The Readiness of The United Arab Emirates (UAE) Investors to Use Blockchain Technology in Stock Market

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| ARTICLE INFO	ABSTRACT
	This study set out to identify the factors influencing the intention of investors in the United Arab Emirates to adopt blockchain technology in the stock market. Based on the Unified Theory of Acceptance and Use of Technology (UTAUT), a theoretical model was developed. 274 UAE investors were surveyed to test the hypotheses, and then the results were analysed using the structural equation modelling. Ultimately, the findings show that behavioral intention toward the use of blockchain technology is positively influenced by performance anticipation, social influence, and trust. Additionally, the results showed that older investors and investors with more years of blockchain technology experience had a greater relationship between facilitating conditions and behavioral intention toward blockchain adoption in the stock market, and the relationship between social influence and behavioral intention toward blockchain adoption was stronger for women and investors with less years of blockchain technology experience. **Keywords:** Behavioral Intention, Blockchain technology adoption, UTAUT, UAE investors, Stock Market

Introduction:

A blockchain is a digital log in which data, such as ownership changes, is recorded progressively in connected blocks that are "chained" together using cryptographic techniques (Hayes, 2023). The information is duplicated and distributed among multiple computer systems in a network. Every block includes a group of transactions (data) and a secure link or hash of the prior block that is linked. The block also carries its own hash which is a cryptographic signature of the transactions inside the block.

There are many applications of blockchain in the Financial Market, including digital currencies, smart contracts, digital assets and digital record keeping services. The financial industry, particularly the infrastructure of its financial markets, has a lot to gain from the use of blockchain technology. Numerous changes and developments that benefit both clients and financial institutions might be brought about through technology. Khan et al. (2022) conducted a case study on Blockchain implementation for Dubai Governments. The research stated that implementing blockchain technology in governments can have many benefits like increasing transparency, trust and transaction speed.

United Arab Emirates (UAE) has demonstrated a great interest in blockchain technology and is moving to implement it in several industries. Given that they are regarded as the primary market participants, UAE investors must be prepared to use blockchain technology before the stock market may decide to implement it. In UAE, Blockchain technology has become the most promising technology for digital transformation (Al Muhairi et al., 2020). The market research YouGov have conducted a study in 2021 where they surveyed 20000 respondents in 18 countries. The survey showed that UAE consumers have a strong relationship and trust in crypto (CHOUBEY, 2022). It showed that during the next five years, (67%) of UAE people plan to invest in the cryptocurrency industry (2021) (See Figure 1). The survey showed that 21% of the UAE consumers have the intend to invest the crypto market during the following year. Furthermore, the survey showed that the trust in the crypto market is the highest globally in UAE as 40% of the costumers in the country trust in cryptocurrencies; compared to 33% in Indonesia, 20% in China and less than 20% in European countries (See Figure 2).

Figure 1: UAE people who plan to invest in cryptocurrencies in the next five years
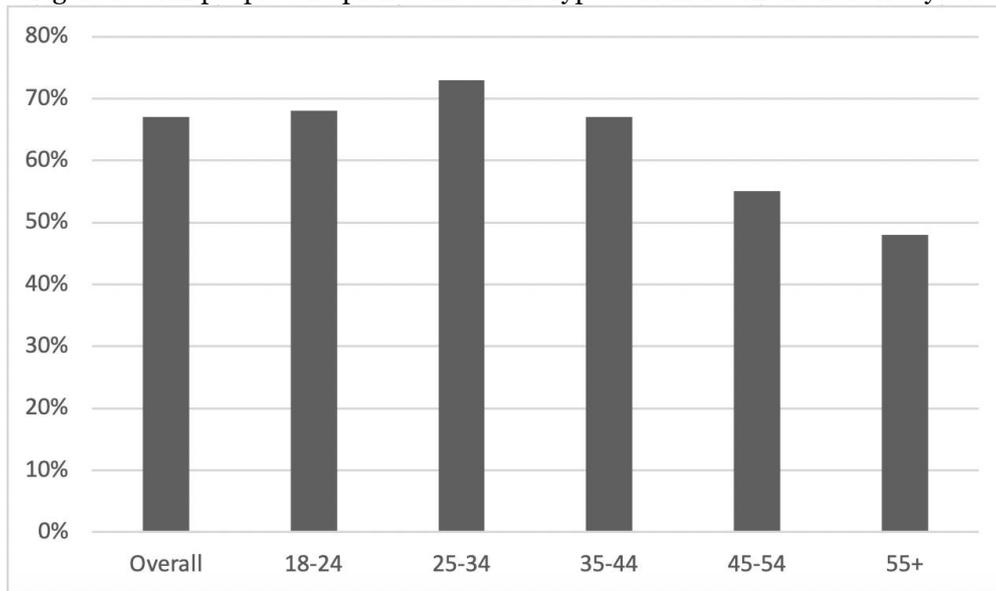
Source: YouGov (2021)

Figure 2: percentage of respondents who trust cryptocurrencies in the global markets
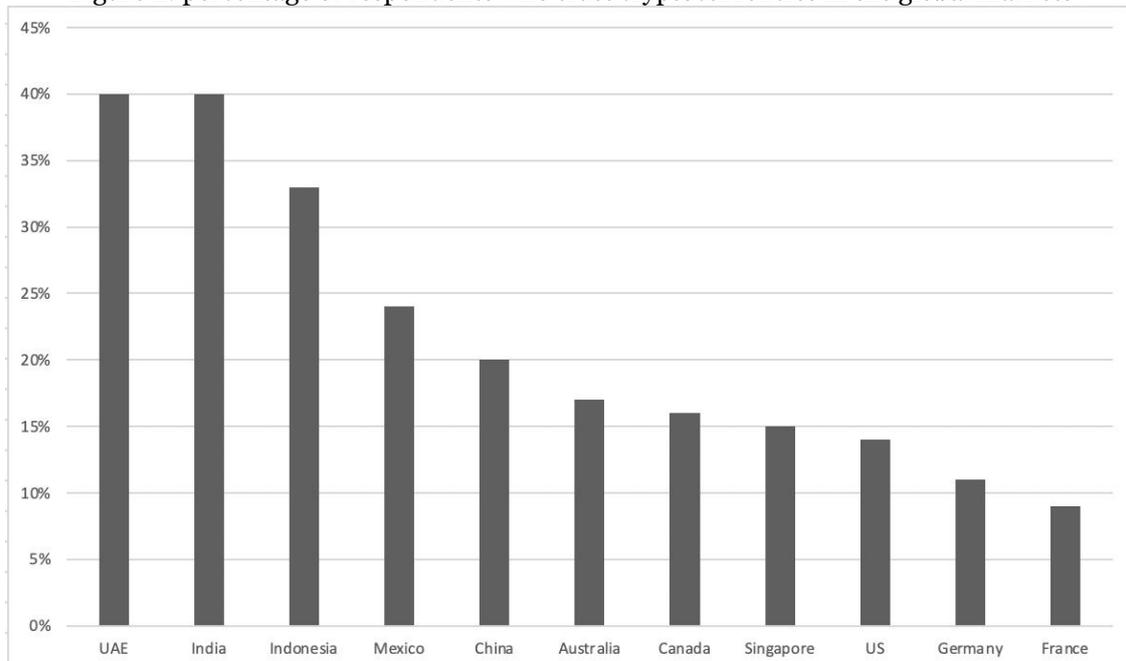
Source: YouGov (2021)

According to a Gemini survey conducted in 2022 among 20 countries, the UAE is ranked third globally in terms of crypto adoption as 35% of the people already owning some form of cryptocurrency. The Gemini survey has also showed that (49%) of respondents in the UAE said they are crypto-curious. The reporter defined the term crypto-curious as the customers who do not currently own crypto but are either concerned in learning more or are likely to obtain cryptocurrency during the next year. According to the Gemini survey (2022), 47% of the respondents in UAE believe that the future of money will be cryptocurrency. The survey found also that 33% of crypto owners in the UAE use it to make in-person procurements at brick-and-mortar stores, compared to only 19% of crypto owners worldwide (Gemini, 2022).

The growing interest in crypto by UAE residents was also highlighted in expo 2020 Dubai. During the two days marked as Crypto Expo Dubai, from 16-17 March 2022, there was an increase of 50% in exhibitors and a 40% increase in visitors compared to the previous year's edition. According to "Digital Lifestyle" report published in 2022 by the Telecommunications and Digital Government Regulatory Authority (TDRA), 11.4 % approximately of the residents in UAE have invested in cryptocurrencies. By this percentage, UAE is ranked 10th globally in terms of cryptocurrencies' investments (TDRA, 2022). Even though digital currencies are extremely popular globally, there are still worries about their security and fraud. The survey conducted by YouGov (2021) revealed that hacker risk was the biggest concern of UAE residents who intend to invest in the

cryptocurrencies (CHOUBEY, 2022). The survey showed that other concerns include losing access to their money if there is no internet connection, identity theft, difficulty to contact someone for troubleshooting, reduced fraud protection and insufficient government regulation.

In 2018, Mohammad bin Rashed, Prime Minister of UAE launched the "UAE Blockchain Strategy". Many government and private entities have started exploring and applying Blockchain. There are more than 40 government entities applying blockchain technology in one or more of their applications and there are more than 120 blockchain companies in the country covering 200-plus initiatives (Al Muhairi et al., 2020). Abdennadher et al. (2022) conducted a study of implementing the blockchain technology in the UAE Financial Market. The findings of their research show that the infrastructure of UAE market is ready to adopt blockchain technology.

The UAE financial market currently depends on the traditional trading system. Banks or other financial institutions would act to process the electronic payments as a trust-based model. One issue of the current banking system is the high transaction cost which can limit the minimum transaction size (Hayes, 2023). Other issues are the double-spending and the expensive creation and maintenance cost (Hayes, 2023). These issues can be tackled with applying a decentralized system.

The study focuses on the retail investors in the UAE, and their behavioral intention toward adoption blockchain technology in the stock market. There are a few reasons for selecting the stock market as a medium of this study, and the UAE investors as the unit analysis of the study. First, the UAE stock market's embrace of blockchain technology may drastically change how investors engage with the market. We may learn more about investors' behavior and preferences by researching their preparedness to adopt this technology. This knowledge can then be used to design new financial services and products that better suit their needs.

Second, The UAE government has been incredibly supportive of blockchain technology and has announced several efforts to encourage its use. For instance, the Abu Dhabi Global Market has built a legislative framework for cryptocurrency and blockchain-based firms, while the Dubai Blockchain Strategy intends to make the emirate a global hub for blockchain technology. Adding to this, with a youthful, tech-savvy populace, the UAE has a high degree of technology adoption. This shows that investors in the UAE are more likely than investors in other markets to be amenable to implementing blockchain technology.

Third, with a thriving stock market that welcomes international investment, the UAE boasts a robust financial industry. This offers the best structure for evaluating the use of blockchain technology in practical applications. Moreover, The UAE has a broad economy with several industry areas, including real estate, tourism, and the oil and gas industry. Due to the wide variety of investors in the market, it is possible to gain important insights about the potential adoption of blockchain technology by various investor demographics.

Several researches have previously studied the adoption intention of users toward blockchain technology by using the known technology adoption theories and models e.g. (Alazab et al., 2020)(Albayati wt al., 2020)(Altamimia et al., 2022)(Esfahbodi et al., 2022) (Hira et al., 2022) (Malik et al., 2022). This research was conducted on several industries including, supply chain, cryptocurrencies, health, etc. However, none of the research directed the Financial Market.

Moreover, the research that investigated the blockchain technology adoption intention from the perspective of users or individuals did not get the same results in terms of the variables studies in the theories and models. Therefore, the findings were inconclusive, and the factors that affect the investors attitude toward blockchain technology utilization still need to be further validated.

In summary, there is a gap in the identification of the factors on the users' intention toward adopting blockchain technology. Another gap identified is on shortage in studies directed on the use of blockchain technology in the Emirati stock market, despite the high willingness of the entities in the country to implement the blockchain technology into their system. Due to these gaps, the present study aims to identify the factors affecting the UAE investors intention and attitude toward blockchain technology.

To investigate if blockchain adoption is feasible in the UAE stock market, it is important to investigate the readiness from the perspective of all stakeholders in the market, and investors are considered a key stakeholder in the stock market. Therefore, this study examines the effect of performance expectancy, effort expectancy, facilitating conditions, social influence and trust on the behavioural intention of investors in UAE stock market based on blockchain technology. In fact, this study also investigate the role of moderating variables in the relationship of determinants factors towards investors intention.

Literature Review

Technology adoption and utilization is a complicated, multifaceted process that is impacted by many different variables. The UTAUT, or Unified Theory of Acceptance and Use of Technology, was created as a unified model that integrates eight theories including the technology acceptance model (TAM) (Venkatesh et al., 2003). Building on the TAM model, Gefen et al. (2003) adds trust as a crucial determinant of user acceptance of technology.

Four important variables—performance expectations, effort expectations, social influence, and facilitating conditions—have a significant impact on a person's decision to accept and utilize technology (Venkatesh et al., 2003). The term "performance expectancy" describes a person's expectation that utilizing a specific technology would increase their performance or productivity. The term "effort expectation" describes how simple users

believe the technology to be. The extent to which a person's friends, family, or other social networks are utilizing or endorsing a piece of technology is referred to as social influence. When we talk about facilitating conditions, we're talking about the tools and infrastructure that are available to make technology use easier for people. The UTAUT model also contends that personal and demographic characteristics like age, gender, level of education, and past technology exposure also influence how well people accept and use technology. Therefore, it's crucial to take into account each user's unique traits in order to comprehend how they adapt new technology and how they utilize it.

Performance Expectancy

Performance expectancy is crucial in influencing a person's desire to utilize a technology as well as how satisfied they are with it in general after they begin using it. There were many studies that previously studied if performance expectancy would affect people's willing to adopt blockchain technology and they had different results. In Empirical studies on performance expectancy and technology adoption has been a source of contention, with some scholars noting that performance expectancy is a significant predictor of individuals' intention to use a new technology in deferent fields (Fang et al. 2012; Alharbi 2019; Wut et al. 2021; Alazab 2020), while other scholars noted that performance expectancy is not a predictor of investor's behavioural intention to use technology (Wahyuni et al., 2021).
H1: performance expectancy has a positive relationship toward behavioural intention of UAE investors to adopt blockchain technology in Stock Market

Effort Expectancy

Effort expectancy refers to an individual's belief about the ease of use or the amount of effort required to use a blockchain system. The description of effort expectancy in this study is that if the blockchain technology is perceived as needing little effort to operate, investors are more inclined to adopt it. In previous contexts, the relationship between effort expectancy and behavioural intention has been a source of contention. Some scholars noting that effort expectancy is a substantial predictor of investors behavioural intention to utilize blockchain technology in several fields that means individuals who believed that using blockchain technology would be easy were more likely to adopt and use the technology (Davis, 1989; Kim et al., 2010; Fang et al., 2012; Wut et al., 2021; Alharbi, 2019; Wahyuni et al., 2021). While others noted that effort expectancy is not related to investors behavioural intention to adopt technology (Shrestha & Vassileva, 2021). As a result, Hypothesis 2 has been developed.
H2: Effort expectancy has a positive relationship toward behavioural intention of UAE investors to adopt blockchain technology in Stock Market

Social Influence

Social influence refers to the impact that people have on each other regarding their technology usage patterns. This occur because individuals trust the opinions and experiences of those close to them. Earlier research findings found a positive relationship between social influence and the investor's behavioural intention (Wamba and Queiroz, 2019) (Nuryyev, et al., 2020) (Wahab et al., 2020) (Gupta et al., 2020). While, research done in Spain found no significant impact from the social influence on people's intention to use cryptocurrency (Arias-Oliva et al., 2019). Consequently Hypothesis 3 has been formed.
H3: Social influence has a positive relationship toward behavioural intention of UAE investors to adopt blockchain technology in Stock Market

Facilitating Conditions

Facilitating conditions refer to the tools, structures, and incentives that make it easier for individuals and organizations to use new technologies. Some researchers found that facilitating conditions is a significant predictor of investors behavioural intention to adopt blockchain technology and it consider the important factors that can influence the success of blockchain technology adoption (Arias-Oliva et al., 2019) (Wahab et al., 2020) (Balasubramanian et al., 2021). While others noting that facilitating conditions does not have affect people intention to adopt blockchain (Caldarelli et al., 2020)
H4: Facilitating conditions has a positive relationship toward behavioural intention of UAE investors to adopt blockchain technology in Stock Market

Trust

Trust in new technology refers to an individual's belief and confidence in the reliability, security, and ethical behaviour of a new technology. Users are more inclined to utilize technology they perceive to be reliable and safe, hence high levels of user trust are necessary for widespread acceptance and utilization. previous research indicate that users are more inclined to utilize technology they perceive to be reliable and safe, hence high levels of user trust are necessary for widespread acceptance and utilization. (Kshetri & Voas, 2018) (Albayati et al., 2020) (Alazab et al., 2020).
H5: Trust has a positive relationship toward behavioural intention of UAE investors to adopt blockchain technology in Stock Market

Age as a moderator
Age is a moderator variable that can influence the relationship between the core determinants of the theory and behavioral intention to use technology. Age could be used to predict the likelihood of technology adoption, as older adults may be less likely to adopt new technologies due to a variety of factors, including technological anxiety, lack of experience or familiarity with the technology, and resistance to change. A study by Yang et al. (2021) revealed that age demonstrated moderation to reinforce the relationship between the dependent variables and the adoption of an e-wallet based on blockchain. On the other hand, it was found that the moderating effect of age was non-existent in predicting the behavioural intention of Port users to adopt Fintech on all the independent variables hypothesized (Antwi-Boampong et al., 2022)
H6.a: The influence of performance expectancy on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Age as the effect will be stronger for younger investors
H6.b: The influence of effort expectancy on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Age as the effect will be stronger for older investors
H6.c: The influence of social influence on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Age as the effect will be stronger for older investors
H6.d: The influence of facilitating conditions on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Age as the effect will be stronger for older investors

Gender as a moderator
Gender is an important factor that can impact an individual's behavioural intention to adopt new technologies. Men and women may have different attitudes and behaviors towards adopting new technologies. The role of "Gender" as a moderator between the connection between the independent factors and the desire to use blockchain has been examined in many studies. For instance, Yang et al. study from 2021 found that gender somewhat moderated the link between the dependent variables and the adoption of a blockchain-based e-wallet. According to a separate survey, there is no discernible difference between respondents of different ages in terms of their mean behavioral intention to use Bitcoin (Gillies et al., 2020). The finding of another study show that gender plays as moderators only among Performance Expectancy and Behavioral intention and between Social Influence and Behavioral intention (Chang et al., 2019).
H7.a: The influence of performance expectancy on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Gender as the effect will be stronger for men.
H7.b: The influence of effort expectancy on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Gender as the effect will be stronger for women
H7.c: The influence of social influence on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Gender as the effect will be stronger for women

Experience as a moderator
Experience used to characterize how a person feels and perceives a product or service, like an application, software, or website, overall. An intuitive, effective, and fulfilling user experience leaves a good impression on the user and promotes continuous use or acceptance of the good or service. Many studies have looked at the impact of "experience" in moderating the relationship between the independent factors and the intention to adopt new technologies. Chang et al. (2019) found that the relationship between social influence and a person's behavioural intention to utilize technology to book a hotel is moderated by the variable "experience." However, according to the results of another study, experience does not moderate the relationship between any of the variables and the behavioural intention to use Bitcoin in Malaysia (Gillies et al., 2020).
H8.a: The influence of effort expectancy on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Blockchain technology experience as the effect will be stronger at early stages of experience.
H8.b: The influence of social influence on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Blockchain technology experience as the effect will be stronger at early stages of experience.
H8.c: The influence of facilitating conditions on investors behavioural intention to adopt blockchain technology in stock market will be moderated by Blockchain technology experience as the effect will be stronger with increasing experience.

Figure 3: Conceptual Framework
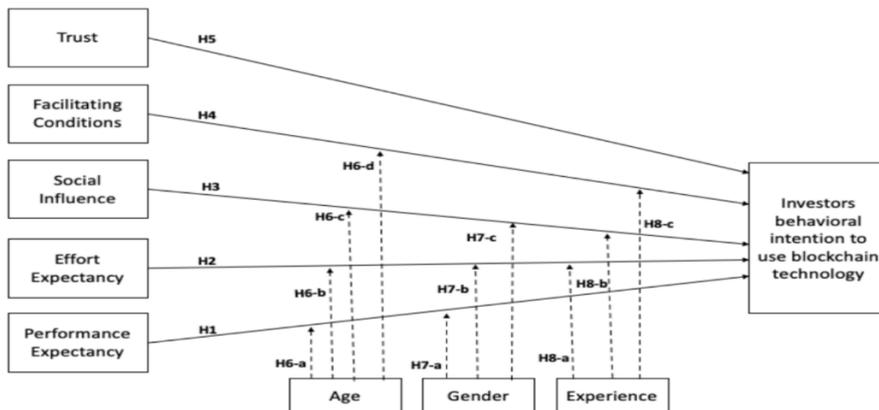
Methodology

This study uses the quantitative approach. Individual investors are the subject of this study's unit analysis. Participants in this study must be at least 21 years old since individuals in these age gaps are legally permitted to engage in the UAE stock market without a guardian's permission. For the purpose of this study, experience from investing in the UAE stock market is required in order to determine investor's belief evaluation regarding the utilization of blockchain technology in the market. Furthermore, having some level of knowledge or familiarity with blockchain technology is essential as it would allow for a more accurate assessment of their behavioural intention to adopt the technology. This study uses purposive sampling, to ensure that the sample includes expert individuals who are most related to the research question (Creswell & Creswell, 2017). Purposive sampling is a non-probability sampling technique, where the participants are recruited in accordance with a specific criterion related to the research objectives (Creswell & Creswell, 2017). In this study the selected participants are investors in the UAE stock Market who are familiar with blockchain technology. This study analysed the reposes from 274 questionnaires from investors in the UAE stock market. Using IBM SPSS 32, a descriptive analysis was carried out. Using SmartPLS 4.0, a partial least squares-structural equation modeling (PLS-SEM) analysis was performed on the research model (Ringle et al., 2023). Measurement model was carried out to test the instruments reliability and validity, then theory was tested using the structural model.

Results and analysis

The demographic results presented as in Table 1. It shows that most of the respondents are female (58.4%), more than 10 years of work experience (34.7%), with monthly income less than 20,000 AED (39.4%), and at the age range between 30-39 years old. in term of experience in using blockchain technology, most respondents have experience between 1 and 3 years (45.3%). Besides, most of the respondents completed their bachelor's degree (67.9%) and only small portion of respondents have PhD degree which is only (2.6%).

Table 1:Respondents' Profile

Profile	Items	Frequency	Percentage
Age	21-29	73	26.6
	30-39	129	47.1
	40-49	55	20.1
	>50	17	6.2
Experience in using Blockchain	<1 year	42	15.3
	1-3 years	124	45.3
	>3 years	108	39.4
Gender	Male	114	41.6
	Female	160	58.4
Monthly income (AED)	< 20,000	108	39.4
	20,000 -30,000	85	31.0
	30,000- 40,000	58	21.2
	>40,000	23	8.4
Education Level	Highschool	32	11.7
	Bachelor	186	67.9
	High Diploma	7	2.6
	Master	42	15.3
	PhD	7	2.6
Work Experience	<1 year	36	13.1
	1-5 years	56	20.4
	5-10 years	87	31.8
	>10 years	95	34.7

Note: N=274

Each indicator's loading inside a construct determines the indicator's dependability. According to Hair et al. (2022), the loading cutoff value for each indication is more than or equal to 0.7. An indicator is considered to have a sufficient level of reliability when its loadings value is more than or equal to 0.7, which indicates that the constructions explain more than 50% of the variation in the indicator. After running the PLS algorithm, the item loadings appeared to be all above the threshold value, ranging from 0.745 to 0.891, signifying that the reliability of this study is satisfactory as per the findings below Table 2. So, in present study, followings items were deleted from the model due to the issue of low factor loading; SI3, and TR4, respectively.

As suggested by Hair et al. (2022), composite reliability (CR) was used in this work to examine the internal consistency reliability. The cut-off value for this composite dependability is more than 0.7. All six construct values above the study's minimal threshold value of 0.7, according to the PLS algorithm's smart PLS results. The constructs values (table 2) ranged from 0.855 to 0.938, which is considered a reasonable range.

A measure of convergent validity is the degree of relationship that exists between two or more assessments of constructs that theoretically should be related. This might be evaluated by applying the Hair et al., 2022 criterion to the average variance extracted (AVE), where an AVE of 0.5 or above indicates a substantial convergent validity. The results demonstrate that all seven constructs' AVE values exceed the 0.5 threshold value (see table 2). These findings imply that there is enough convergent validity in the measuring model. To conclude, the measurement model for this study met the recommended thresholds for indicator reliability, composite reliability, and convergent validity.

Table 2: Factor Loading

	Items	Loadings	CR	AVE
Behavioural Intention	I intend to use blockchain technology in the future (BI1)	0.876	0.938	0.751
	I would like to learn more about blockchain technology (BI2)	0.891		
	I plan to invest in blockchain-based projects (BI3)	0.846		
	I expect to use blockchain technology frequently in the future (BI4)	0.89		
	I believe that blockchain technology will become more widely used in the future (BI5)	0.827		
Effort Expectancy	I find the blockchain technology easy to use (EE1)	0.832	0.914	0.726
	The blockchain technology is easy to learn (EE2)	0.878		
	I can quickly become skilful at trading using the blockchain (EE3)	0.848		
	My interaction with Blockchain is clear and understandable (EE4)	0.85		
Facilitating Conditions	I have access to the necessary hardware and software to use blockchain technology (FC1)	0.843	0.877	0.641
	The technical infrastructure necessary to use blockchain technology is available to me (FC2)	0.794		
	I can get the necessary training and knowledge to use blockchain technology (FC3)	0.816		
	The stock market provides adequate resources for the use of blockchain technology (FC4)	0.745		
Performance Expectancy	I feel it is useful to adopt blockchain technology in the stock market (PE1)	0.835	0.928	0.722
	The blockchain technology would make it easier to trade in the stock market PE2	0.866		
	Using the blockchain technology would increase my productivity in stock market trading (PE3)	0.897		
	The blockchain technology would help me to accomplish transactions more quickly (PE4)	0.814		
	The blockchain technology would enhance my ability to trade in the stock market (PE5)	0.833		
Social Influence	People who are important to me think that I should use blockchain technology in trading (SI1)	0.773	0.855	0.663

|					
	The opinions of my investor's colleagues influence my decision to use blockchain technology (SI2)	0.839			
	I am influenced by the recommendations of experts and authority figures regarding the blockchain technology (SI4)	0.829			
Trust	I trust blockchain technology to perform its intended functions reliably in the stock market (TR1)	0.819	0.904	0.653	
	I trust that my personal data and information is secure when using blockchain technology in stock market (TR2)	0.794			
	I trust that blockchain technology will not cause harm or damage (TR3)	0.755			
	I trust that the UAE stock market has my best interests in mind when adopting blockchain technology (TR5)	0.798			
	I trust that the use of blockchain technology is in compliance with relevant laws and regulations (TR6)	0.868			

Note: Items SI3 and TR4 were deleted due to low loadings/ items adapted from (Venkatesh et al., 2012) *and* Gefen et al. (2003)

Discriminant validity is defined as the extent to which the constructs measured are not related to each other. In this step, the discriminant validity was evaluated by applying Franke and Sarstedt (2019) revised HTMT criteria. The more stringent HTMT value requirement is < 0.85, whereas the more permissive criteria is ≤ 0.90. All values in Table 3 are below threshold of < 0.85. Consequently, we may deduce that the participants comprehended the distinctions between the constructs.

Table 3: Discriminant Validity

	1	2	3	4	5	6
1. Behavioural Intention						
2. Effort Expectancy	0.597					
3. Facilitating Conditions	0.659	0.74				
4. Performance Expectancy	0.734	0.712	0.731			
5. Social Influence	0.73	0.682	0.724	0.748		
6. Trust	0.731	0.774	0.795	0.798	0.699	

As per Hair et al. (2022), the coefficient of determination, R^2, is the percentage that shows the statistical model's ability to predict the dependent variable. In this study, the endogenous variable of behavioural intention has R^2 value of 0.561, which is considered substantial as explained by Cheah et al. (2018)

Figure 4: Measurement Model
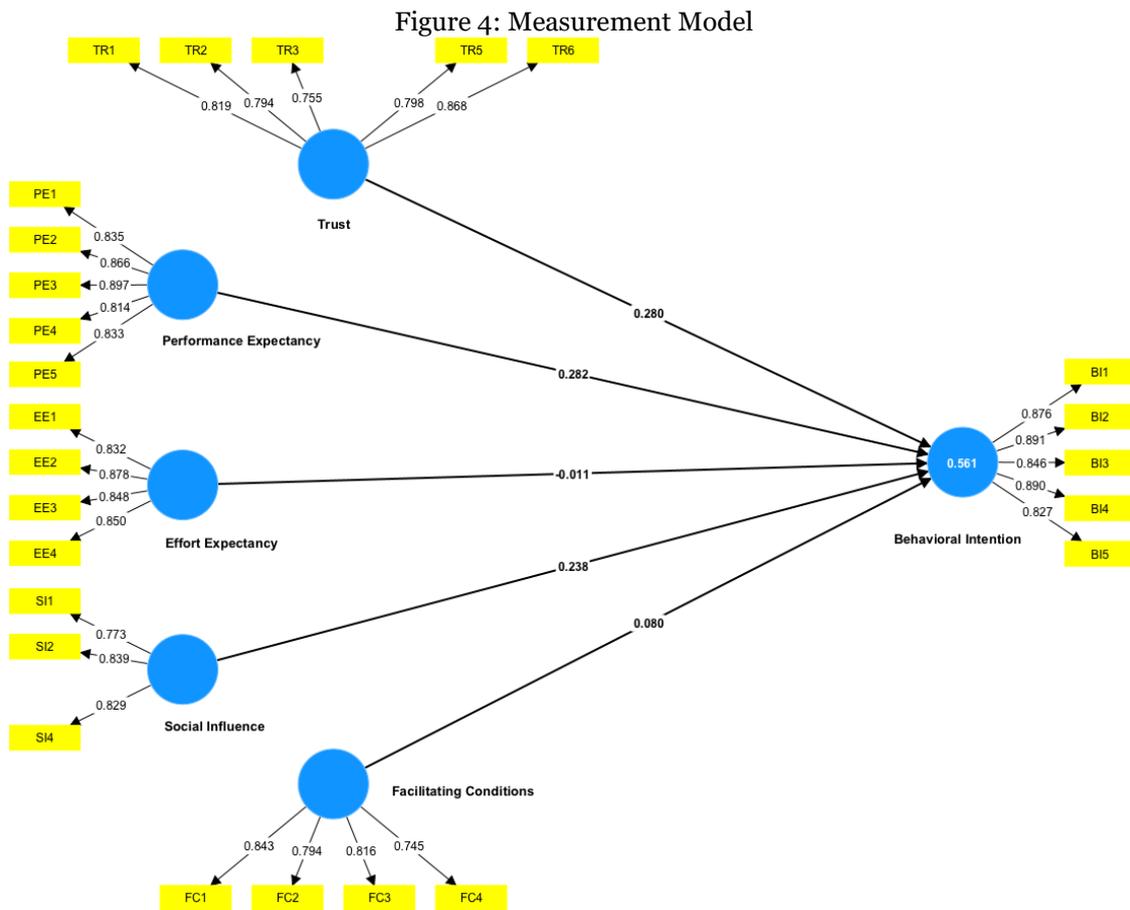
the study used a 10,000-sample re-sample bootstrapping approach to present the path coefficients, standard errors, t-values, and p-values for the structural model (Ramayah et al. 2018). According to Hair et al. (2022), in the case of a one-tailed test, the hypothesis would be valid if the p-value was less than 0.01 and the t-value exceeded 1.96. according to the bootstrap function findings in smart PLS ,three of the five hypotheses listed in Table 4 are supported in this study (H1, H3 and H5). Relevance-wise, the route coefficient value suggest that the independent and dependent variables have a positive relationship.

Table 4: Hypothesis Testing

Hypothesis		Std. Beta	Std. Dev.	t-value	p-value	Decision
H1	Performance Expectancy -> Behavioural Intention	0.282	0.068	4.162	p<.001	Supported
H2	Effort Expectancy -> Behavioural Intention	-0.011	0.064	0.166	0.434	Not supported
H3	Social Influence -> Behavioural Intention	0.238	0.054	4.403	p<.001	Supported
H4	Facilitating Conditions -> Behavioural Intention	0.08	0.058	1.385	0.083	Not supported
H5	Trust -> Behavioural Intention	0.28	0.067	4.145	p<.001	Supported

In Smart PLS, 10000 bootstrap samples were used for a one-tailed test with a significance level of 0.05 to test the moderating effect in the present study. The results show that hypothesis H6.d, H7.c, H8.b, and H8.c were supported (shown in Table 5).

Table 5:Moderating effect hypothesis testing

Hypothesis		Beta	ST.DEV	T values	P values	Decision
H6.a	Age x Performance Expectancy -> Behavioural Intention	-0.028	0.048	0.576	0.282	Not Supported
H6.b	Age x Effort Expectancy -> Behavioural Intention	-0.078	0.049	1.608	0.054	Not Supported
H6.c	Age x Social Influence -> Behavioural Intention	-0.026	0.051	0.512	0.304	Not Supported
H6.d	Age x Facilitating Conditions -> Behavioural Intention	0.18	0.044	4.096	0	Supported
H7.a	Gender x Performance Expectancy -> Behavioural Intention	0.069	0.106	0.651	0.258	Not Supported
H7.b	Gender x Effort Expectancy -> Behavioural Intention	0.117	0.093	1.267	0.103	Not Supported
H7.c	Gender x Social Influence -> Behavioural Intention	0.286	0.117	2.451	0.007	Supported
H8.a	BCTexperience x Effort Expectancy -> Behavioural Intention	-0.008	0.045	0.174	0.431	Not Supported
H8.b	BCTexperience x Social Influence -> Behavioural Intention	-0.076	0.044	1.743	0.041	Supported
H8.c	BCTexperience x Facilitating Conditions -> Behavioural Intention	0.109	0.05	2.186	0.014	Supported

DISCUSSION

Based on the results, this study found that there are three factors significantly influence the readiness of UAE investors intentions to use blockchain technology in stock market which are Performance Expectancy (PE), Social Influence (SI) and Trust (TR).

Based on hypothesis 1, this study's findings reveal that performance expectancy has a positive relationship toward investor's behavioural intention. The strong positive correlation indicates that UAE investors have a favourable performance expectancy toward adopting blockchain technology, which has an impact on their intention to use the new technology. Investors' performance expectancy may have grown because of their awareness of the advantages of utilizing blockchain in financial transactions such that; reduced cost of the transactions completed and less settlement period (Neggaz et al., 2021). As a result, this study wishes to conclude that performance expectancy is a significant predictor of behavioral intention and is positively associated with it, supporting former research such as (Fang et al. 2012; Alharbi 2019; Wut et al. 2021; Alazab, 2020).

Based on hypothesis 2, this study's findings reveal that effort expectancy is a not significant predictor of investor's behavioral intention toward adopting blockchain technology in the UAE stock market and supporting previous research whom studies found no relationship between effort expectancy and behavioural intention such as (Shrestha & Vassileva, 2021).

Hypothesis 3 was supported by the study's findings indicating a significant positive effect of social influence on investor's behavioral intention to adopt blockchain in the UAE stock market. Furthermore, the current study's findings are also consistent with earlier research findings that found a positive relationship between social influence and the investor's behavioral intention (Wamba and Queiroz, 2019) (Nuryyev, et al., 2020) (Wahab et al., 2020). The strong positive correlation indicates that UAE investors are influenced by their peers and other experts' reviews on blockchain technology and the government adoption of the blockchain technology in many sectors. This has an impact on their intention to utilize the blockchain technology in stock markets.

Based on hypothesis 4, this study's findings show that facilitating conditions is a not significant predictor of investor's behavioural intention toward adopting blockchain technology in the UAE stock market and supporting previous research whom studies found no relationship between facilitating conditions and behavioural intention as (Caldarelli, et al., 2020).

hypothesis 5 was supported and show that the relationship between trust and the investor's behavioural intention toward adopting blockchain is significantly positive, indicating that trust is a significant predictor of investor's behavioural intention. So, the strong positive correlation indicates that UAE investors have a trust toward adopting blockchain technology in the stock market, which has an impact on their intention to use the new technology. This indicates that people in UAE trust the blockchain technology, which was also shown in a survey by YouGov (2021) as the trust in the crypto market is the highest globally in UAE as 40% of the costumers in the country trust in cryptocurrencies; compared to other countries in the world. The findings also implies that UAE investors highly trust the decisions of Financial Market in UAE if they decided to adopt blockchain technology.

Based on the data presented in table 5, age and gender have no significant moderating effect on the relationship between Performance Expectancy and Behavioural Intention. This can be explained as performance expectancy can indeed affect investors' intentions to use blockchain technology in stock market regardless of their age or them being male or female.

Referring to the data presented in the table 5, neither age, gender or blockchain technology experience have moderating effect on the relationship between Effort Expectancy and Behavioural Intention. This can be explained as effort expectancy does not affect investors' intentions to use blockchain technology in stock market regardless of their age, them being male or female how many years of experience do they have in utilizing the blockchain technology.

According to hypothesis H6.c, the results show in the table 5 that age has no significant moderating effect on the relationship between Social Influence and Behavioural Intention. This can be explained as investors' age does not have any effect on the relationship between social influence and the investors' intentions to use blockchain technology in stock market.

Regarding to hypothesis H7.c, data in table 5 represent that the gender moderates the relationship between Social Influence and Behavioural Intention (β = 0.286, t-value= 2.451). This can be explained as the gender of the investor can affect the relationship between social influence and their intention to utilize blockchain technology in stock market. The positive value of the path coefficient indicates that the relationship will be stronger for women, which implies that female investors tend to be more sensitive to others reviews and opinions on the utilization of blockchain technology in the stock market.

Moving to hypothesis H8.b, the findings of the study show that Blockchain Technology experience has a moderating effect on the relationship between Social Influence and Behavioural Intention, (β = -0.076, t-value= 1.743). Then, a path coefficient with a negative value indicates that less blockchain technology experience strengthen the association between social influence and behavioural intention. This finding corroborates that individuals with less experience will have ill-informed opinions regarding the adoption of the blockchain technology, which will provoke them to be more influenced by others opinions. As investors develop more experience in blockchain technology usage, this influence will be weakened as they will have more

confidence and develop instrumental basis rather than the social basis. Based on these findings, it can be claimed in the current study context that while investors are influenced by others' opinions, their intention to use blockchain technology decreases when they are particularly more experienced in blockchain technology.

According to hypothesis H6.d, according to the data presented in the table 4.10, age has moderating effect on the relationship between facilitating conditions and Behavioural Intention (β = 0.18, t-value= 4.096). Then, a path coefficient with a positive value indicates that older investors strengthen the association between facilitating conditions like infrastructure, training, technical support, and organizational support, and investors' intentions to use blockchain technology. This can be further explained as older investors place greater value on getting support and assistance when utilizing the blockchain technology.

Regarding to hypothesis H8.c, the data presented in the table 5, Blockchain Technology experience has moderating effect on the relationship between facilitating conditions and Behavioural Intention (β = 0.109, t-value= 2.186). Then, a path coefficient with a positive value indicates that blockchain technology experience strengthen the association between facilitating conditions and behavioural intention. This can be further explained as the effect between facilitating conditions and intention to use blockchain technology increases with the increase in experience. This is as investors with more experience will find multiple avenues for support and assistance throughout the industry of blockchain technology and the stock market.

Managerial Implications

First, performance expectancy was discovered to have a positive impact toward behavioral intention to adopt blockchain technology in Stock Market of UAE, demonstrating that the more positively investors evaluate the blockchain technology, the greater their intention to adopt. Meaningly, users of blockchain technology were more willing to accept and utilize it if they thought it would boost the effectiveness and quality of their services. Accordingly, the stock market ought to focus on investors' reactions to blockchain technology and seek out strategies for future development that would progressively increase the usage and uptake of this cutting-edge technology. The challenges of implementing blockchain technology in the financial markets must also be addressed by responsible authorities, such as central banks. These challenges include moving away from the outdated system for transactions, setting up the necessary infrastructure and conditions with enough storage space, and boosting trust in the new system by raising awareness of its benefits, low costs and dealing confidentiality. Assurance of personality and rights through smart contracts, particularly considering the government's strong support for the development of new technologies, as made evident in several official (Al Muhairi et al., 2020).

Secondly, the study's findings find that social influence has a positive relationship toward behavioral intention of UAE investors to adopt blockchain technology in Stock Market. The government adoption of the blockchain technology in many sectors. This has an impact on their intention to utilize the blockchain technology in stock markets. Following that, Stakeholders and government authorities must exploit this advantage by encouraging institutions, including ministries, banks, and institutions, to disclose their experience and the results they have achieved in saving time, effort, and money, and encourage their customers to provide advice to others, which may lead to an increase in their intention to use technology without fear or hesitation. This can be accomplished through educational campaigns that aim to educate investors about the institutions that have used this technology in the Emirates and how they can achieve great goals. In this way, investors will gain a better understanding and greater confidence. After that, investors will also begin to develop a more positive perception, which will ultimately increase their recognition significantly. At the same time, government agencies can also encourage investors by using communication platforms such as television and social media to increase awareness of new and old investors.

Thirdly, the study's findings noticed that Trust has a positive relationship toward behavioral intention of UAE investors to adopt blockchain technology in Stock Market. So, the strong positive correlation indicates that UAE investors have a trust toward adopting blockchain technology in the stock market, which has an impact on their intention to use the new technology. This suggests that blockchain technology is trusted by UAE citizens. For instance, the 2021 poll revealed that UAE consumers strongly relate to and trust cryptocurrency. Additionally, it demonstrated that, in comparison to other nations, 40% of UAE customers have the greatest level of trust in the cryptocurrency industry worldwide (CHOUBEY, 2022). As a result, each of these instances shows that investors have trust in the rules, regulations, and processes in place to protect financial confidentiality and facilitate transactions. Following that, investors' perceptions will also start to improve, which will finally greatly raise their awareness. Governmental organizations may also promote investment at the same time by utilizing social media and television as communication channels.

Moving on to analyzing the results of the moderators' effects. Although, the findings of this study show that facilitating conditions does not have a relationship toward the behavioral Intention to adopt blockchain technology. However, findings show that age has moderating effect on the relationship between facilitating conditions and behavioral Intention to adopt blockchain technology in stock market. The results indicates that older investors strengthen the association between facilitating conditions like infrastructure, training, technical support, and organizational support, and investors' intentions to use blockchain technology. This can be further explained by the fact that more experienced investors prefer help and guidance while using blockchain technology. Governmental organizations can also support senior investors by expanding training workshops,

guaranteeing their technological and technical support, researching their challenges and shortcomings, and assisting in finding solutions, and locating specialists to mentor them until they are self-sufficient.

Besides that, analyzing the results of the gender moderator effects. The gender significantly moderates the relationship between Social Influence and behavioral Intention. This can be explained as the gender of the investor can affect the relationship between social influence and their intention to utilize blockchain technology in stock market. This suggests that women investors are typically more perceptive to other people's assessments and viewpoints regarding the application of blockchain technology in the stock market. Women may require more social influence and support from their peers and family members to adopt new technologies, whereas men may be more likely to adopt new technologies if they perceive them as useful (Venkatesh et al., 2003). women may have lower levels of trust in the technology due to the lack of diversity and representation in the field, which can affect their perceived legitimacy of the technology (Kshetri & Voas, 2018). The stock market may assist women in utilizing modern technologies by: Programs for digital literacy should teach women both fundamental and advanced digital skills, make sure women have inexpensive access to technology, including tools and internet connectivity. Support for entrepreneurs: Offer financial resources, guidance, and education to female IT industry entrepreneurs. Investigate and gather data: Make an investment in learning about the obstacles that women encounter while embracing new technology and Encourage role models to motivate others, highlight accomplished women in technology as role models.

Furthermore, according to the results of the experience moderator effects. The Blockchain Technology experience significantly moderates the relationship between Social Influence and behavioral Intention's the effect will be stronger at early stages of experience. Based on these findings, it can be claimed in the current study context that while investors are influenced by others' opinions, their intention to use blockchain technology decreases when they are particularly more experienced in blockchain technology. Perhaps this refers to experienced users could need more in-depth information and customization possibilities. The stock market can utilize customized methods based on the discovery that blockchain experience moderates the link between social influence and intention to adopt to assist early-stage users in embracing blockchain. Peer support networks and mentoring programs may be established to facilitate knowledge sharing and build a supportive community by connecting less experienced users with those who have successfully adopted blockchain. They can foster a community of support by encouraging the sharing of ideas and experiences among members of the organization. Early-stage users might be motivated by communication efforts that emphasize success stories and provide rewards and recognition. To encourage others to follow suit, the stock market might initiate focused marketing efforts that highlight the achievements of early adopters with no prior blockchain experience. Organizations can remain aware of the changing demands and issues of their users via the usage of feedback channels and ongoing education initiatives. The adoption of blockchain technology should be flexible to accommodate the learning rate and preferences of early users, who may need a staged approach.

Lastly, ending with the analyzing the results of the Blockchain Technology experience moderator effects. The Blockchain Technology experience significantly moderates the relationship between facilitating conditions and Behavioural Intention's the effect will be stronger with increasing experience. A further explanation for this is that as experience grows, so does the relationship between facilitating conditions and the intention to use blockchain technology. This is because seasoned investors in the blockchain and stock market industries will have many options for help and support. The importance of end-users' experience in technology adoption in different research. According to the study, end users were more inclined to accept new technologies with comparable features and functions if they had experience with related technologies. In addition, moderators, like as trainers and IT support personnel, were critical in resolving end-user problems and delivering efficient training to encourage technology adoption (Yli-Huumo et al., 2016). Implementing targeted strategies based on the fact that blockchain experience moderates the link between facilitating conditions and adoption intention can help organizations successfully support investors in embracing blockchain technology. To accommodate investors with different degrees of experience, these tactics include specialized training programs, specialized support centres, one-on-one consultations, and ongoing professional development. The adoption process is further improved by making strategic investments in community interaction platforms, technological infrastructure, and performance monitoring tools. In order to create a friendly atmosphere that is suited to investors with higher blockchain experience, recognition programs, cross-functional collaboration, and adaptable policies all play a part in encouraging their desire to implement this game-changing technology.

Conclusion

This study contributed to the body of knowledge on the topic by examining how investors in the United Arab Emirates planned to employ blockchain technology in the stock market. Since investors' readiness as main stakeholders determines the technology's adoption in the stock market, the UAE financial market must encourage the deployment of blockchain technology by taking into account the elements that influence investors' behavioral desire to utilize it. In summary, while forecasting UAE investors' intents to use blockchain technology in the stock market, the current study supports two of the UTAUT's relationships: performance expectancy and social impact. Furthermore, incorporating the theory with the study model and including a new variable called trust adds a great deal to the corpus of literature. The study examined the moderating effect of

age, gender, and experience on the relation between independent factors and behavioural intention toward utilizing blockchain technology.

To explain more the moderators results of the study, the findings show that older investors strengthen the relationship between facilitating conditions like infrastructure, training, technical support, and organizational support, and investors' intentions to use blockchain technology. Moreover, when it comes to other people's comments and reviews regarding blockchain technology in the stock market, female investors are typically more perceptive. Furthermore, current study context that while investors are influenced by others' opinions, their intention to use blockchain technology decreases when they are particularly more experienced in blockchain technology. Lastly, end users were more inclined to accept new technologies with comparable features and functions if they had experience with related technologies.

This study contributes by addressing the knowledge gap in the identification of the factors on the users' intention toward adopting blockchain technology, particularly in gulf countries. This study provides evidences on the factors that contribute most towards the readiness of UAE investors toward the adoption of blockchain technology in the stock market. Present findings would be of great support to the decision makers in the stock market field in UAE in the process of implementing the blockchain technology. The study will contribute to creating a clear image of the opinions of the investors and their queries around the implementation of the technology. Besides, the study can aid in a better understanding of investors' levels of knowledge and comprehension of blockchain technology and its possible applications in the stock market. Therefore, studying how open UAE stock market investors are to implementing blockchain technology can offer insightful data that can be used to develop strategies to encourage the technology's adoption, boost market performance, and draw in more foreign investment. The stock market in the UAE could benefit from this information in the phase of implementing the technology in the market.

For the present study, following limitations are observed for the future research. The very first limitations of this study indicate the coverage of only stock markets in UAE. This fact would justify that current study is limited in terms of one sector, which seems to be insufficient for the generalization of the results. In terms of regional implication, this study is limited to the stock market sector in UAE, whereas other Arab and Gulf states are not under observation due to various constraints like time, resources, availability, and access of the data from the proposed respondents. Therefore, this study is limited in terms of addressing and focusing on one region: UAE. In addition, future studies are highly recommended to reinvestigate the moderating role of Age, Gender, and experience in different context.

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