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Evaluating the Factors Affecting Behavioral Intention in Using Blockchain Technology Capabilities as a Financial Instrument

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The use of technology acceptance models is a way to understand the users' attitude towards new technologies. The present study aimed to investigate drivers affecting the customers' behavioral intention to use blockchain capabilities as a financial instrument using a combination of several technology acceptance models to determine what factors encouraged users to use blockchain capabilities as a financial instrument. Therefore, determinants of the behavioral intention to use blockchain capabilities as a financial instrument were first explored by the literature review, and then the structural equation model was built according to this basis. Results of data analysis indicated that the personal propensity to trust and structural assurance beliefs directly affected the initial trust that in turn, affected the users' behavioral intention. On the other hand, task and technology characteristics directly affected the task-technology fit that in turn, affected the users' behavioral intention. Furthermore, the performance expectancy directly affected the users' behavioral intention. Results of the present research indicated that the intention to use blockchain capabilities as financial instrument came from a social need; and users were keen to use blockchain despite some limitations of this technology.

Keywords: Blockchain; Personal Propensity to Trust; Structural Assurances Beliefs; Task Characteristics; Task-Technology Fit; Performance Expectancy.
JEL Classification: G02

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1 Introduction

Banks discovered the capabilities of computers with the introduction of large computers in the 1950s. Information technology plays a major role in the banks' operations. The information technology is used in the banks to automatize the banking operations (Mougayar, 2016). Until today, IT has done nothing except for automatizing the banks' manual processes; however, with the advent of the Blockchain, one can say that the Blockchain can change the future of the banking industry since it reduces the costs for market users by changing the business models, and consequently, transforms the global banking (Morabito, 2017).

Recent financial crises have caused widespread concerns. Thus, lawmakers around the world passed strict rules for financial activities. However, the truth has indicated that stricter regulations have not only made financial markets a safer place but also reflected a lack of trust that has disrupted economic growth. Therefore, instead of rigorous rules, the elbow room in using efficient financial instruments promising transparency in the financial system can be an effective solution. Fortunately, the advent of financial technologies (Fintech) and the blockchains have created new opportunities to solve these problems (Nguyen, 2016). The blockchain is recently recognized as a new model for financial markets. The blockchain is a new technology that will change the future. The World Economic Forum (WEF) has predicted that a blockchain will revolutionize financial services and will become a platform to connect the consumer and the manufacturer (Yoo, 2017). The research results in this area suggest that the blockchain has not only created major changes in the banking system but also can renew the whole economy (Nguyen, 2016).

The blockchain can be used in many areas, and significant investments are being made in this sector (Oh & Shong, 2017). With the advent of a blockchain, financial services carried out by financial institutions will be eliminated or will be replaced. The individuals' financial transaction patterns may also change. The blockchain is a technology for trusting transactions without the need for intermediaries (Wyman, 2015; Bahga & Madisetti, 2016).

Intermediation has become a prevailing solution to validate the credibility of assets ownership and transactions processing in today's world. The intermediates perform an accurate evaluation of every group involved in the Intermediaries chain. However, this process is not only time consuming, but if the intermediation fails, it will lead to credit risk. The Blockchain technology is committed to overcome these critical aspects and, consequently, will give credence to mathematics instead of trusting in humans; since, there

is no need for a human intervention any more (Nofer, Gomber, Hinz, & Schiereck, 2017). Therefore, in such a technology that changes the model of trust, the users play the most important role in the pervasiveness of that technology. Particularly the expansion of the blockchain technology, which is a peer-to-peer technology largely depends on the acceptance of its products such as cryptocurrencies and smart contracts between buyers and sellers. Also, the use of a technology that creates transparency in transactions through the approval of contributing users, which are a part of the distributed ledger, requires extensive acceptance by users. Our goal in this study was to identify the factors affecting the willingness of customers to use the capabilities of the blockchain as a financial instrument. By identifying these factors and using them, we will be able to enhance the effectiveness of financial markets of the country through the blockchain technology. Hence, we conducted a case study on users who are familiar with the blockchain concepts or those who have used it.

2 Research Background

2.1 Theoretical Background

Modern electronic payment systems depend on the central intermediaries for the safe processing of payments. Transaction costs have made banks look for a new method to cut them. In recent developments, we have witnessed the creation of digital currencies like Bitcoin, which combine new currencies with decentralized payment systems. Although the monetary aspects of digital currencies have drawn a lot of attention, the general distributed ledger forming the basis of these payment systems is indeed a significant innovation. Like the money deposited in the banks, most of the financial assets in this era are merely in the form of files and digital records. It allows much further generalization of financial systems through the general distributed ledgers (Yoo, 2017).

The blockchain is the core technology of Bitcoin and other cryptocurrencies, which is protected through a decentralized computer network. The blockchain is considered as an open ledger that all transactions are recorded in it and anyone is allowed to connect, submit, or authenticate the transactions within it. In other words, the blockchain is a digital system of accounting records that records the details of all transactions according to a mathematical set of rules to prevent illegal sabotages. The results of research on the effects of cryptocurrencies, general decentralized ledger, and the blockchain have revealed that they are potentially powerful tools to minimize

the costs and make great long-term changes in the financial field (Nguyen, 2016).

2.2 Blockchain Features

Creating transparency can perhaps be suggested as the most important feature of the blockchain. The blockchain transparency means that the groups can review the blockchain and confirm whether the transaction has occurred or not. As the data stored on the blockchain has the resiliency and tamper resistance characteristic, the blockchain assures us that the information associated with a transaction has not been changed opportunistically and will not be changed in the future as well (De Filippi, 2018).

Table 1
The Blockchain Features

Features of the Blockchain	Advantages	Disadvantages
Peer to peer	The peer to peer transaction is possible without an intermediary. Unnecessary fees have decreased.	When a problem occurs, it is not clear who is responsible for it.
Scalability	It extends easily through the open-source code. The cost of system development decreases.	The number of possible transactions that can be managed is very small compared to the transaction scale in the real economy.
Transparency	The public access to all transaction records is possible. Transactions legalization and reducing the costs of the regulation	Since the transaction details are clear, one can track all the transactions. It may be difficult to guarantee of remaining semi-anonymous.
Security	The public ledger ownership is shared. The security-related costs have declined.	When the private key is hacked or lost, there is no general solution.

Source: Research Findings.

Since the blockchain has a distributed structure, its characteristics are as follows: The cost of peer-to-peer transactions can be made without the need for a trusted intermediary, and there is no need for centralized or intermediary organizations to guarantee trust. Also, as we can introduce new innovative processes, there is a chance to reduce the costs required for operations, maintenance, security, and financial transactions of a variety of centralized systems. Besides, since all users (nodes) have a general transaction ledger,

even if some parts of the network face trouble, they will not affect the entire blockchain, and as it has a distributed structure, it is anticipated to be invulnerable to attacks such as DDoS. For these reasons, it has the advantages of being transparent and easily traceable compared to old financial transactions. The table below briefly describes the characteristics of the blockchain (Oh & Shong, 2017).

2.3 The Uses of Blockchain

The financial industry is willing to know whether it can replace the current major components of its business with the blockchain or not. Given the functional characteristics of the blockchain, the financial sector is one of the sections where the use of the blockchain is very attractive. In the following table, some of the financial uses of the blockchain are presented (Nofer et al., 2017).

Table 2
The Uses of the Blockchain

	Use	Description
Financial uses	Cryptocurrencies	In the network and the exchange environment, cryptography is used to secure the transactions.
	Issuing securities, doing transactions (deals), and settling	Companies that directly issue public stocks and do not need bankers. The private shares can be traded in secondary markets based on the blockchains. The first projects are trying to do securities clearing.
	Insurance	Property (e.g., real estate, automobile, etc.) can be registered using the blockchain technology. The insurers can check the transaction history.

Source: Research Findings.

2.4 Experimental Background

Some studies have been done in the area of blockchains, some of which are briefly reviewed in the following table. Given the novelty of the technology, most of the research done in this field is about addressing the concept. To develop the framework of our research, while using the features mentioned in these articles, we benefited from the technology acceptance models.

Table 3
Research Conducted on the Blockchain

Research	Features / Descriptions	Processing stage
(Ahram et al., 2017)	Security, flexibility, efficiency, scalability Industrial growth is increasingly dependent on trust, but increasing regulations, internet crimes, and fraud hamper development and expansion.	Concept
(Angraal et al., 2017)	Security, Distributed database, Cryptography In the health care sector, the blockchain platform is used to maintain and protect the safety of electronic health records.	Concept
(Biswas & Muthukkumarasamy, 2016)	Security, Privacy The block-based platform is used to protect the security of information and privacy in smart city communications.	System Architecture
(Hou, 2017)	Security, Information Transparency Improving the quality and quantity of government services, accessing government information, developing information sharing across different organizations, and helping to create a personalized credit system can be realized through the implementation of the blockchain in the Chinese government.	Assessment
(Konashevych, 2017)	Peer-to-peer network, mathematical-based cryptographic trust, data recording, and non-manipulation The blockchain has been introduced as a technology to carry out electronic trading.	Concept
(Maria-Llacuna and Marsal Llacuna, 2018)	Transformational, Change The blockchain is an evolutionary technology leading to changes in the policies, planning, regulations, and standards and changes the smart city equations.	Concept
(Ølnes, 2016)	Secure, Distributed, Open, and Cost-Effective Database The blockchain is beyond Bitcoin and acts as a secure, distributed, open, and inexpensive database, which provides an appropriate information infrastructure to the governments and helps their empowerment.	Concept
(Ølnes & Jansen, 2017)	Security, Consensus Algorithms The blockchain plays an important role in governmental tasks such as digital ID management and secure exchange of documents.	Concept
(Ølnes, Ubacht, & Janssen, 2017)	Secure exchange of information, exchange of digital assets It is possible to maintain and store transactions, events, certificates, and ownership using distributed computing. The blockchain technology has the potential strategic, organizational, economic, informational, and technological benefits.	Concept
	Preventing fraud and tampering, Transparency	Designing

Research	Features / Descriptions	Processing stage
(Wijaya, Liu, Suwarsono, & Zhang, 2017)	The blockchain technology allows creating a new approach to implement the distributed tax return. In this way, a transparent and secure value-added tax system is created that prevents the occurrence of fraud.	
(Yoo, 2017)	Validation, Authentication Smart contracts can be used in the capital market.	Concept
(Nguyen, 2016)	Sustainable Development The blockchain is a financial instrument that can play an important role in the sustainable development of the global economy.	Concept
(Guo & Liang, 2016)	Security, Cost, Efficiency, Customer Experience The banking industry needs a quick change and is looking for new development and growth methods. The blockchain can completely transform the current business models.	Concept

Source: Research Findings.

3 Designing the Conceptual Model

3.1 Task-Technology Fit (TTF) Model

The Task-Technology Fit (TTF) acceptance model suggests that the user will accept a new technology when it is efficient enough to fulfill everyday tasks. Hence, accepting the new information system largely depends on the user's daily routine tasks. This model uses four concepts of task features, technological features, task-technological fit, use, and acceptance. The task features and technological features determine the task-technological fit, which leads to the acceptance and use of the information system (Goodhue & Thompson, 1995).

The Task-Technology Fit (TTF) approach has been used in several studies. Dishaw and Strong (1999) used an integrated task-technology fit (TTF) model with the Technology Acceptance Model (TAM) to explain the relationship between software use and user performance (Dishwa & Strong, 1999). Lee et al. (2007) used the modified Task-Technology Fit (TTF) model to examine the factors affecting the acceptance of mobile commerce in the insurance industry (C.-C. Lee, Cheng, & Cheng, 2007). Klopping and McKinney (2004) studied e-commerce acceptance using a hybrid model, which had combined the TTF and the TA models (Klopping & McKinney, 2004). Zhou et al. (2010) studied the acceptance of mobile banking using an integrated TTF model and the unified theory of acceptance and use of technology (Zhou, Lu, & Wang, 2010).

3.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and use of technology (UTAUT) is a version of the technology acceptance model. The UTAUT is the most recognized improvement of the technology acceptance model. The unified theory is based on eight prominent models in the research area of the acceptance of information systems. This model has been experimentally studied, which indicated that it has a better performance than the other eight models, including the technology acceptance model. The purpose of this model was to explain the intention of the user to use information systems and their subsequent behaviors. The theory suggests that there are three main reasons for the intention to accept information systems: Expecting performance, expecting effort, and social impact. The positive effect of these factors on behavioral intention is influenced by age and gender. Besides, the relationship between the expectation of effort and behavioral intention can be adjusted with experience. Experience and voluntary use also have a moderating effect on the relationship between social impact and behavioral intent. The behavioral intention and facilitating the conditions together affect the actual use of the information systems (Davis, Bagozzi, & Warshaw, 1989; Davis, 1989; Venkatesh, Morris, Davis, & Davis, 2003).

The Unified Theory of Acceptance and Use of Technology (UTAUT) has drawn the attention of many researchers who have used it in various studies to study the behavioral intention and technology acceptance. Hong, Thong, Chasalow, and Dhillon (2011) believe that the UTAUT is an influential theory in the acceptance of information systems and used it to conceptualize a model to study the agile acceptance of information systems (Hong, Thong, Chasalow, & Dhillon, 2011). Luo, Li, Zhang, and Shim (2010) analyzed the effects of trust, risk, self-sufficiency, and performance expectation on the acceptance of mobile banking. They concluded that expecting performance is the most significant determinant in accepting mobile banking services (Luo, Li, Zhang, & Shim, 2010).

3.3 Initial Trust Model (ITM)

Initial trust means a person's desire to risk to meet a particular need without prior experience or credible and meaningful information (McKnight & Chervany, 2001; K. K. Kim & Prabhakar, 2004). The convenient, flexible, and perceived benefits such as the role of service efficiency are related to the formation of initial trust (Koufaris & Hampton-Sosa, 2004).

When users have little or no experience and want to accept new services, the initial trust plays an important role (K. K. Kim & Prabhakar, 2004; G.

Kim, Shin, & Lee, 2009). The role of initial trust in e-commerce is associated with the areas such as online shopping (Lowry, Vance, Moody, Beckman, & Read, 2008; Ratnasingham, 1998; M. K. Lee & Turban, 2001) and mobile banking services (Mallat, Rossi, & Tuunainen, 2004) that extensive research has been done in this area. Kim et al. (2009) used the initial trust model (ITM) to create a model, in which, the initial trust in mobile banking is explained through the mediation of tendency towards trust, structural guarantees, business (firm) reputation, and relative benefits (Kim et al., 2009).

4 Research Conceptual Model

The main factors of this research were derived from the initial trust model (McKnight & Chervany, 2006), the task-technology fit model (Goodhue and Thompson, 1995) and the unified theory of acceptance and use of technology (UTAUT), which are used to predict technology acceptance (Venkatesh and Davis, 2000). The conceptual model of this research was selected from Oliveira et al. (2014) research, which was used to predict the acceptance of mobile banking among the final consumers using the combined model of research of the initial trust model, the task-technology fit model, and unified theory of acceptance and use of technology (UTAUT) (Oliveira, Faria, Thomas, & Popovič, 2014).

Just like any new technology, the blockchain, and smart contracts are considered as value-generating platforms for banks (Mithas, Tafti, Bardhan, & Goh, 2012). The survey tool and research model were designed in such a way to assess the relationships prevailing on the concepts of the initial trust model, the task-technology fit model, and the unified theory of acceptance and use of technology (UTAUT). Since the blockchain is responsible for securing transaction data and the smart contract is used to execute contracts in the financial services, the users' trust in the blockchain technology is an essential factor in accepting this technology in the financial markets. Given that the blockchain changes the users' trust model, this change requires a change in the attitude of the users since the banks were previously responsible for creating trust; but with the presence of blockchain and the removal of intermediaries, the trust will be cryptographic. For the same reason, the research model consisted of the task-technology fit model, and the initial trust model where the TTF model was used to evaluate the efficiency of blockchain technology as a financial instrument the initial trust model was applied to examine the attitude of users towards changing the trust model.

The framework of the UTAUT plays a minor role in the research model, which is due to the perceived nature of the blockchain technology. Thus,

measuring the acceptance rate in the UTAUT model is not an accurate strategy. The behavioral intention is one of the acceptance factors of this concept, which was chosen as the dependent variable. Among the four concepts of the UTAUT (Venkatesh et al., 2003), only a concept of performance expectation was selected to test the hypothesis. The expectation of blockchain technology as a financial instrument is to earn profit with the minimum risk that the blockchain capability in reducing risk and cost was examined through the performance expectation variable. Expecting effort and social influence made disturbances in conducting the test since the user did not have much practical knowledge of this technology. It was also found that facilitating the conditions affects the acceptance of this concept directly (Venkatesh et al., 2003) and has no effect on behavioral intention. As a result, it was not included in the research model.

The basic research model (Figure 1) was provided to develop the framework for this study. In this proposed model, the research hypotheses were divided into seven major categories:

- Hypothesis 1

  Banks and financial institutions are concerned about privacy and the protection of personal information of individuals. Structural assurances measure the confidence rate of policymakers in the security of the blockchain and the reliability of banks to maintain security (McKnight, Choudhury, & Kacmar, 2002). These results allow us to judge the reputation of the blockchain privacy from the perspective of final users (in the context of financial markets) (Miltgen, Popovič, & Oliveira, 2013). Also, financial services processes are full of problems such as return bottlenecks, transaction latency, fraud, and operational risks. Most of these problems are believed to be solved by using the blockchain (Guo, Y., & Liang, C, 2016). However, some of the blockchain products like cryptocurrencies include risks such as the digital wallets vulnerability, cryptocurrencies instability, and the anonymity of users, which cannot be ignored for financial activities (Morabito, 2017). The first hypothesis predicts to find the mentioned structural assurances since they are one of the basic components of the initial trust model and has a positive impact on the initial trust.

  H1: Structural assurances in the blockchain have a positive effect on the initial trust.

- Hypothesis 2

  The personal propensity to the concept of trust in the initial trust model consists of two aspects: The general attitude of the individual to use

technology and his belief in the general technology (Oliveira et al., 2014). The individual's propensity to trust is influenced by past beliefs and experiences (Bigley & Pearce, 1998), which manifests in the use of technology in a variety of situations (Mcknight, Carter, Thatcher, & Clay, 2011).

H2: The personal propensity to trust in the blockchain technology has a positive effect on the initial trust.

- Hypothesis 3

  The third hypothesis suggests that there is a positive relationship between initial trust and behavioral intention. The initial trust reflects the criteria for technology reliability and dependence on technology (McKnight & Chervany, 2006). In the context of this study, this hypothesis focuses on measuring the consumer's perception of the integrity of the blockchain technology (McKnight et al., 2011). The hypothesis suggests that a mediator can have a strong impact on behavioral intention. It is because the initial trust is probably related to the actual acceptance of the blockchain and the smart contracts (Venkatesh et al., 2003).

  H3: Initial trust has a positive impact on the consumer's intention in accepting the blockchain technology in the financial markets.

- Hypothesis 4

  This research is partly about the customers' perceptions of blockchain usability in the context of financial markets and its usefulness in the management of financial services. We assume that the technological features of the blockchain, such as reliability and accountable responding, have a positive impact on the task-technological fit (Goodhue & Thompson, 1995). Reliability is one of the characteristics that Rogers (1983) attributes to innovation and considers it to be an important driver of technology acceptance both within and outside the organization (Wunderlich, Größler, Zimmermann, & Vennix, 2014).

  H4: The technological features of the blockchain have a positive effect on the task-technology fit.

- Hypothesis 5

  The task-technology fit model describes the fitting aspects of the blockchain in the financial markets. The task features are one of the basic concepts for innovation penetration, complexity, observability, and the ability to perform the test. Each of these factors is a determining factor in the user's perception of the usefulness of the technology and affects his intention of acceptance (Goodhue & Thompson, 1995; Zhou et al., 2010). One of the main factors in the task-technology fit model is the user's

perception of the usefulness of the technology, which affects his performance (Zhou et al., 2010).

H5: The task features of blockchain and smart contracts have a positive impact on the task-technology fit.

- Hypothesis 6

  The generating nature of the blockchain technology (Y. Yoo, Boland Jr, Lyytinen, & Majchrzak, 2012) provides an opportunity for banks and financial institutions to redesign their distribution channels and management tasks to improve the customer's experience. The consumers react positively to new features, security, and the performance resulting from the blockchain and also accept the capacity obtained due to the blockchain and smart contracts. The users see the use of the general blockchain platform as a proper technology for financial transactions. In general, these prominent attitudes are measured by the task-tech concept, which is influenced mutually by the task -technological features (Goodhue & Thompson, 1995).

  H6: The task -technology fit has a positive effect on users' behavioral intent in accepting the blockchain in the financial markets.

- Hypothesis 7

  The performance expectation of technology affects the user's intent to accept (Venkatesh, Thong, & Xu, 2016; Martins, Oliveira, & Popovič, 2014). The performance prediction within the framework of the unified theory of acceptance and use of technology (UTAUT) measures the individual's belief due to the usefulness of the technology and the benefits that bring for the user (Venkatesh et al., 2003). Oliveira et al. (2014) consider the performance prediction in the UTAUT like the perceived efficiency in the technology acceptance model and see it as a necessary part of the technology value proposition to the technology acceptor (Oliveira et al., 2014). The blockchain creates a kind of credit mechanism in a situation where there is no mutual trust between the parties to the contract. Hence, high costs caused by non-technical aspects of centralization will be eliminated. The point-to-point transfer based on the blockchain that removes intermediaries will increase the returns compared to centralized banking and reduce the transactions' fees (Guo & Liang, 2016).

  H7: The performance expectation will positively affect the consumer's behavioral intent in accepting the blockchain and smart contracts in the financial markets.

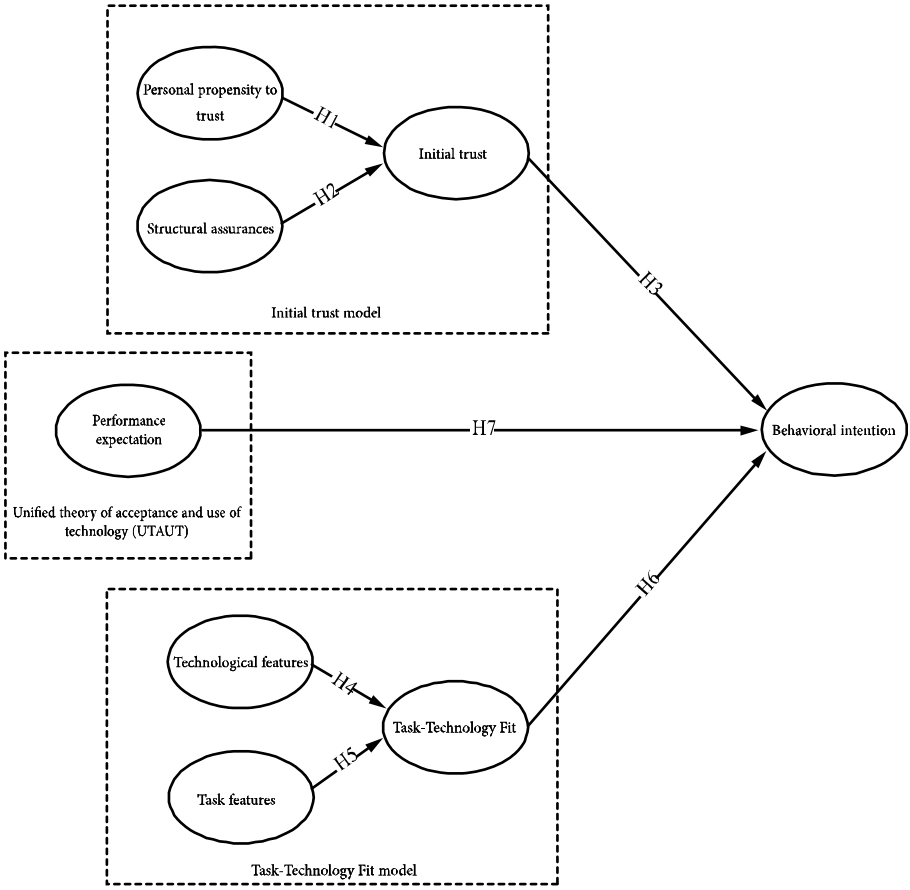

Figure 1. The Conceptual Model. Source: Research Findings.

The items of each variable were extracted from previous similar studies to discover the relationships between the variables of the conceptual model. A questionnaire tailored to the items was also extracted from the previous study and used. The reference of items and the number of corresponding questions are shown in Table 2.

5 Research Methodology

This research sought to identify the drivers affecting the willingness of customers to use the capabilities of the blockchain as a financial instrument. Hence, it had an applied goal. Also, in terms of data analysis, it was

descriptive-analytic research using the "Partial Least Squares Structural Equation Modeling (PLS-SEM)."

5.1 Data Analysis Method

The Partial Least Squares Structural Equation Modeling (PLS-SEM), aimed at casual modeling, maximizes the variance of dependent variables. Unlike covariance-based methods, this method focuses on variance (Hair, Ringle, & Sarstedt, 2011). Regarding the number of samples and the non-normalized distribution of the data collected in this study, we used the PLS-SEM method. Also, the data were analyzed using the Smart PLS statistical software.

5.2 Data Collection Method

We used a questionnaire to collect data. The research questionnaire was prepared after studying the related articles and extraction of probable items and components, which can be seen in the table results of the confirmatory factor analysis. This questionnaire consists of 37 questions that include four demographic questions and 33 questions based on the five-option Likert scale to assess the conceptual model of the research. The people familiar with the blockchain technology were selected as the statistical population for a sampling of the target population to identify the drivers affecting the users' willingness for using the blockchain capabilities as a financial instrument.

The innovators and early adopters begin the acceptance of the technology. This procedure often takes some time since the technology is changing rapidly based on the customer's feedback. When the first group adopts the technology, it will have many uses, and when the last group starts to accept it, the technology is a leading one in the market (Feld & Wise, 2017). In this research, we used the convenience sampling method to sample the research population due to the novelty of the blockchain technology and the lack of accurate statistics of the innovators of this field. In this regard, the designed questionnaire was made available to the people familiar with this technology. In collaboration with scholars and academic students, startup teams, those active in the capital market and payment service companies familiar with the concepts of blockchain, traders and cryptocurrencies miners, 222 acceptable questionnaires were analyzed.

5.3 Validity and Reliability of the Measurement Tool

We used two tests of Cronbach's alpha and composite reliability to measure the reliability of the questionnaire. Churchill (1979) considers the Cronbach Alpha higher than 0.6 acceptable (Churchill Jr, 1979). The reliability for each

component was calculated by measuring the Cronbach's alpha coefficient of the items of each variable. According to the results of the reliability measurement test, the Cronbach alpha value of all variables was more than 0.6. Also, a value greater than 0.7 is acceptable for composite reliability. According to the results, all values obtained for the variables are higher than 0.7.

Table 4
The Results of the Questionnaire Reliability

Variables	Number of items	Cronbach Alpha	Composite Reliability	Reference
Personal Propensity to Trust	4	0.766	0.853	(Kim et al., 2009)
Structural assurances	3	0.691	0.823	(Kim et al., 2009)
Initial trust	3	0.703	0.836	(Kim et al., 2009)
Technological features	4	0.700	0.816	(Zhou et al., 2010)
Task features	4	0.885	0.921	(Zhou et al., 2010)
Task-Technology Fit	4	0.792	0.865	(Zhou et al., 2010)
Performance expectation	4	0.816	0.879	(Zhou et al., 2010)
Behavioral intention	7	0.899	0.921	(Kim et al., 2009)
Demographic questions	4	-	-	

Source: Research Findings.

The research questionnaire was provided to four experts in the field of blockchain to evaluate content validity, and necessary corrections were made to the questionnaire's questions. Then, using the confirmatory factor analysis, the latent variables, and the items related to each latent variable were tested. The confirmatory factor analysis was performed using the Smart PLS software. According to the confirmatory factor analysis table, the results indicate that the T statistic for all standard coefficients is greater than 1.96, and the standard coefficients are at the optimum level.

Table 5
The Results of Confirmatory Factor Analysis

Variable	Items	std	t stat
Task Features	The need to check financial information at any time and place	0.863	29.999
	The need to manage financial activities at any time and place	0.904	61.190
	The need for real-time (immediate) control of decisions and financial activities	0.873	32.005
	The need for quick implementation of financial decisions and activities	0.810	22.680
Technological Features	Providing inclusive services	0.776	23.284
	Providing real-time (instant) services	0.743	15.936
	Providing secure service	0.682	11.693
	Providing fast services	0.697	10.290
Task-Technology Fit	Suitable for supporting transactions and financial services	0.802	34.146
	Suitable for processing financial services	0.881	52.090
	Having proper real-time (instant) processing policies	0.795	27.717
	Sufficient to perform financial affairs	0.653	11.719
Performance expectation	Saving time	0.792	25.086
	Optimizing financial operations	0.856	31.972
	Maintaining benefits faster in financial activities	0.814	27.473
	Achievement of financial benefits	0.749	16.233
The personal propensity to trust	The tendency to use the capabilities of blockchain technology	0.891	58.028
	The tendency to use cryptocurrencies	0.907	59.615
	The tendency to use non-classical tools (such as smart contracts) to store important financial documents	0.791	19.689
	Caution in conducting financial transactions	0.436	5.711
Structural assurances	Not bearing financial losses	0.715	9.351
	Not enduring the risk of personal information theft	0.865	33.184
	Protecting the customers by smart contract laws	0.756	13.587
Initial Trust	The security of the blockchain-based platforms	0.811	19.226
	The reliability of the blockchain-based platforms	0.862	48.588
	The possibility of creating decentralized financial markets by blockchain-based platforms	0.704	14.508
Behavioral intention	The review of financial decisions and benefits using the potentials in the blockchain-based platforms	0.752	20.853
	Making changes to financial decisions using the blockchain-based platforms	0.823	34.654
	Curious about the real-time (instant) processing of financial services in the blockchain-based platforms	0.835	27.284
	Curious about the speed of exchanges in the blockchain-based platforms	0.828	26.421
	Curious about security in the blockchain-based platforms	0.830	25.312
	The intention to manage financial activities using the blockchain-based platforms	0.744	21.979
	Interested in knowing more about the blockchain-based platforms	0.716	12.845

Source: Research Findings.

The convergent validity and discriminant validity were also examined. In the convergent validity, the Average Variance Extracted (AVE) should be higher than 0.5 (Rahman, Nagapan, &Asmi, 2014). Also, in the case of discriminant validity, the average variance extracted (AVE) of each variable should be higher than the second-order correlation of that variable with other variables (Fornell & Larcker, 1981). As shown in the discriminant validity table, the Average Variance Extracted (AVE) for all variables is more than 0.5 and higher than the second-order correlation with other variables as well.

Table 6
The Results of Discriminant Validity

	1	2	3	4	5	6	7	8
Behavioral intention	0.625							
Initial trust	0.411	0.632						
Performance expectation	0.428	0.382	0.645					
Personal propensity to trust	0.489	0.307	0.424	0.608				
Structural assurances	0.161	0.210	0.203	0.164	0.610			
Task features	0.099	0.023	0.118	0.133	0.030	0.744		
Task-Technology Fit	0.432	0.450	0.432	0.382	0.222	0.108	0.619	
Technology features	0.326	0.341	0.435	0.297	0.155	0.072	0.444	0.526

Source: Research Findings.

6 Research Findings

6.1 Sample Demographic Analysis

As shown in the demographic information table of the sample members, the gender, marital status, age, educational level, work experience, and degree of familiarity with the blockchain can be seen.

Table 7
Demographic Information of Sample Members

Variable	Index	Percentage	Number
Area of activity	Financial	55	122
	Non-financial	45	100
Age	Less than 30	50.5	112
	31-40	32.9	73
	Over 40	16.7	37
Education level	Diploma	4.5	10
	Associate degree	4.5	10
	B.S	35.6	79
	B.S	38.3	85
	P.H.D	16.7	37
	Hawza degree	0.5	1
Work experience	Less than 5 years	41.9	93
	Between 5 and 10 years	28.4	63
	More than 10 years	29.7	66

Source: Research Findings.

6.2 Structural Model

The first step is to estimate the fitness of the model. In this study, the GoF (goodness of fit) index was examined to measure the fitness of the model. Accordingly, we extracted a root (R^2) from the product of the Average Variance Extracted (AVE) multiplied by the average of the determination coefficients (Henseler& Serstat, 2013). The value obtained for this index was calculated to be 0.539. In the next step, the conceptual model was tested using the structural equations modeling technique by the Smart PLS statistical software. For the significance of the relationship at the 95% confidence level, the values of P statistic should be less than 0.05. According to the results of the analysis of the model hypotheses and the final model of the research, all the research hypotheses have been confirmed. Finally, all results from the status of the paths of the final research model can be seen in the table 8.

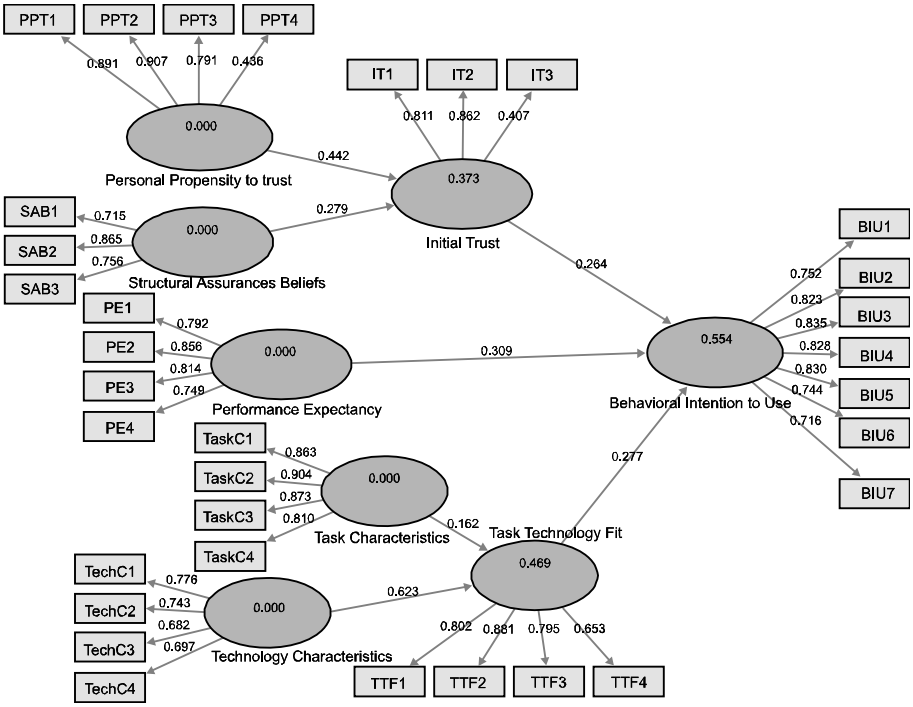

Figure 2. The Final Research Model. Source: Research Findings.

7 Discussion

This research examined the drivers affecting the customers' tendency to use the capabilities of the blockchain as a financial instrument by using the initial trust model, the Unified Theory of Acceptance and Use of Technology (UTAUT), and the initial trust model. Based on the results, one can realize that there is a tendency to use the capabilities of blockchain technology such as cryptocurrencies and smart contracts among users, and this tendency is at a favorable level. Therefore, the personal propensity to trust is effective on the initial trust.

On the other hand, the blockchain technology provides the ability to exchange information securely and reduces operational risks and manpower errors. Also, individuals do not go through the risk of information theft. Hence, one can realize that structural assurances affect initial trust.

Due to the decentralized implementation of processes in the blockchain technology and the lack of centralized control by the intermediary institutions, it's not possible to manipulate the transactions. Therefore, the exchanges and

transactions made on this network are safe and reliable. This new model of trust has had a positive effect on the users' behavioral intention, according to the research results.

Table 8
The Analysis Results of Model Paths

Paths			Estimation	S.E	T	P-Value	Status
Personal propensity to trust	→	Initial trust	0.442	0.066	6.62	0.0001<	Confirmed
Structural assurances	→	Initial trust	0.279	0.062	4.47	0.0001<	Confirmed
Initial trust	→	Behavioral intention	0.264	0.067	3.89	0.0001<	Confirmed
Technology features	→	Task-Technology Fit	0.623	0.047	13.06	0.0001<	Confirmed
Task features	→	Task-Technology Fit	0.162	0.054	2.97	0.0033	Confirmed
Task-Technology Fit	→	Behavioral intention	0.277	0.074	3.70	0.0003	Confirmed
Performance expectation	→	Behavioral intention	0.309	0.059	5.16	0.0001<	Confirmed

Source: Research Findings.

Being several times better in something is considered a very powerful lever. This exceptional level of transformation is called creative destruction entrepreneurship by some researchers, which is at the heart of a kind of real entrepreneurial innovation. Schumpeter theory suggests that better solutions are so widely accepted that destroy the nature of the former market leaders (Feld & Wise, 2017). The blockchain is also expected to become widespread as an emerging and transformation technology shortly. Also, concerning security, speed, and transparency in the blockchain-based transactions, the technological features are effective on the task-technology fit.

Besides, the need for real-time control of financial information and activities makes the task features effective on the task-technology fit. The blockchain technology has provided the ability to implement and support financial transactions. Hence, the task-technology fit is effective on users' behavioral intention.

Finally, the inadequacy of trusted institutions due to charging high fees to do transactions between buyer and seller has caused the attractiveness of the blockchain technology, which has facilitated the transfer by reducing

workforce costs and automatizing the processes. Given the time and cost-saving of doing financial affairs by using the blockchain, the performance expectation has had a positive effect on users' behavioral intent.

8 Conclusion

This research targeted the study of drivers affecting the customers' willingness to use the capabilities of the blockchain as a financial tool. To this end, according to the literature review, eight factors, including personal propensity to trust, structural assurances, initial trust, technological features, task features, task-technology fit, performance expectation, and the users' behavioral intention were extracted at two levels. The research hypotheses were formed based on these factors. The research hypotheses were analyzed based on the data collected from the questionnaire. The structural least squares equation modeling technique was used to analyze the collected data. Based on the analysis made, the fitness of the model and all the research hypotheses were confirmed. According to the research findings, the personal propensity to trust and structural assurances directly affect the initial trust, and the initial trust of users is also effective on the users' behavioral intention. On the other hand, technological features and task features directly affect the task-technology fit, and the task-technology fit also influences the users' behavioral intent. The performance expectation also directly influences the users' behavioral intent.

The limitation of this research was its mere focus on innovators familiar with the blockchain technology accounting for 222 subjects. Therefore, the convenience sampling method was used for sampling, which reduces the ability to generalize the research results. Broader research among the early adopters can increase the generalization capability of the results of this research. In the discussion, due to the lack of similar research in the field of blockchains, we could not compare our results with previous studies. Also, this research only used some of the technology acceptance models. The use of other models such as Davis Technology Acceptance Model and the Environment-Enterprise-Technology Model can be a subject for future research. Finally, in this research, the blockchain capabilities were considered as a financial instrument, which can inform the financial institutions about their customers' tendency. It's worth noting that this technology can be investigated in many other industries.

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