Behavioural intention to adopt blockchain technology among bankers in islamic financial system: perspectives in Malaysia

Nur Firas NAZIM, Nabiha Mohd RAZIS, Mohammad Firdaus Mohammad HATTA[*]

Arshad Ayub Graduate Business School, Universiti Teknologi MARA, Shah Alam, Malaysia

*Corresponding author:

Mohammad Firdaus Mohammad HATTA

firdaus5828@uitm.edu.my

Abstract: Blockchain technology has been a buzzword globally especially among financial industrial players. It can be observed that most developed countries had begun to legalise the implementation of blockchain technology including European Union as well as the member states of G20 in order to secure their leading position in supporting the Fourth Industrial Revolution. Be that as it may, scholars admitted that Malaysia had been a bit desolated primarily in terms of its legalisation on the blockchain's adoption in the country despite various initiatives that had been taken initially. Hence, this study was conducted to investigate the behavioural intention to adopt blockchain technology specifically among bankers in Malaysia Islamic financial system. A combination of theories, mainly the Unified Theory of Acceptance and Use of Technology 1 (UTAUT 1) as well as Technology-Organization-Environment (TOE) Framework had been chosen to be used in the study. This research implemented the quantitative method in which more than 200 questionnaires were distributed to 12 domestic banks in Malaysia through both self-administered method and online survey. Multiple regression analysis was applied to further verify the hypothesis made. Based on this study, it had been proven that effort expectancy, social influence and facilitating condition are the only factors that affect the behavioural intention to adopt blockchain technology with effort expectancy being the most significant factor among all. However, the results had also proven that the non-factors of the variables strengthened the fact that Malaysia is still at the primitive stage in respect to blockchain adoption. Thus, it signifies the importance for the industry to begin adopting instead of attempting by considering the best initiatives recommended in accordance to Malaysia's mould in which the banks could opt to start working on the institution voluntary regulation whereas for the government, perhaps they could commence a consortium which consists of Islamic financial institutions in the country to develop their experience before implementing on their own. It is hopeful that the initiatives could help to secure the position of Malaysia as the world Islamic financial hub in the coming years.

Keywords: Behavioural Intention, Blockchain Technology, Islamic Financial System, UTAUT, TOE Framework.

1. Introduction

Blockchain is categorised as a financial technology (fintech) which was introduced through the birth of the first crypto currency, known as bitcoin (Ku-Mahamud, Omar, Abu Bakar & Muraina, 2019). In the same manner, blockchain is one of the many revolutionary technologies in which it was first introduced by Satoshi Nakamoto in 2009, and thus, made it applicable for more than two decades. Blockchain acts as a data storage where it helps in storing the data and information in order to make a transaction from one party to another. Blockchain technology is able to increase its attraction and attention among customers as well as investors due to the success of the bitcoin application over the past few years.

Generally, blockchain can be described as a decentralised digital system and data structure that manage transactional records while ensuring its transparency and security. Blockchain can be deemed as a data or information stored in a form of blocks which are not controlled by any third-party authority or organisation. Once the transaction has been made by the party involved, such transaction will then be validated and verified by the network system in the blockchain technology. At last, the transaction will be successful after the technology verified it. Nevertheless, the information cannot be erased or altered once it has been stored into the system in order to evade the issue of cybercrimes since the system can easily detect any issues.

This technology has been widely implemented by most developed countries in the world as an initiative to make a shift towards cashless payment systems. Evidence shows that the evolution has been very well accepted by industrialised nations which tend to see the potential of blockchain that might lead them to another level of being a well-developed country. The evolvement of blockchain in the world with its wide application in various industry specifically in financial, manufacturing, up to the sector of education, had been so interesting. The significance of blockchain's origination came into the picture when Satoshi Nakamoto introduced the bitcoin. Nakamoto revealed the first whitepaper regarding his invention that describes the details of bitcoin's characteristics and how it might work as the guidance for interested users. This led to the actual transparent blockchain's evolution. In essence, Nakamoto established the idea of creating cash that could be transferred via peer-to-peer without the intervention of other authority or banks in its operation and ledger management which at once nominated it as the largest blockchain system that governs the bitcoin transactions nowadays (ICAEW, 2019).

Currently, blockchain technology is not only being recognized and implemented by conventional financial institutions, but it is also increasingly being discovered as a useful tool by Islamic finance institutions and banks for complex financing contracts and Shariah-compliant transactions, as well as to drive innovation in the industry and improve transparency and traceability of financial transactions (ISRA, 2019). On top of that, ISRA (2019) also stated that United Arab Emirates (UAE) is the first Islamic country which started to facilitate blockchain in its Islamic banks as a fraud prevention measure in 2017. Consequently, it signaled the start of a seamless convergence between the new technology and a fast-growing sector. Along with the growth of Islamic banking as a whole, analysts view blockchain technology as having potential in driving innovation in the sector similar to what is being seen in conventional banking.

Although blockchain has been successfully introduced and applied in the UAE, this technology is still in its infancy stage and has yet to gain popularity in the context of Malaysia (Yusof et al., 2018). This is due to the fact that Malaysian still lack understanding and awareness of the blockchain as well as no regulations on this technology are stated yet in the country. However, blockchain is slowly catching the attention of Malaysians since the world is currently pursuing actively with various technological developments. Despite of having no regulations on the application of blockchain locally, the government has shown its efforts in considering the technology to be applied in the country's three largest industries namely renewable energy, palm oil and Islamic finance (Maloney, 2020). Additionally, blockchain is also deemed preferable to be adopted in education sector in order to cater the issues of faking academic degrees where students might fake their qualification certificates.

Despite the blockchain technology had been applied in certain industries domestically, an issue has been detected with respect to the behavioural intention to adopt blockchain among bankers in Islamic financial system. It is undeniable that our current system has been a little bit left behind in adopting the blockchain's position in the country (Yatim, 2018). According to the chairman of the Shariah Advisory Council of Bank Negara Malaysia, Dr Mohd Daud Bakar, he emphasized that most of the financial players in the country, such as the entrepreneurs, are deficient in motivation to create the said system (Whitehead, 2019). It had also been recognised that the financial players are somewhat slow in acknowledging the technology of blockchain especially for those who are not in favour dealing with virtual currencies ("Getting Ready for Internet", 2016). In addition to that, Prof. Mohamad Akram Laldin had detected the difficulty in blockchain application as he mentioned that the country is still striving to develop the said financial technology that has yet to come to its capacity (Whitehead, 2019).

Although the country had come out with myriads of blockchain projects, there is currently still no effort towards adopting such blockchain system either from the sides of the government or even from the financial institutions. Abdul Fattah Yatim had also highlighted that there is still no visible and tangible policy that proves the intentions to establish Malaysia as a significant hub for blockchain at the moment (Yatim, 2018). He further said that Malaysia had been found to be a country that is actually ignorant towards blockchain, particularly from the government's view (Yatim, 2018). Therefore, this study is conducted with the aim to identify the factors that actually

affect the behavioural intention in adopting blockchain technology within the scope of bankers in Islamic finance industry in Malaysia. Furthermore, this study is also conducted to identify the best initiative for bankers and the government to adopt the blockchain technology system in the Malaysia Islamic Financial System.

2. Literature review

Despite the blockchain evolvement in other advanced economies, its implementation in Malaysia seems to be vague, especially in the Islamic financial system. Therefore, this section will focus on the views from multiple perspectives regarding this issue and the relation of behavioural intention that could affect the adoption of blockchain technology.

2.1. The ignorance on blockchain system

Based on a study done by Aven and Steen (2010), ignorance can be defined within the three boundaries of knowledge which are, (1) knowledge insufficiency, (2) existence of poor basis on the issues and (3) the definition of the final result is problematic especially when its potential outcomes remain unknown. Nonetheless, in the context of blockchain ignorance issues in Malaysia, it can be associated with the situation in which the knowledge on blockchain has not been revealed properly to the public especially to the community in the financial system (Golder, 2019).

As mentioned by Yatim (2018), he identified that Malaysia is a country that ignores the existence of blockchain especially from the government's point of view. Other than that, scholars have also identified that a country might be too scared when it comes to the issuance of blockchain's regulation which indirectly jeopardise the potential market despite considering the benefits that the technology application could actually bring (Zakaria, Kunhibava & Munir, 2018). Thus, it should be acknowledged that the only shortcoming that seems to be obvious in Malaysia when it comes to technology is the deficiency in regulations (Yussof & Al-Harthy, 2018). This indirectly implies the loopholes that need to be improved in order to uphold Malaysia to be on par with other developed countries.

2.2. Theoretical models on the behavioural intention to adopt blockchain technology among bankers

In order to look further into the issue of bankers' ignorance on the technology, this paper has observe it based on several theories mentioned by scholars related to the behavioural intention to adopt blockchain technology. This includes the Theory of Reasoned Action (TRA) by Fishbein and Ajzen in 1975 (Madden, Ellen and Ajzen, 1992), Theory of Planned Behaviour (TPB) (Ajzen, 1991), Unified Theory of Acceptance and Use of Technology 1 (UTAUT 1) (Venkatesh, Morris, Davis & Davis, 2003), Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) (Venkatesh, Thong & Xu, 2012) and Technology-Organization-Environment Framework (TOE) (Tornatzky & Fleischer, 1990). However, after a thorough consideration had been done with regards to the model comprehensiveness and the technology involvement in the study, a theories combination of UTAUT 1 and an element of TOE framework has been decided to be applied in the study.

The UTAUT is a unified model that was developed and formulated by Venkatesh et al. (2003) to search for a more extensive information technology acceptance model. Eight theoretical models were reviewed based on the contexts of technology acceptance which involves TRA, TPB, the Technology Acceptance Model (TAM), the Combined TAM-TPB, the Model of PC Utilization (MPCU), the Motivational Model (MM), the Social Cognitive theory (SCT) and Innovative Diffusion Theory (IDT) in order to create a comprehensive model of UTAUT (Chao, 2019). This can be supported with the facts when the results from UTAUT 1 model is able to explain almost seventy percent (70%) of the technology acceptance behaviour, whereas other technology acceptance models can explain only forty percent (40%) of the technology acceptance behaviour (Saleh, Haris & Ahmad, 2014; Sattari, Abdekhoda & Gavgani, 2017; Attuquayefio & Addo, 2014).

Thus, Venkatesh et al. (2003) have confirmed that the UTAUT 1 model was the most appropriate to understand the use of information technology (Nurkhin, Rohman & Mukhibad, 2017). This UTAUT 1 model consists of four main variables namely Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition.

On the other hand, an element of the TOE framework that was developed by Tornatzky and Fleischer (1990), which is the environment, had been taken to complement the model. Basically, this framework is an organisational level theory that describes the process by three different aspects in the context of an organisation to adopt and implement the technological innovations (Tornatzky & Fleischer, 1990).Thus, the research theoretical framework is portrayed as below in Figure 1.
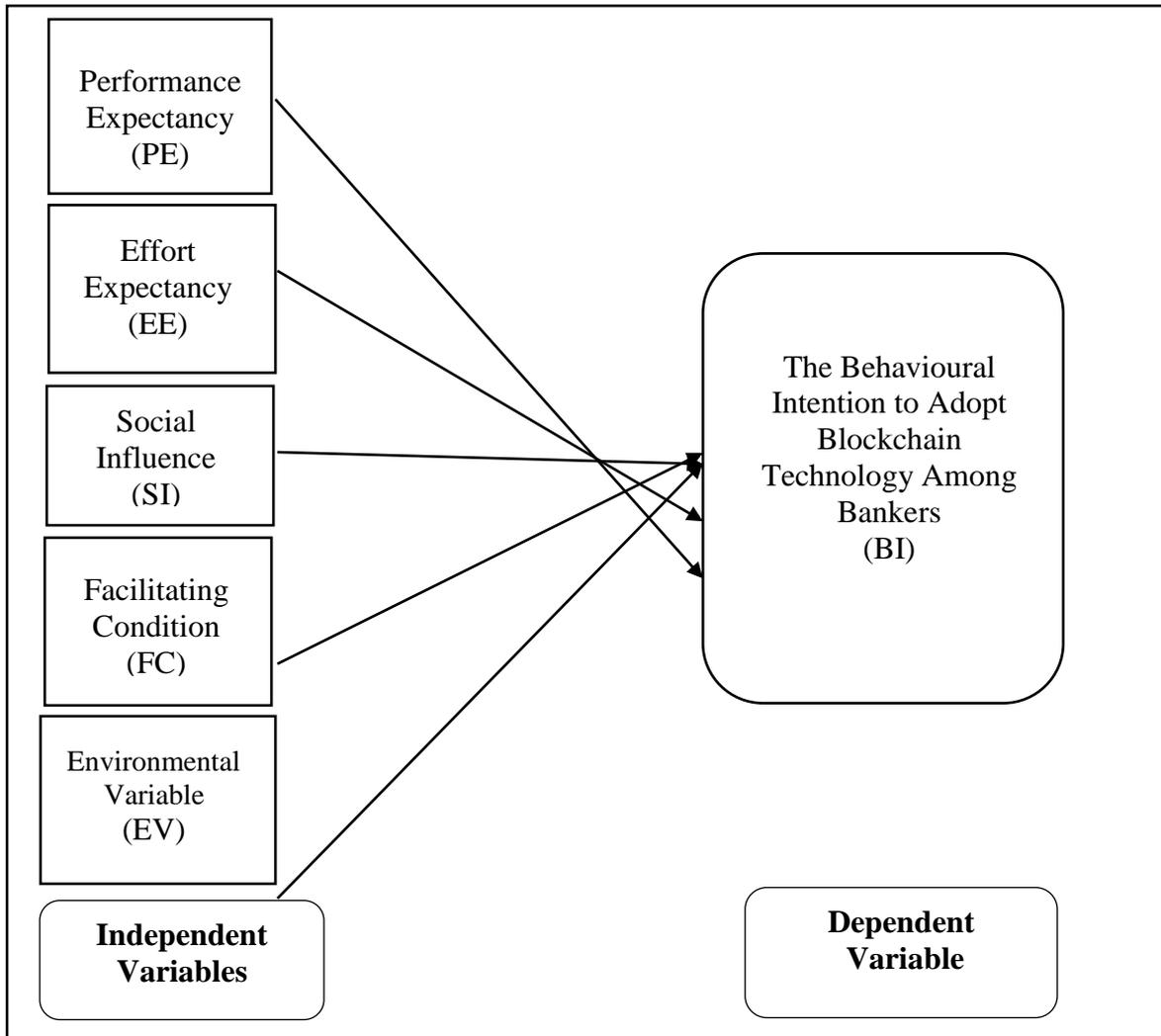

Figure 1. Research theoretical framework

Hence, this theoretical framework highlights the independent variables that can affect the behavioural intention to adopt blockchain among bankers in the Malaysia Islamic Financial System.

Behavioural Intention (BI): A study done by Ang (2010) had elucidated behavioural intention as the intention's force that lead a person to execute a specified behaviour.

Performance Expectancy (PE): It could be explained as the degree in which employing the technology could benefit the consumers primarily during the performance of certain activities (Venkatesh, Thong & Xu, 2012). It is expected that performance expectancy will positively influence the behavioural intention to adopt blockchain technology in this study.

Effort Expectancy (EE): It is associated with the ease of use as perceived by people or an organization when it is related to technology (Zuiderwijk, Janssen & Dwiyedi, 2015). It is expected that effort expectancy will positively influence the behavioural intention to adopt blockchain technology in this study.

Social Influence (SI): It can be divided into two categories which are normative and informational (Deutsch & Gerard, 1955). The former can be explained as the power to comply with the confidence of another. Conversely, the latter is interrelated to the impact of collecting information from the experience of others. As an alternative, it can also be described as any change in an individual's thoughts, feelings, or behaviours caused by other people, who may be actually present or whose presence is imagined, expected, or only implied (Colman, 2009). Thus, it is believed that normative social influence would be best adapted in the study. It is also expected that social influence will positively influence the behavioural intention to adopt blockchain technology in this study.

Facilitating Condition (FC): It is a situation in which the bankers find that there are available infrastructures aimed to support the application of the system in the organization (Zuiderwijk, Janssen & Dwiyedi, 2015). It is expected that facilitating condition will positively influence the behavioural intention to adopt blockchain technology in this study.

Environmental Variable (EV): It can be associated to the industry, competitors, the macroeconomic factors together with the dealings on the government regulations (Tornatzky & Fleischer, 1990). It is expected that the environmental variable will positively influence the behavioural intention to adopt blockchain technology in this study.

3. Methodology

This study applied cross-sectional approach and emphasised on the use of quantitative method. Judgment sampling is also being applied in which the researchers have identified the bankers with the understanding and knowledge on the blockchain system as the selected sample for this study. In addition to that, self-administered questionnaires were distributed to the relevant bankers of randomly chosen Islamic financial institutions in Malaysia. This study also collected data through online survey.

The questionnaires in this study consist of several parts. The first part which is Section A includes questions on demographic background of the respondents in particular, their gender, age, highest educational level, years of working experience and the financial institution that they are currently working with. The other parts that consists of Section B, Section C, Section D, Section E, Section F and Section G represented the variables used in the study which include behavioural intention to adopt blockchain technology, performance expectancy, effort expectancy, social influence, facilitating condition and environmental respectively. Each section consists of four questions except for Section G in which there were only three questions included.

4. Findings and analysis

This section focuses on the interpretation of the data and results obtained from 150 questionnaires which have been distributed to the respondents. Primarily, this study used the Statistical Package Social Science (SPSS) computer programmed with the latest version; version 24, in order to analyse the data acquired from the questionnaires.

4.1. Frequency distribution

Table 4.1. Frequency Distribution

	Frequency	Percentage (%)	Valid Percentage (%)
GENDER			
Male	69	46.0	46.0
Female	81	54.0	54.0
AGE			
20-30 years old	59	39.3	39.3
31-40 years old	72	48.0	48.0
45 years old and above	19	12.7	12.7
EDUCATION			
SPM	8	5.3	5.3
Diploma	13	8.7	8.7
Bachelor's Degree	91	60.7	60.7
Postgraduate (Master/PHD)	38	25.3	25.3
EXPERIENCE			
Less than 10 years	63	42.0	42.0
11-15 years	59	39.3	39.3
15-20 years	14	9.3	9.3
Above 20 years	14	9.3	9.3
INSTITUTION			
Maybank	51	34.0	34.0
RHB Bank	10	6.7	6.7
EXIM Bank	4	2.7	2.7
CIMB Bank	33	22.0	22.0
AmBank	1	0.7	0.7
Affin Bank	1	0.7	0.7
Bank Muamalat	12	8.0	8.0
Public Bank	1	0.7	0.7
Bank Islam	3	2.0	2.0
X	6	4.0	4.0
Kenanga	4	2.7	2.7
MBSB Bank	24	16.0	16.0

Based on Table 4.1 above, the majority of the respondents are female with 54% (81). Meanwhile, another 46% (69) consist of male respondents. In addition, respondents aged between 31 to 40 years old made up the majority group with a total percentage of 48% (72) while 39.3% (59) of the total respondents aged between 20 to 30 years old. Moreover, 12.7% (19) of them are 45 years old and above.

Table 4.1 above also indicates that the highest percentage of education level is 60.7% (91) in which the respondents are bachelor's degree holders. Meanwhile, 25.3% (38) of the respondents

are postgraduates, followed by respondents who are Diploma holders with 8.7% (13). Respondents who are SPM holders has the least number with 5.3% (8) of the total respondents.

It has been demonstrated in Table 4.1 above that majority of the respondents have less than 10 years of working experience which consists of 42% (63) of total respondents. Additionally, 39.3% (59) have 11 to 15 years working experience. The respondents who are 15 to 20 year-old and with more than 20 years working experience in the industry share similar percentage of 9.3% (14) respectively for each group.

Based on the data of demographic profile depicted in Table 4.1 above, the respondents who worked with Maybank Islamic Berhad are considered as the majority which represents 34% (51) of the respondents. This is followed by respondents who work with CIMB Islamic Bank Berhad with 22% (33) respondents. Additionally, 16% of the total respondents are currently working with MBSB Bank Berhad while 8% of the respondents are currently working with Bank Muamalat Malaysia Berhad (BMMB). Similarly, 6.7% (10) of the respondents are currently working with RHB Islamic Bank Berhad while 2.7% (4) of the respondents are working with EXIM Bank and Kenanga Investment Bank Berhad. There are also 2% (3) respondents who currently work with Bank Islam Malaysia Berhad (BIMB) and 0.7% (1) of the respondent each from AmBank Islamic Berhad, Affin Islamic Bank Berhad and Public Islamic Bank Berhad respectively. However, there are 4% (6) of total respondents who did not specify which financial institutions they are currently working with which is classified as X in the study.

4.2. Factor analysis

Table 4.2. Factor analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
	Approx. Chi Square	df.	Sig.
0.838	2301.175	253	0.0000

Table 4.2 shows that the data is suitable to be run for further tests as the Bartlett's Test of Sphericity shows a significant level of 0.000, that is less than 0.05 and the KMO measure of sampling adequacy is 0.838 which had made a cut off above 0.50

4.3. Reliability analysis

Table 4.3. Reliability analysis

Variables	No. of Items	Item Deleted	Alpha
Behavioural Intention	3	-	0.802
Performance Expectancy	4	1	0.713*
Effort Expectancy	4	-	0.784
Social Influence	4	-	0.789
Facilitating Condition	4	-	0.796
Environmental	4	-	0.734

Note * Item B4 of Performance Expectancy deleted

In reference to Table 4.3 above, the highest Cronbach's Alpha value is behavioural intention with 0.802 which indicates that it has a very good reliability and the data is considered reliable to the study. Meanwhile, the other Cronbach's Alpha value include facilitating condition with 0.796, social influence with 0.789, effort expectancy with 0.784, environmental with 0.734 and performance expectancy with 0.713. All of the variables mentioned indicate good reliability as their values are more than 0.7 according to the rule of thumb for reliability analysis. Therefore, all variables are considered reliable to the study.

4.4. Testing for normality

Table 4.4. Normality test

Variables	Skewness	Kurtosis
Performance Expectancy	-0.741	0.865
Effort Expectancy	-0.710	0.404
Social Influence	-0.086	-0.912
Facilitating Condition	-0.503	-0.102
Environmental	-0.412	-0.066
Behavioural Intention	-0.738	0.925

Referring to Table 4.4, it shows that each of the independent and dependent variables are normally distributed as the score of skewness and kurtosis are between the range specified by Garson (2012) in which +2 and -2 for the skewness while +1 and -1 for kurtosis.

4.5. Descriptive analysis

4.5.1. Performance expectancy

Table 4.5. The descriptive results of performance expectancy

No.	Statement	Mean	Standard Deviation
B1	I would find blockchain technology system useful in my job.	4.02	0.755
B2	Using the blockchain technology system enables me to accomplish tasks more quickly.	4.12	0.694
B3	Using the blockchain technology system will increase my productivity.	4.22	0.834

From here, it can be induced that the item with the highest mean (M=4.22) lies on the statement of B3. This means that most of the respondents strongly agreed that the use of blockchain will increase their working productivity. The next highest mean (M=4.12) obtained was highlighted from the statement B2 which means that majority of the respondents agreed to the fact that having blockchain technology in the system could help them to accomplish their task more quickly. Finally, the item with the statement B1 shows the second lowest mean (M=4.02). This indicates that the respondents agreed that blockchain technology is a useful system in their job. In addition to that, the overall standard deviation for each statement had been identified to range between 0.694 and 0.981.

4.5.2. Effort expectancy

Table 4.6. The descriptive results of effort expectancy

No.	Statement	Mean	Standard Deviation
C1	My interaction with the blockchain technology system would be clear and understandable.	3.85	0.798
C2	It would be easy for me to become skilful at using the blockchain technology system.	4.09	0.835
C3	I would find the blockchain technology system easy to use.	3.91	0.882
C4	Learning to operate the blockchain technology system is easy for me.	3.93	0.836

The item with the highest mean (M=4.09) was derived from the statement C2. This simply indicates that the majority of the respondents agreed it is easy for them to become skillful at using the blockchain technology system. Other than that, the item with the second highest mean (M=3.93) lies on the statement C4. This shows that most of the respondents also agreed that it is easy for them to learn how to operate the blockchain technology system. The second lowest mean (M=3.91) lies on the statement C3. This means that the respondents agreed that the blockchain technology system is easy to be used. The lowest mean (M=3.85) shows that most of the respondents agreed to the statement C1 as they found that the system is much comprehendible and effortless. It may also be noted that the overall standard deviation for the variable ranges between 0.798 and 0.882.

4.5.3. Social influence

Table 4.7. The descriptive results of social influence

No.	Statement	Mean	Standard Deviation
D1	People who influence my behaviour think that I should use blockchain technology system.	3.65	0.955
D2	People who are important to me think that I should use blockchain technology system.	3.67	0.924
D3	The senior management of this organization has been helpful in the use of the blockchain technology system.	3.69	0.891
D4	In general, the organization has supported the use of the blockchain technology system.	3.82	0.956

The item with the highest mean score (M=3.82) highlights the statement of D4. This suggests that most of the respondents agreed that the organisation that they are currently working with has supported the initiative to apply blockchain technology in their system. The next highest mean score (M=3.69) can be observed in the statement D3. This shows that the respondents agreed that their senior managements accommodate them in the use of blockchain technology system. The item in third place (M=3.67) shows that most of the respondents agreed to the statement D2 since they are regarded as having close relationship and easily accepting suggestions from those social group. The item with the lowest mean score (M=3.65) was derived from the statement D1. This indirectly specifies that most of the respondents agreed that those who support their behaviour had suggested them to use the technology. It should also be pointed out that the overall standard deviation for the statements ranged between 0.891 and 0.956.

4.5.4. Facilitating condition

Table 4.8. The decriptive results of facilitating condition

No.	Statement	Mean	Standard Deviation
E1	I have the knowledge necessary to use the blockchain technology system.	3.46	1.047
E2	I have the resources necessary to use the blockchain technology system.	3.45	0.966
E3	The blockchain technology system is not compatible with other systems I had used.	3.72	0.913
E4	A specific person (or group) is available for assistance with blockchain technology system difficulties.	3.73	0.924

The item that placed first (M=3.73) was inferred from the statement E4. It can be noted that majority of the respondents agreed that their organisations developed a specific team to accommodate them in handling any difficulties arisen from the blockchain technology system. Then, the statement E3 was placed second (M=3.72) in which the respondents admitted that there is no other system that is comparable to the blockchain technology system. Apart from that, the statement E1 placed third (M=3.46) where most of the respondents agreed that they have enough knowledge related to blockchain. Finally, the item with the lowest mean (M=3.45) could be found from the statement E2. This indicated that the respondents agreed having an adequate access to use the blockchain technology system. It should also be mentioned, that the overall standard deviation that could be detected based on this variable can be seen to ranges between 0.913 and 1.047.

4.5.5. Environmental variable

Table 4.9. The descriptive results of environmental

No.	Statement	Mean	Standard Deviation
F1	The current government regulations related to information technology favour the adoption of blockchain technology system.	3.99	0.768
F2	The government provides knowledge building capacity for blockchain technology system adoption.	3.91	0.893
F3	The government provides information infrastructure (laws, guidelines or policies) for the adoption of blockchain technology system.	3.69	0.949
F4	The government promotes the adoption of blockchain technology system among Islamic financial institution.	3.84	0.769

The item with the statement F1 has the highest mean (M=3.99) which denotes that majority of the respondents foresee that the current regulations imposed by the government are in favour towards the implementation of blockchain technology system. The item that placed second (M=3.91) could be identified from the statement F2. This is due to the reason that most of the respondents were aware of the initiatives of the government to expose the respondents with sufficient blockchain knowledge to realize the implementation of the system in their institutions. Subsequently, the item with the statement F4 has the second lowest mean (M=3.82) in which most of the respondents agreed that various promotions had been done by the government in respect to the adoption of blockchain technology system within the Islamic financial institution. While for the item that has the lowest mean (M=3.69), it had been predicted that most of the respondents also agreed with the statement F3 as they were well informed about it. It should also be emphasised that overall, the standard deviation associated to this variable ranges between 0.768 and 0.949.

4.5.6. Behavioural intention to adopt blockchain technology

Table 4.10. The descriptive results of behavioural intention to adopt blockchain technology

No.	Statement	Mean	Standard Deviation
G1	I intend to use the blockchain technology system in the next 12 months.	4.11	0.883
G2	I predict I would use the blockchain technology system in the next 12 months.	3.92	0.901
G3	I plan to use the system in the next 12 months.	3.92	0.886

The first item with the highest mean (M=4.11) is seen in the statement G1. This indicate that the respondents have the intention to use blockchain technology in the nearest period. Besides that, the statement of G2 and G3 have the same mean (M=3.92) which implies that most of the respondents are looking forward to use blockchain technology system in the next 12 months. It is also worth noting that overall, the standard deviation for each statement ranges between 0.883 and 0.901.

4.6. Pearson's correlation analysis

Table 4.11. Pearson's correlation analysis

Variable	Behavioural Intention	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Condition	Environ-mental
BI	1					
PE	0.595**	1				
EE	0.794**	0.684**	1			
SI	0.433**	0.454**	0.514**	1		
FC	0.472**	0.334**	0.442**	0.734**	1	
EV	0.520**	0.465**	0.588**	0.582**	0.510**	1

** Correlation is significant at the 0.01 level

Pertaining to Table 4.11 above, it portrays that all independent variables namely performance expectancy, effort expectancy, social influence, facilitating condition, and environmental variable have good positive relationship with the behavioural intention as dependent variable. This is because the value of correlation for each variable lies between the range of 0.79 to 0.40. Moreover, all independent variables are significant with the dependent variable at 0.01 significant level. Table 4.11 above also highlighted that effort expectancy is the most significant factor of having a good positive relationship with behavioural intention as compared to the other independent variables. The reason for this is that the value of effort expectancy is close to 1 in contrast with the other independent variables.

4.7. Testing for multicollinearity

Table 4.12. Multicollinearity test

Variables	Collinearity Statistics	
	Tolerance	VIF
Performance Expectancy	0.513	1.951
Effort Expectancy	0.426	2.346
Social Influence	0.381	2.628
Facilitating Condition	0.446	2.244
Environmental Variable	0.539	1.855

Based on Table 4.12 it can be induced that the multiple correlation between the independent variables investigated in the study are absent. This is due to the reason that the values of tolerance for each variable can be observed to be more than 0.1 whereas for the VIF values, it shows that they are less than 10. This also shows that the model is deemed to fit the data well.

4.8. Multiple linear regression

Table 4.13. Multiple linear regression analysis

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.067	0.282		-0.238	0.812
PE	0.773	0.086	0.109	1.607	0.110
EE	-0.165	0.081	0.670	9.034	0.000
SI	0.230	0.072	-0.160	-2.039	0.043
FC	0.060	0.079	0.232	3.193	0.002
EV	0.135	0.084	0.051	0.769	0.443
F value			56.574		
Sig			0.000		
Adjusted R²			0.651		
R²			0.663		

Table 4.13 above clearly depicts that effort expectancy (EE), social influence (SI) and facilitating condition (FC) have significant relationship with the dependent variable namely behavioural intention. This is due to the fact that these variables are significant at 0.05 significant level whereby their values are below the significant level of 0.05. Nevertheless, performance expectancy and environmental variable are insignificant to the behavioural intention as their significant values are above the 0.05 significant level.

4.9. Hypothesis testing

4.9.1. Hypothesis 1

a) H0 =There are no factors affecting the behavioural intention to adopt blockchain technology in Malaysia Islamic Financial System.

b) Ha =There are factors affecting the behavioural intention to adopt blockchain technology in Malaysia Islamic Financial System.

Table 4.14. Factors affecting behavioural intention to adopt blockchain technology

Variables	Significant Level	Result
Performance Expectancy	0.110	
Effort Expectancy	0.000	
Social Influence	0.043	Reject null hypothesis
Facilitating Condition	0.002	
Environmental Variable	0.443	

By virtue of the results tabulated in Table 4.14 above, the significant level should be less than 0.05. It should be highlighted that the factors mentioned were referring only to the variables of effort expectancy, social influence and facilitating condition. Hence, the null hypothesis is rejected.

4.9.2. Hypothesis 2

a) H0 = There is no relationship between performance expectancy, effort expectancy, social influence, facilitating condition and environmental variable with the behavioural intention to adopt blockchain technology in Malaysia Islamic Financial System.

b) Ha =There is a relationship between performance expectancy, effort expectancy, social influence, facilitating condition and environmental variable with the behavioural intention to adopt blockchain technology in Malaysia Islamic Financial System.

Table 4.15. Hypothesis result for relationship between variables

Variable	Result	Significant Level	Beta
Performance Expectancy	Accept null hypothesis	0.110	0.109
Effort Expectancy	Reject null hypothesis	0.000	0.670
Social Influence	Reject null hypothesis	0.043	-0.160
Facilitating Condition	Reject null hypothesis	0.002	0.232
Environmental Variable	Accept null hypothesis	0.443	0.051

According to Table 4.15 above, the significant value of effort expectancy, social influence and facilitating condition is less than 0.05 which is significant at 0.05 significant level. This constitutes that EE, SI and FC have significant relationship with behavioural intention. Thus, null hypothesis is rejected while alternate hypothesis is accepted.

However, the elements of performance expectancy and environmental variable are at an insignificant level of 0.05. This indicates that PE and EV do not have a significant relationship in influencing the behavioural intention. Therefore, the null hypothesis is accepted and the alternate hypothesis is rejected.

5. Discussions

The results that had been acquired help us to ascertain that every research objective highlighted in the beginning of the study was able to be answered with the support and polemics from previous researches.

Based on the findings, only the variable of effort expectancy, social influence, and facilitating condition have been detected to be the factors that have effects on behavioural intention to adopt blockchain technology in the Malaysia Islamic financial system which at once put effort expectancy as the most significant factor in the study. However, the results seem to be different from the study done by Tan (2013) which highlighted that every element of the UTAUT are factors that affect the application of E-learning websites in Taiwan. The difference in the results could be affected by the status of the country. Taiwan for instance, had been classified as a developed country in 2019 but Malaysia is still in the state of developing which requires improvement in several perspectives.

The irrelevance of environmental variable found in this paper can be further supported with the study done by Savoury (2019). This is due to the reason that the government regulations are meant for the organisations to abide and hence, is not applied directly to the adoption of blockchain technology itself. This simply means that Malaysia is still at its initial phase and is moving towards its implementation in the future.

Despite that, in terms of the relationships between the independent variables and the behavioural intention to adopt blockchain technology in the Malaysia Islamic Financial System, it had been proven that effort expectancy, social influence and facilitating condition as the variables that are significant to affect the intention to adopt blockchain technology. Referring to the studies done by Raja & Thenmozhi (2020), Attuquayefio & Addo (2014) & Bakar, Razak & Abdullah (2013), it can be concluded in this paper that the adoption of blockchain technology in Malaysia

Islamic Financial System is unable to enhance the bankers' performance and productivity in their jobs. Thus, the performance expectancy is insignificant to influence the intention to adopt blockchain technology.

The insignificance of environmental variable in this study is also in parallel to the fact that there are no policy and regulations that prove the intentions to establish Malaysia as a significant hub for blockchain at the moment especially when the country is in the state of ignorant concerning blockchain particularly from the government sides (Yatim, 2018).

In view of this, Naoyuki Iwashita, a professor from Kyoto, Japan had contested that having regulation alone might not be sufficient if unanimity among the stakeholders cannot be achieved (Hitachi Ltd., 2018). Therefore, looking from the context of Malaysia, it is best if Islamic financial institutions could then consider to initiate their own voluntary institution regulation as it had been admitted to be the best practices applied globally (Norton Rose Fulbright, 2016). This may also indirectly instil the sense of ease in accepting the adoption of blockchain technology among bankers when they themselves become a part of the community that develops the regulation on the technology.

6. Recommendations

Several recommendations are segregated specifically to enhance the adoption of blockchain technology system in Malaysia Islamic Financial System:

6.1. Recommendations to the Malaysia islamic financial institutions:

1. Working on Institution Voluntary Regulation

2. Provide training to develop technology savvy employees in the Islamic Financial Institutions.

6.2. Recommendations to the government

1. Establish an Islamic Financial Institutions Consortium

2. Involve the Stakeholders in Blockchain Policy Making

6.3. Recommendations to the future researcher

1. Modifications in the Combination of Theories

2. Methodology Alternatives

7. Conclusion

This research has been conducted with the purpose of investigating the behavioral intention to adopt blockchain technology among bankers in Malaysia Islamic financial system. There are several technology acceptance models and theories that have been applied in various studies which focused on the concept of technology. As a result, this study has adopted the combination of the UTAUT model and TOE framework. There are five independent variables identified in this study in which four independent variables are from the UTAUT model, namely Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition and one independent variable has been adopted from TOE framework namely the Environmental variable. As a result, Effort Expectancy is the most significant factor in influencing the behavioural intention to adopt blockchain technology among bankers in the Malaysia Islamic financial system. Nevertheless, this study is only conducted to limited target population. Future researchers are recommended to target a wider segment population while considering a proper method of data collection to ensure that the research process is much smoother in the future.

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Nur Firas Binti NAZIM currently has been appointed as a research assistant under a grant project by FWD Takaful titled 'Why People Reluctant to Participate in a Takaful Plan?'. In 2019, she had completed her study in Master of Islamic Banking and Finance in Arshad Ayub Graduate Business School, UiTM, Shah Alam with Excellent Candidate Award. She had initially took her foundation in law at UiTM, Shah Alam in 2015 and she then decided to further her degree in Bachelor Degree (Hons) of Finance in UiTM, Segamat after realizing her interests towards the field of finance. She had also been awarded with Vice Chancellor Award upon her degree graduation in March 2019. Along her Master's journey, she had also actively participated in the product development events with the aim to promote the use of blockchain in the industry.

Nabiha binti Mohd RAZIS currently has joined AKC & Co., an audit firm as an audit assistant. Previously, she came from a boarding school in Kuantan with an interest in mathematics and calculations. As an enthusiast of mathematics and calculations, she decided to further her study in Diploma in Banking at UiTM Jengka, Pahang and she then further her study as a bachelor's degree student in Finance at UiTM Dungun, Terengganu. In 2019, she had pursued her study in Master of Islamic Banking and Finance in Arshad Ayub Graduate Business School, UiTM Shah Alam. Upon finishing her diploma in October 2015 and her degree in January 2018, she had been awarded with Vice Chancellor Award for both studies.

Mohammad Firdaus Bin Mohammad HATTA is a Senior Lecturer of Arshad Ayub Graduate Business School, Universiti Teknologi Mara (UiTM) Shah Alam, Selangor. He received his first degree in Shariah Islamiyyah from University of Medina, Saudi Arabia. He then successfully completed his Masters in Fiqh and Usul Fiqh from the International Islamic University of Malaysia (IIUM) and obtained his PhD in Islamic Banking from University of Wales, Lampeter, United Kingdom. He also received a Diploma in Islamic Finance from Markfield Institute of Higher Education, United Kingdom. Currently he is a Shariah Committee Member of Great Eastern Takaful Berhad and Kenanga Investment Bank Berhad.