

A FRAMEWORK ON THE INTEGRITY OF FINTECH IN INFORMATION SECURITY FROM ISLAMIC PERSPECTIVE

Khuzaidah Mohd

Centre for Islamic Development Management Studies (ISDEV)
Universiti Sains Malaysia (USM)

Azreen Hamiza Abdul Aziz

Centre for Islamic Development Management Studies (ISDEV)
Universiti Sains Malaysia (USM)

azreenhamiza@usm.my

ABSTRACT

This study intends to analyze the integrity of fintech in information security from Islamic perspective. The capability of fintech in creating the integrity of information security is still questionable. In the view from the Islamic perspective, the integrity of fintech in securing the information especially in regard to the financial sector participants is really a challenge for financial institutions. The invention of technology in the financial sector have profoundly harnessing participants in the financial sector, that extremely exposed them to the unintended data or information leakage. To attain the main objective, this study adopted basic qualitative method based on document research and the collated data are subjected to the traditional content analysis. The results concluded that confidentiality, trustworthiness, surveillance, truthfulness, accountability and transparency are recognized as an elements of integrity in fintech as means for information security from Islamic perspective. The integrity of fintech in information security is indispensable for all participants in the financial sector and it should be entirely emphasized to create a seamless and robust security environment in financial sector.

Keywords: Integrity, Fintech, Information Security, Islamic Perspective

INTRODUCTION

Fintech is an acronym of financial technology that act as means for improving the delivery of financial services. Fintech is broadly denoting to the application of technology within the financial industry. It covers a comprehensive range of activities comprising financing, payments and infrastructure, operation and risk management, data security, monetization and customer interface (Global Islamic Finance Report, 2017). Fintech is a new type of innovative technology that competes with or precedes traditional financial methods specifically on the delivery of financial services (Giuseppe et al., 2019). The incorporation of financial and technological is to support the innovation and enhancement in the delivery of financial services. In addition, that combination has driven the financial ecosystem to a high level of deliberation and denotes the evolution of financial services. Fintech is the most dominant solution for traditional institution to get back in track alongside with the contemporary institutions. Due to that, most of the financial institution adopt fintech in their current business strategy. However, there is issues arise with regards to the fintech adoption. According to PricewaterhouseCoopers (PwC, 2016) the information security is among the top threat of fintech adoption. Furthermore, in Global fintech survey 2016, 56% of global and Malaysia

respondents agreed that the main threats related to the rise of fintech is regards to the information security or privacy threat. Information security is defined as means to protect the confidentiality, integrity and availability of information assets whether in storage, processing or transmission (Whitman & Mattord, 2011). Information security is a backbone of value chain in the delivery of financial service. However, there is highly possibility of this information being disclosed and misrepresented to unauthorized parties.

An extending from PwC survey, it also shows that security, regulation and talents are most important enablers to develop fintech capabilities. That survey found majority of 2/3 or 67% of respondents rated security information is very important for fintech development. The statement provided by PwC is very significant for participant in fintech either from financial institution or customers to drawn an attention about information security in fintech. Fintech keep growing, the demand on it continue increasing, without hesitate the fintech revolution should be embrace. According to Molineus (2016), indeed fintech offer a high efficiency in infrastructure, the issues on stability and integrity should be concern. Hence, the issues is about the integrity of fintech in securing the information. Therefore, the question arise is what are the element of integrity in fintech as means to secure the information of financial participants from Islamic perspective? If money is the currency of transaction integrity is the currency of relationship. Generally, the balancing between innovation and security shall harness the development of fintech in present and future.

The discussion in this study is divided into four section. The first section will begin with the introduction of research topic. Second section will be followed by provides the literature review of the research which contain a discussion about the revolution of fintech and information security in fintech. While, the third section will cover an analysis on the review on the integrity of fintech in information security from Islamic perspective. The last section is the conclusion summary and recommendation for the future research.

RESEARCH METHODOLOGY

This paper pursues to address these issues with the focus of discussion on two objectives. First, to identify the element of integrity in fintech from Islamic perspective. Second, to analyze the element of integrity in fintech as means to secure the information from Islamic perspective. To achieve these objectives, this study employs the basic qualitative method via document research to obtain the relevant data. Subsequently, the collated data was subject to traditional content analysis.

This qualitative documentation study has the purpose of obtaining secondary data through document research. Document research involves a study of the literature and existing works on fintech and information security theoretically and implementation experiences by stakeholders from Islamic perspective. Gist is extracted to be used as a basis for developing preferences for analyzing the integrity of fintech in information security trend and providing the main key in the study. The analysis contained in this study aims to show the efforts and methods of achieving the objective of the study, that is to analyze the element of integrity of fintech in information security from Islamic perspective.

LITERATURE REVIEW

Fintech could be traced back to the 1900's till present. The innovation of fintech keep growing and changing from time to time. The greatest of fintech revolution is from physical meeting to virtual meeting. While, in the early of 21st century, financial services are being digitalized via technology purposely to offering services to the market participants (Desai, 2015). The keyword of fintech is convenience, which means from cash to credit card,

branches to automated teller machine (ATM), people to robot and the list goes on. According to Kalmykova and Ryabova (2016), the most popular tendency in fintech development is regards to *peer-to-peer lending*, *E-wallets*, *Bitcoins*, *T-commerce*, *M-wallets* and others. Currently, there are few specific areas that draw the attention for the financial services in regards to blockchain technology (Bitcoin, Ethereum, Dash), mobile payment technology (Android Pay, Google Wallet, Apple Pay) and cloud technology (decentralized storage system).

Yan (2019) stated that fintech has lead in the solution for financial exclusion and financial inclusion. The innovation of fintech offering from mobile cheque deposits to robot advisers, banking digitalization to electronic data management and cryptocurrencies to their underlining blockchain technology. Everything is possible and done through cheap biometric systems, artificial intelligence analytics and cloud computing. While, as means for successful in fintech adoption, at least it should be managed with seven outline which is the expanding scope, increasing diversity, improving collaboration, impending consolidation, normalizing valuations, shifting regulations, and emerging ecosystems (Thomas & Morse, 2017). Arner (2016), revealed that the year 2008 is where the game changer for fintech revolution with the emerging of cryptocurrency that backed by blockchain technology.

There are three phases of transformative role in fintech (Mcwaters & Galaski, 2017). The first phase is the highlight on the foundation of new entrants and innovations on business models in financial services for a better understanding whereas the second phase illustrates the role of financial infrastructure in accepting the future of financial services. The third phase is conducting a comprehensive exploration for reshaping the financial services ecosystem. Furthermore, Arner (2016) has come out with three distinct time period of fintech development. Fintech 1.0 commencement with the combination of finance and technology to produce the financial globalization. Fintech 2.0 the starting point with an analogue to digital that led by traditional financial institutions. Fintech 3.0 is to relate with the entrance of new players and work alongside with the existing large companies. In the third major of fintech era, the challenges of fintech regulator is to develop a framework that can promise to maintain the market confidence especially to the information security. The sufficient and rigorous regulatory framework can resolve the tension in fintech security (Buckley, Arner & Barberis, 2016).

Information security in fintech is essential for all participants in financial sectors. Information security is a crucial part of element should be highlighted. Information is an asset for financial sector. Therefore, the protection of information from unauthorized access, use, or disruption is vital at least to minimize the possibility of information leakage or breaches. According to the international standard of information security management there is three core element that should be concerned for the information security which is the confidentiality, integrity and the availability of the data. Moreover, Zhang and Lee (2003) agreed that trust is recognized as the most complex principle in the business relationship, the adoption and innovation of fintech are influence the trust in information with the promise of confidentiality, availability, integrity and constant of wireless connection. In addition, Whitman and Mattord (2009) has added few influence factors which is the mobile application usability, cultural, transaction security and trustworthiness toward organizations.

In the discussion on the information security concept, the 'CIA triads' which consists of confidential, integrity and availability Gollman (1999) is seen as the objectives with security regarding information technology and information (Harris, 2002). However, the definition of the CIA triads may differ depending on what kind of asset that are focused on (Oscarson, 2003). The definition of the CIA triads are influence by Gollman (1999) and Harris (2002) and are not suitable to be based in analyzing the information security in the integrity of fintech from Islamic perspective since the objective is both for information and

resources will stay confidential, unmodified and available (Oscarson, 2003). The weaknesses in confidentiality may be caused both by disclosure of sensitive information and by unauthorized use of information system. The basic information security fundamentals are depicted in Figure 1. For simplifying reasons, the CIA triad will not be included in the further discussion in this study.

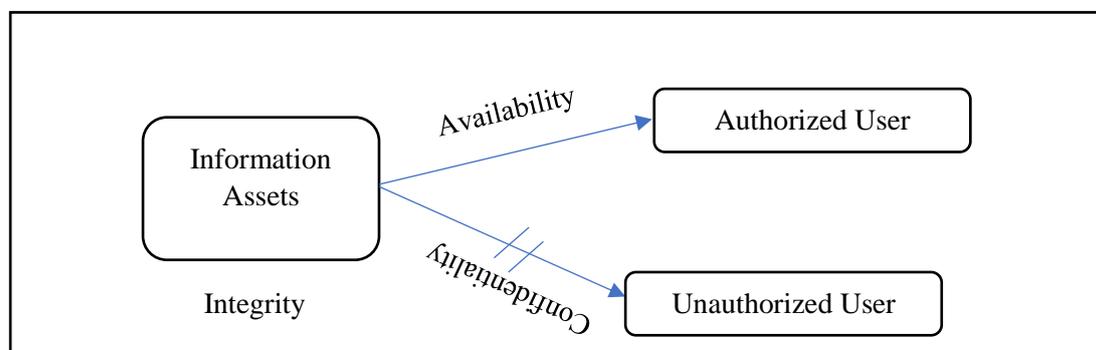


Figure 1: A graphical description of the CIA triad – Confidentiality, Integrity and Availability
(Source: Oscarson, 2003; Jonsson, 1995; Olovsson, 1992)

The foremost issues in the fintech development is regards to the collected and utilization of data provided by the customers. This is due to customers awareness on the value of their data and expected it is to be confidential. The main concern from customers to get involved in fintech is the information security on how their essential data is being protected from unauthorized person or revealed to third party (Stewart & Jurjens, 2018; Loh, 2018). The crucial part in establishing and maintaining the trust in fintech from customer's perspective is data security (Mcwaters & Galaski, 2017). Refer to Summerfield (2017), fintech has matured and evolved, the behavior towards it have started to shift. While, Stewart and Jurjens (2018) justified that, the adoption of fintech are mainly influenced by the information security, user design interface and customers trust.

The essential element in the practice of fintech is not only focusing on the innovation but instead the focus on security. With the spreading of fintech revolution, not only regulation become the mainstream but the protection of financial data too. The lack of human and capital resources had impact loophole in fintech security (Loh, 2018). The innovation of fintech should not come at the expense of security. The fintech revolution with the used of cloud technologies must be backed by security as its core (Frederiksen, 2018). Wider adoption of fintech is reported to be constrained by talent gaps, regulations, data security concerns, cost, and low infrastructure bandwidth (Lukonga, 2018). While considering the information security in fintech the speedily in delivering services to customers ought to be concern too (Kryparos, 2018).

The particular threats for fintech is the cyber security, data security and primary protections. The reliance on "big data" means a huge potentially of personal and proprietary data being exposed to breached and accessed by malicious entities (Mansfield, 2018; Loh, 2018). Murugiah (2018) stated the biggest challenge for fintech is to emphasize the security and protection of information. Mathews (n.d), indicate that the information security is all matters since fintech handles large amount of personal and financial data of customers. The need of digital transformation has increased the demand towards information security (Fong, 2019) and the interconnected relationship between future fintech and cyber security (Patterson, 2017)

ANALYSIS ON INTEGRITY OF FINTECH IN INFORMATION SECURITY FROM ISLAMIC PERSPECTIVE

Despite the on various study that have been done on fintech and information security, all those studies are focusing only from the contemporary practice and not from Islamic perspective. Due to that, there is an absence of the integrity analysis on fintech in securing the information of financial participants from Islamic perspective. The contemporary practice is positioning it on confidentiality as a main element in information security. Whilst, trust is found as focal concern in the practice of fintech. Basically, there is no specific element have been analyze by past research in the integrity of fintech. From contemporary perspective, integrity is merely justified as a trust. Looking from Islamic perspective, trust is part of integrity but having trust only is insufficient to justify that there is integrity in it. Therefore it is essential to highlight a vital element of integrity in fintech as means to secure the information from Islamic perspective.

According to Palanski and Yammarino (2007), there is no single unified, universally accepted definition of integrity. However, Becker (1998) had draws attention to the fact that the concept of integrity is commonly treated as tantamount with honesty. Basically, integrity means a goodness of one character in all aspect, behaves with a full ethical manner and shows consistently in words and actions (Duggar, 2007). While, Pillay (2014) justified that, integrity word are derived from Latin word known as “integer”, a mathematical term referring to whole numbers. Hence, integrity is something that are truly holistic or complete with a full of good manner (Pillay, 2014).

Information security measures the essential to assurance that information is being transmitted from an identified source to a rightful recipient only .This means that information in all forms (electronic or else), and in all states (stored, transmitted, in-use), and in all locations (filing cabinet, printouts, computer storage, disks), obligate to be protected from unauthorized access (Ibrahim & Haqani, 2014). Generally, information security means the protecting of information from unauthorized access, modification, inspection, destruction, recording, use, disclosure, disruption, perusal or destruction (Ambhire & Teltumde, 2011).

Based on literature review, this study found an added six elements of integrity in the practice of fintech as means to secure the information from Islamic perspective. The information or data are expected to be well protected. The elements of integrity in information security from Islamic perspective are confidentiality, trustworthiness, surveillance, truthfulness, accountability and transparency. The details about each element are discussed in following section.

Confidentiality

The first element of integrity is confidentiality. According to Hammer (2007), confidentiality is to ensure that only authorized individual or institution have an accessible towards that information. Confidentiality is about the protection of personal information. The personal information should be keeping between financial institution and client without spreading the information to others even to the close family members of client. In simple definition, confidentiality means all the information obtained or acquired should be confidence from disclosing it to third party. Confidentiality is very significant elements in integrity especially it helps to build and develop trust between involved parties. Respect for customers confidentiality in the information should be a high priority for all financial sector to comply with legislation that governs disclosure of information. Refer to Ullah and Anwar (2014), confidentiality is a set of rules or a promise as means for limited and restriction access on the certain types of information.

From Islamic perspective, confidentiality is primary to guarantee the integrity in information security. The information provided by the customers in financial institution should become a privacy within the involved party. Any information from the fintech transaction should not be exposed towards other parties. Confidential term is very vital as means to keep the data given by the customers. In fintech, the person who organize or taking care of the technology itself should ensure the information from customers are protected. This statement can be proven in the following Quranic verse that emphasizes on maintaining treaties and confidentiality:

When Yusuf said to his father, “O my father, indeed I have seen (in a dream) eleven stars and the sun and the moon; I saw them prostrating to me.” He said, “O my son, do not relate your vision to your brothers or they will contrive against you a plan. Indeed Satan, to man, is a manifest enemy.”

(Yusuf : 4-5)

According to Ullah and Anwar (2014), Quran emphasizes on maintaining treaties and confidentiality based on Yusuf verse. Yaqub advised his son Yusuf “O my son do not share your dream in front of your brothers or they will give interpretation of your dream against you”

Due to that, this is the reason why a man should keep his secrets safe until he finds it the way. Ibn Kathir (2012) described that Yaqub feared that if Yusuf narrated his vision to any of his brothers, they would envy him and conspire evil plots against him. There is a confirmed Hadith that stated to keep your secret confidential to help out for the acceptance of your desires, because among every blessed man there is a spiteful person.

Islam really emphasizes on confidentiality. There is consideration before exposure the information to others. Indeed, the confidential element is essential to not only taking care of themselves but to prepare for the future action. In addition, the information should be protected even to the close one as to fulfill the request of the authorized person. Whoever have the information that are consider as confidential should keep it within himself without revealed it to others. The supported hadith regards to the important of confidentiality can be illustrated based on narrated hadith from Imam Bukhari, 3715, 3716, hadith 65:

Aishah RA narrated that Fatimah RA came to the house and Muhammad SAW was there, he greeted her and ask her to sit with him. He said something secretly to her and she started crying then he SAW said something again and she became happy. Aisha RA said I asked her what was the reason that you started crying and then you became happy but she remain silent. When Muhammad SAW passed away I asked again, she replied that was secret until his life but now it is no more secret. He told me at first that he came to know he has few days left so I started crying and then he inform me that you will be the first one who will met me in Heaven and you will became happy when you be the head of Heaven’s females.

The above hadith shows that, no matter how the situation influence an individual, the information or secret should be maintain privacy within themselves. In regards to the development of fintech, even on the innovation that constantly take place, customers confidentiality information ought to be matter in any ways. Confidentiality is regarded as a trust in Islam. Hence, Zulhuda (2010) pointed out that the obligation of trusted person only discharged once the message have been deliver to the authorized person with a fully preserving the message from outsider.

Trustworthiness

Another element of integrity in information security is trustworthiness, or in Arabic it is known as *Amanah*. Generally, trustworthiness means the information should be kept and protected from any negligence. Trustworthiness is about having the capabilities that match with the responsibility that one carries (Alimin, Awang, Ahmad, Safar & Nain, 2018). Trustworthiness further enhances the integrity in ethical conduct that inherent the notion of honesty. Being trustworthy implies being honest, keeping promises, committed and dealing fair. Other than that, trustworthiness is an important element that being practice by Prophet Muhammad (PBUH). The verse about trustworthiness is in the Quran, Allah SWT says:

“Indeed, we offered the trust to the heavens and the earth and the mountains, and they declined to bear it and feared it; but man (undertook to) bear it. Indeed, he was unjust and ignorant. (It was) so that Allah may punish the hypocrite men and hypocrite women and the men and women who associate others with Him and that Allah may accept repentance from the believing men and believing women. And ever is Allah Forgiving and Merciful.”

(Al- Ahzab : 72-73)

According to Ibn Kathir (2012) Al-Aufi reported that Ibn Abbas said, *al-Amanah* means obedience. This obedience was offered to them before it was offered to Adam, and they could not bear it. Then Allah said to Adam ‘I have offered the *Amanah* to the heavens and the earth and the mountains, and they could not bear it. Will you take it on? He said, ‘O Lord, what does it involve?’ Allah said, ‘If you do good, you will be rewarded, and if you do evil, you will be punished.’ Then, Adam took the *Amanah* and bore it.

The above verse explains the rejection of *Amanah* given by Allah (SWT) to the heavens, the earth and the mountains. They are all concerned with their inabilities to take on *Amanah* and fear of causing treacherous that cause to be punished later (Shuhari et al., 2019). *Amanah* is refused to be taken by them not because they did not want to do that, and they were afraid of it, not because their intention was sinful, but because of their respect for the religion of Allah, in case they could not fulfill the obligations involved (Abdurrahman, 2013).

In some extend, in fintech transaction it is unchallenged to expose the information to public because that information being store in term of data. That data can be easily transfer or distribute from one to another in term of file or documentation. To ensure the integrity in fintech, the dependable on the technology should be focus on. For example, a backed blockchain technology in fintech is to assure the information store is immutable and permanently storage in the system (Landerreche & Stevens, 2018). In some extend, even the technology is highly recommended, towards the end an authorized person still need to control the transaction and have an ability to manage that technology. Due to that, that person itself should be someone that can be trusted and rely on to keep the information properly. This point supported in the narrated hadith by Imam Bukhari, 2631, hadith 26:

Narrated Abu Hurairah that the Messenger of Allah (S.W.T) said “The sign of a hypocrite is that whenever he speaks he lies, and whenever he makes a promise he does not fulfill it, and if he is entrusted he betrays.”

In addition, Imam Ahmad, 177, hadith 2, recorded that Abdullah bin Amr said that the Prophet Muhammad (PBUH) said:

“There are four things, if you attain them, then whatever you miss in this world will not matter: preserving trust, speaking the truth, being of good character and moderation in eating.”

The above hadith mentioned that, promise should be fulfilled, this is where the concept of trustworthiness takes place. The importance of trustworthiness in information security is very crucial. Any term and condition as stated in the contract or agreements should be followed well without breaching it. The information of participants should not only transfer to a third party, indeed the information should not be revealed to others. Therefore, the information should be protected in terms of physically and virtually. The information should be cared as the information belongs to their-self. Individuals shall be reluctant to reveal their personal data if they do not have trust. Therefore, people cannot trust somebody easily if they are unable to hide or unreveal their personal information (Lubis & Kartiwi, 2013).

Surveillance

The third element of integrity in fintech in securing the information is surveillance. Surveillance in fintech context means the precautionary actions to ensure the information is being taken care well from the cyber-attack since fintech is booming but vulnerable to cyber-attacks (Whitburn, 2019). The surveillance in fintech is to safeguard the information and should be observed regularly to avoid hacking in the information. While, from an individual perspective, who handles that fintech, the consideration is to ensure that they are being observed and watched. From an Islamic perspective, nobody could escape from the surveillance of Allah SWT, indeed Allah SWT knows everything. This situation can be illustrated based on the Quran when Allah SWT says:

“Do you not realize that Allah knows everything in the heavens and everything on earth? There is no secret counsel between three, but He is their fourth; nor between five, but He is their sixth; nor less than that, nor more, but He is with them wherever they may be. Then, on the Day of Resurrection, He will inform them of what they did. Allah has knowledge of everything.”

(Al-Mujadilah : 7)

This verse stated that Allah SWT is All-Knowing and All-Aware, All-Hearing and All-Seeing and His being absolute in power. This is to make people realize that they may be holding secrets in safe and hidden places and may be able to conceal their plans from the world, but they cannot keep them concealed from Allah SWT (Abdurrahman, 2013). An individual might escape it from every power of the world, but they are unable to escape the grasp of Allah SWT. This verse can be applied in fintech, where the information in that system should be taken care well with full security to avoid any cyber-attack.

The use of technology while offering financial services to the participants are highly exposing the information to the cyber-attack. Therefore, in order to control the cyber-attack the financial sectors should emphasize on the use of a high security system of technology while offering their services. The cyber-attack of the stolen information from unauthorized parties can be reduced by implementing a high security system that is immutable to breach by a hacker. The security of the information can be offered in terms of installing and regularly updating antivirus and anti-spyware software, using two-factor authentication, using a firewall for internet connection, downloading and installing software updates for operating systems and applications and others (Tyler, 2018). Therefore, any application or technology being used as means for securing the information from unauthorized parties is treated as surveillance from a fintech view.

Truthfulness

The following element of integrity in fintech is truthfulness. This element should be apply by an individual either handling it with person or information. Truthfulness is one of Prophet Muhammad (PBUH) characteristic that most known as *siddiq*. From the fintech perspective, truthfulness on the information should be represent same as what have been agreed in the initial agreement. The information provided by participants should be deliver in a way presented by participants. The significant of truthfulness for human being is proven in the Quran verse:

“And mix not truth with falsehood, nor conceal the truth while you know (the truth)”.
(Al-Baqarah : 42)

According to the Ibn Kathir (2012), this verse means the prohibition of hiding the truth and distorting it with falsehood.

Allah will say, “This is a Day when the truthful will benefit from their truthfulness. They will have Gardens beneath which rivers flow, wherein they will remain forever. Allah is pleased with them, and they are pleased with Him. That is the great attainment”.

(Al-Maidah : 119)

In the Ibn Kathir (2012), Adh-Dhahhak saying from Ibn Abbas, the truthful shall benefit to the person who applied that in life and being rewarded in the hereafter.

“O ye who believe! Fear Allah and be with those who are true (in word and deed)”.
(At-Taubah : 119)

While, this verse means being and stand for the truthfulness. It able to safe from all kinds of perished and Allah shall shows a good way out for people (Abdurrahman, 2013). The information that being utilized for important matters should be stated correctly as agreed by participants. Any modification or alteration as mean for defraud purpose are disallowed either with or without the consent of participants to ensure the truth of information in financial transaction. Islam emphasize the truthfulness as narrated hadith by Muslim, 2607, hadith 134:

Abdullah reported Prophet Muhammad (S.A.W) as saying “Truth leads one to Paradise and virtue leads one to Paradise and the person tells the truth until he is recorded as truthful, and lie leads to obscenity and obscenity leads to Hell, and the person tells a lie until he is recorded as a liar.”

Based on the above hadith, truthfulness is very significant element that being emphasizes in Quran (Aziz, 2009). This element can be develop in the practice of fintech in financial sectors as means to secure the truthful information of participants. The information should be in intact, complete and accurate by not changes in any way as means to achieve the objective of financial sectors.

Accountability

The fifth element of integrity in fintech is accountability. Accountability is an act which leads to the ability of an individual to access the implication behind each action. Accountability

means there is responsibility towards any accomplishment. From Islam perspective, accountability means an individual has duties to be carried out and that person fully responsible for all actions and accountable to Allah (SWT) (Ather & Sobhani, 2008). Accountability in fintech perspective means the authorized person who apply the technology in any transaction should take a full liability of the undertakings and challenges without put that liability on anyone or anything else. Whoever provide the transaction based on technology should take a responsibility to any due negligence. This concept of accountability being mentioned in Quran:

Whoever has done an atom's weight of good will see it. And whoever has done an atom's weight of evil will see it.

(Az-Zalzalah : 7-8)

Denoted to Ibn Kathir (2012), this verse means that they will know and be rewarded for what have done in the world either in the form of goodness or otherwise. In addition, an atom's weight of good or evil done by a person, shall being recorded and he will see it in any case.

“And if Allah had so willed, He would have made you a people, but He misleads whom He wills, and guides whom He wills, and verily ye shall be questioned of what you used to do.”

(Al-Nahl : 93)

As summarize based on above verse, in the ethical aspect, individual will be held accountable for every word and deed. While, from fintech perspective, even most of the transaction performed by technology, the possessor of that technology must take responsibility on it. The conclusion is an individuals will be held responsible or accountable for errors or treacherous. If an individual fails to preserve the mandate or obligation then he will be liable to be repaid in person (Sahri, 2018).

Transparency

Transparency is the last element of integrity in fintech. Transparency is the principle of guarantees freedom related to the access or obtain an information about governance, making process, implementation, and the achieved results on it. The disclosure of information is expected to give the right for people to access the information (Gaventa & Mcgee, 2013). Transparency is an essential element to ensure that all the information regards to the transaction need to be explained and clarify well before clients get involved into the transaction. Any impact regard to the information provided by customers should be notify earlier and clearly. All the matters should be clarify to avoid any miscommunication in future. The financial institution should well disclose everything regards the transaction to ensure that the customers know the limit regards to the agreement or contract. According to Mikallu and Maishanu (2008), the concept of transparency has been divulged by Allah SWT in the following verse in the Quran. In the beginning verse it's stated that every transaction must be written to avoid injustice.

“O ye who believe! When ye deal with each other, in transactions involving future obligations in a fixed period of time, reduce them to writing Let a scribe write down faithfully as between the parties: let not the scribe refuse to write: as Allah Has taught him, so let him write. Let him who incurs the liability dictate, but let him fear His Lord Allah, and not diminish aught of what he owes.....”

Represented in Ibn Kathir (2012), this verse shows that one cannot show slackness in writing down the transaction, whether it is small or large in term of its payment. That is fairest in the sight of Allah SWT, more solid as evidence, and more convenient to prevent doubts among yourselves (Abdurrahman, 2013). Transparency and openness objective is to explain how the responsibility to be carried on, what methods are used to carry out the task, how the reality of implementation and what impact of it (Taufiq, 2015). In simple word, transparency means all the information need to be disclose to the authorized person as it will giving an impact to the person. Through the transparency in technology, the possessor of technology, which is financial institution, should give a right to customers to understand the transaction behind that technology. Hence, customers can visibly know without any cover-up of the transaction process that implemented by financial sector. From the Islamic perspective, transparency is very important especially to the use of technology in the financial sector. Transparency in Islamic perspective specifically looking into the information that remain open and informative about key point of the information. While, in fintech, transparency is about the technology being used in the financial sector. The technology should be explained clearly to customers to avoid any hidden information from them. Transparency is a key of fintech credibility, due to that the transparency should remain primary for the financial sector (Stern, 2016). Figure 2 illustrated a summary of graphical findings of on the elements of integrity of fintech in information security from Islamic perspective.

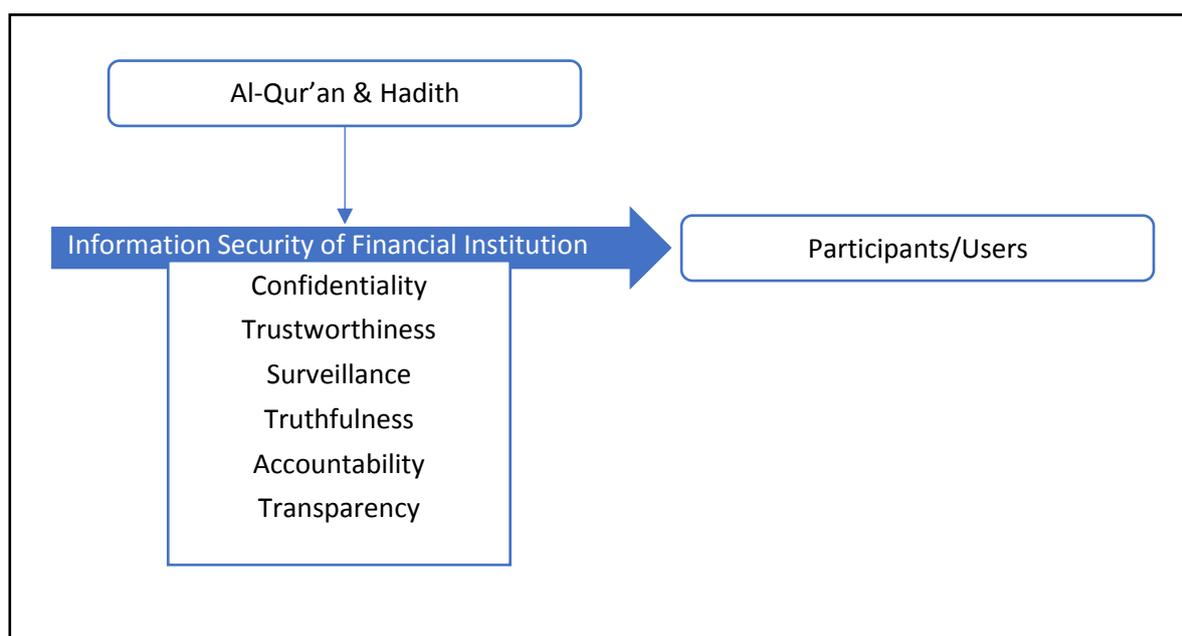


Figure 2: The elements of integrity of fintech in information security from Islamic perspective

CONCLUSION

The integrity of fintech in information security indeed significant for all participants in financial sectors. Islam justify integrity in the highest place that should be follow by human being. Integrity in all matter should be prioritize in fintech especially when dealing with participant's information. The element of integrity in fintech not only entitled to the technology being used instead to an individual who gather the information from that technology. Internally that system is running by technology but externally the system are handling or manage by individuals. The integrity of fintech in information security from

Islamic perspective should be analyze from six element which is confidentiality, trustworthiness, surveillance, truthfulness, accountability and transparency. The revolution of fintech is potentially to reshape the finance industries from traditional system to contemporary system by embracing it with the balancing between innovation and security. The challenge is to have a vivid regulatory framework for information security. For fintech to truly flourish, it is important to provide a process and standard of technology that can ensure the security of customers and proprietary information. All players in the financial sectors need to work together closely to create a seamless and robust security environment in fintech. This study can be extended in the future by specifically focusing on the technology in fintech such as blockchain technology. The recommendation for future research is to go through in details to each technology in fintech and use the elements found as the framework. In some extend, the elements of integrity in fintech could be leverage to others elements as it is based on the necessities of technology.

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