimensions by

embedding Institutional and Organizational Determinants within the unified framework. We demonstrate that an investor's decision (a micro-behavior) is directly influenced by the perceived stability of the entire ecosystem (a macro-context). This integrated approach reveals how macro-level forces like regulatory legitimacy and organizational support (Institutional Readiness) filter down to meaningfully shape the individual investor's initial attitude and willingness to adopt a complex technology like blockchain for managing their financial assets. This framework provides a robust theoretical lens for studying user acceptance of systemic financial innovations that require both individual trust and institutional support.

d. Contextualizing Readiness for stockholders: By focusing the analysis on the decision-making unit of the investor/stockholder, this study provides a theoretical refinement specific to the individual financial actor. We show that for this demographic, the assessment of Technical System Quality (especially concerning security and data integrity) is not a generic IS construct but a critical determinant of trust. Similarly, Organizational Readiness is valued because it signals the capacity of the service provider (brokers, exchanges) to maintain the ledger. By studying blockchain behavior within a regulated financial ecosystem, this work contributes to the developing literature on anticipatory adoption, demonstrating that Institutional and Organizational Factors (IOF) and Technical System Quality are key readiness factors to assess pre-implementation of a major disrupting financial technology. This study validates the necessity of extending generic models with factors that reflect the risk-aversion and asset-protection focus inherent to the stockholder's decision process in regulated financial markets, thereby providing an all-encompassing model for institutional, technological, and perceptual dimensions of blockchain readiness in a high-stakes, specialized market.

7.2. Practical Implications

This study provides a focused roadmap for policymakers, financial institutions, and technology developers aiming to boost blockchain acceptance among individual investors in the financial markets. The central finding that user attitude is the key mechanism translating systemic factors into behavioral intention underscores that success depends entirely on proactively cultivating a positive user attitude and demonstrating clear, real-world benefits (e.g., easier tracking, reduced delays, stronger security). A phased implementation strategy, beginning with low-risk applications and gradually expanding to more complex processes, is crucial for strengthening user confidence and enabling a sustainable market-wide transition. To reduce uncertainty and foster positive evaluations, policymakers and regulators must establish clear governance structures and well-defined legal guidelines. Fast-tracking adoption requires increasing transparency and actively widening the scope of initiatives like regulatory sandboxes and controlled pilot environments, which are essential for mitigating risk in the early stages of technology deployment. Financial organizations play a crucial role in shaping user attitudes by ensuring organizational readiness. This requires direct investment in training, digital skills, and resources to integrate blockchain effectively. By building internal capabilities and demonstrating clear commitment through structured transition plans and awareness programs, financial institutions (banks, brokerage firms) can mitigate employee resistance and enhance acceptance among all stakeholders. Technology developers should prioritize technical quality by ensuring blockchain solutions are reliable, secure, and interoperable with existing legacy systems. They would also focus heavily on perceived ease of use, which is a powerful driver of attitude. This means employing a human-centered design approach to create simple, intuitive, and user-friendly interfaces, supported by tools like interactive tutorials to lower the cognitive barriers for financial professionals. The central finding is that user attitude is the key mechanism that translates system factors into behavioral intention. Therefore, all involved market participants must make it a priority to improve people's perceptions of the system by showing clear, real-world benefits, such as transactions that are easier to track, fewer delays in processing, and stronger security. A phased implementation strategy, beginning with low-risk applications and gradually expanding to more complex processes, is crucial for strengthening user confidence and enabling a sustainable market-wide transition.

7.3. Limitations and Directions for Future Research

Despite its contributions, the study has several limitations. These limitations primarily include the small, focused sample size (106) of investors. While this focused sample provides a unique, in-depth view of a rare stakeholder group, the size inherently limits the statistical power and generalizability of the findings. Furthermore, the study captures user perceptions at a single point in time, focusing on pre-adoption attitudes because the blockchain system had not yet been fully implemented in the UAE, reflecting the global reality that blockchain technology is still not yet fully adopted across the world. Many countries are actively working on its implementation, and its use is

not yet generalized. Future research should: (1) expand the sample size to enhance statistical power and generalizability across more stockholders and other market participants; (2) utilize a longitudinal design to track how the investor's attitude and intention evolve once the technology moves from the pre-adoption to the pilot and active use phases; and (3) incorporate a Perceived Risk construct directly into the model to explicitly test how the investor's inherent risk-aversion affects their intention to use blockchain for high-stakes transactions.

Conflict of Interest

The authors declare no conflict of interest related to this study.

AI Use for Proofreading and Editing

The ChatGPT tool was used only for language proofreading and editing, with all intellectual content developed by the authors.

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REFERENCES

1. Abdennadher, S., Cheffi, W., Amin, A. H. M., & Naveed, M. (2024). Performance analysis of a blockchain process modeling: Application of distributed ledger technology in trading, clearing, and settlement processes. Journal of Open Innovation: Technology, Market, and Complexity, 10(3), 100348.

2. Abdennadher, S., Grassa, R., Abdulla, A., & Alfalasi, M. (2022). The effects of blockchain technology on the accounting and assurance profession in the UAE: an exploratory study. Journal of Financial Reporting and Accounting, 20(1), 53–71. https://doi.org/10.1108/JFRA-05-2020-0151

3. Abdennadher, S., Salem, T., Alkaabi, A., & Alfalasi, M. (2022). Feasibility and exploratory study of implementing the blockchain technology in the UAE financial markets. In Contemporary research in accounting and finance: Case studies from the MENA region (pp. 273–294). Springer Nature Singapore.

4. Abou-Shouk, M. A., & Khalifa, G. S. A. (2017). The influence of website quality dimensions on e-purchasing behaviour and e-loyalty: a comparative study of Egyptian travel agents and hotels. Journal of Travel & Tourism Marketing, 34(5), 608–623. https://doi.org/10.1080/10548408.2016.1209151

5. Agarwal, U., Rishiwal, V., & Yadav, M. (2024). Exploring blockchain and supply chain integration: State-of-the-art, security issues, and emerging directions. IEEE Access, 12, 143945–143974. https://doi.org/10.1109/ACCESS.2024.3471340

6. Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.

7. Alazab, M., Alhyari, S., Awajan, A., & Abdallah, A. B. (2021). Blockchain technology in supply chain management: An empirical study of the factors affecting user adoption/acceptance. Cluster Computing, 24(1), 83-101.

8. Al-Okaily, A. (2025). Financial innovation: predicting determinants of blockchain technology adoption and its impact on financial firms' performance. International Journal of Innovation Science. https://doi.org/10.1108/IJIS-08-2024-0221

9. 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

10. Biais, B., Böhme, R., and Bisi, A. (2023). Advances in Blockchain and Crypto Economics. Management Science, 69(11), 6417–6426. https://doi.org/10.1287/mnsc.2023.intro.v69.n11

11. Boulanouar, Z., Benrhmach, G., Grassa, R., Abdennadher, S., & Aldhaheri, M. (2024). Exploring the predictive power of artificial neural networks in linking global Islamic indices with a local Islamic index. Humanities and Social Sciences Communications, 11(1),1-11. https://www.nature.com/articles/s41599-024-03885-7

12. Cannavale, C., Tammaro, A. E., Leone, D., & Schiavone, F. (2022). Innovation adoption in inter-organizational healthcare networks – the role of artificial intelligence. European Journal of

Innovation Management, 25(6), 758–774. https://doi.org/10.1108/EJIM-08-2021-0378

13. Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), Modern methods for business research (pp. 295-358). Lawrence Erlbaum Associates.

14. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340.

15. DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. Journal of Management Information Systems, 19(4), 9–30.

16. D. Risi, L. Vigneau, S. Bohn, and C. Wickert, "Institutional theory-based research on corporate social responsibility : Bringing values back in," Int. J. Manag. Rev., vol. 25, no. 1, pp. 3–23, 2023, doi: 10.1111/ijmr 12299.

17. Esfahbodi, A., Pang, G., & Peng, L. (2022). Determinants of consumers' adoption intention for blockchain technology in E-commerce. Journal of Digital Economy, 1(2), 89–101. https://doi.org/10.1016/jdec.2022.11.001

18. Gao, S., & Li, Y. (2021). An empirical study on the adoption of blockchain-based games from users' perspectives. The Electronic Library, 39(4), 596–614. https://doi.org/10.1108/EL-01-2021-0009

19. Gefen, D., & Rigdon, E. E. (2011). An update and extension to SEM guidelines for administrative and social science research. MIS Quarterly, 35(2), 1–7.

20. Haleem, A., Javaid, M., Singh, R. P., & Suman, R. (2020). Exploring the adoption of blockchain technology in the finance sector: A systematic review. International Journal of Information Management, 52, 102061.

21. Hazzan, A., Ofrit, B., & Shalom, K. (2025). The factors affecting teachers' adoption of AI technologies: A unified model of external and internal determinants. Education and Information Technologies, 30(11), 15043–15069. https://doi.org/10.1007/s10639-025-13393-z

22. Herzallah, A. M., Ahmad, S. M. I., & El-Kassar, A.-N. (2020). Sustainable innovation as a catalyst: linking green supply chain practices to corporate reputation in emerging markets. Cleaner Logistics and Supply Chain, 1, 100245. https://doi.org/10.1016/j.clscn.2025.100245

23. Hodapp, D., & Hanelt, A. (2022). Research agenda: Interoperability in the era of digital innovation: An information systems research agenda. Journal of Information Technology, 38(2), 1-21. https://doi.org/1177/02683962211064304

24. Huangfu, J., Pinsker, R., & Xing, H. (2022). Business strategy and blockchain adoption. Proceedings of the 55th Hawaii International Conference on System Sciences, 6033–6042. https://hdl.handle.net/10125/80073

25. Janssen, M., Weerakkody, V., Ismagilova, E., Sivarajah, U., & Irani, Z. (2020). A framework for analysing blockchain technology adoption: Integrating institutional, market and technical factors. International Journal of Information Management, 50, 302–309. https://doi.org/10.1016/j.ijinfomgt.2019.08.015

26. Kannan, V. R., & Tan, K. C. (2005). Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance. Omega, 33(2), 153–162.

27. Khalifa, G. S. A., & Elnagar, A. K. (2025). What drives customers' participation behaviour? Unveiling the drivers of affective satisfaction and its impacts in the restaurant industry. Journal of Hospitality and Tourism Insights, 8(2), 612–636. https://doi.org/10.1108/JHTI-01-2024-0100

28. Kline, R. B. (2010). Principles and practice of structural equation modeling (3rd ed.). The Guilford Press.

29. Kumar, P., Özen, E., & Vurur, S. (2023). Adoption of blockchain technology in the financial sector. In Contemporary Studies of Risks in Emerging Technology, Part A (pp. 271–288). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80455-562-020231018

30. Kumari, A., & Devi, N. C. (2023). Blockchain technology acceptance by investment professionals: a decomposed TPB model. Journal of Financial Reporting and Accounting, 21(1), 45-59.

31. Lyu, T., Liu, J., Geng, Q., & Chen, H. (2025). Exploring people's application behavior of electronic certificates from the behavioral reasoning theory perspective: a mixed-method approach.

International Journal of Human–Computer Interaction, 1-17.

32. Mishra, N. K., Sahoo, S., Agarwal, S., Sharma, P. P., & Ilahi, F. (2025). Impact of institutional pressures and security on blockchain technology adoption and organization performance: an empirical study. The Journal of Technology Transfer, 50(1), 245-270.

33. Nguyen, G. D., & Ha, M. T. (2021). The role of user adaptation and trust in understanding continuance intention towards mobile shopping: An extended expectation-confirmation model. Cogent Business & Management, 8(1), 1980248.

34. Nguyen, T. H., & Le, X. C. (2022). An Extended Technology-Organization-Environment (TOE) Framework for Online Retailing Utilization in Digital Transformation: Empirical Evidence from Vietnam. Journal of Open Innovation: Technology, Market, and Complexity, 8(4), 200. https://doi.org/10.3390/joitmc8040200

35. Oliveira, T., & Martins, M. F. (2011). Literature review of information technology adoption models at the firm level. Electronic Journal of Information Systems Evaluation, 14(1), 110-121.

36. Powell, W. W., & DiMaggio, P. J. (Eds.). (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2), 147–160.

37. Quattrocchi, G., & Plebani, P. (2024). Trustworthy collaborative business intelligence using zero-knowledge proofs and blockchains. In International Conference on Advanced Information Systems Engineering (pp. 29–37). Springer, Cham. https://doi.org/10.1007/978-3-031-61000-4_4

38. Queiroz, M. M., & Wamba, S. F. (2019). Blockchain adoption challenges in supply chain: An empirical investigation of the main drivers in India and the USA. International Journal of Information Management, 46, 70–82. https://doi.org/10.1016/j.ijinfomgt.2018.11.025

39. Risi, D., Vigneau, L., Bohn, S., & Wickert, C. (2023). Institutional theory-based research on corporate social responsibility: Bringing values back in. International Journal of Management Reviews, 25(1), 3–23. https://doi.org/10.1111/ijmr.12299

40. Saberi, S., Kouhizadeh, M., Sarkis, J., & Shen, L. (2019). Blockchain technology and its relationships to sustainable supply chain management. International Journal of Production Research, 57(7), 2117–2135. https://doi.org/10.1080/00207543.2018.1533261

41. Sasitharan, P., Maniam, G., Prentice, C., Sassenberg, A., & Soar, J. (2023). Identifying an Optimal Model for Blockchain Technology Adoption in the Agricultural Sector. Logistics, 7(3), 59. https://doi.org/10.3390/logistics7030059

42. Shahzad, K., Zhang, Q., & Khan, M. K. (2024). Blockchain technology adoption in supply chain management: an investigation from UTAUT and information system success model. International Journal of Shipping and Transport Logistics, 18(2), 165-190.

43. Taherdoost, H. (2022). A critical review of blockchain acceptance models—blockchain technology adoption frameworks and applications. Computers, 11(2), 24.

44. Talwar, S., Dhir, A., Khalil, A., Mohan, G., & Islam, A. N. (2020). Point of adoption and beyond. Initial trust and mobile-payment continuation intention. Journal of Retailing and Consumer Services, 55, 102086.

45. Tomizawa, A., Zhao, L., Bassellier, G., & Ahlstrom, D. (2020). Economic growth, innovation, institutions, and the Great Enrichment. Asia Pacific Journal of Management, 37(1), 7–31. https://doi.org/10.1007/s10490-019-09648-2

46. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified theory of acceptance and use of technology (UTAUT). MIS Quarterly, 27(3), 425–478.

47. Venkatesh, V., Thong, J. Y. L., & Xu, X. (2016). Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. Journal of the Association for Information Systems, 17(5), 328–376.

48. Yang, H., Zhang, Z., Jian, C., & Id, N. A. (2025). Exploring real estate blockchain adoption: An empirical study based on an integrated task-technology fit and technology acceptance model. PLoS One, 20(4), 1–20. https://doi.org/10.1371/journal.pone.0317993

49. Yuan, Y., Wang, A., Wang, Y. A., & Lin, H. (2023). Understanding circular economy adoption by SMEs: a case study on organizational legitimacy and Industry 4.0. Industrial Management & Data Systems, 123(4), 1157–1177. https://doi.org/10.1108/IMDS-04-2022-0266

50. Zainab, B., Bhatti, M. A., & Alshagawi, M. (2018). Factors affecting e-training adoption: an examination of perceived cost, computer self-efficacy and the technology acceptance model. Behaviour & Information Technology, 37(2), 167-179. https://doi.org/10.1080/0144929X.2017.1380703

51. Zhang, R., Xue, R., & Liu, L. (2019). Security and privacy on blockchain. ACM Computing Surveys, 52(3), 1–34. https://doi.org/10.1145/3316481