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Smart Contract in Blockchain: An Exploration of Legal Framework in Malaysia

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Abstract: In 2017, the global Blockchain technology market was predicted to reach 339.5 million U.S. dollars in size and is forecasted to grow to 2.3 billion U.S. dollars by 2021. The smart contract has an increasing role in governing the legal relationship between the interested parties. This research explores the current position of smart contracts in Malaysia and the viability of the Malaysian framework in handling the latest development. This research adopts the qualitative and doctrinal legal approaches in analysing the current legal practice, the relevant statutes and the viability of the Malaysian legal framework. These approaches are necessary to be carried out in ensuring the workability of smart contracts in Blockchain. Additionally, the practices of smart contracts from international experiences are collected as case studies in this research. As a part of the findings, the researchers found that smart contracts are more or less similar to traditional contracts. Therefore, the requirements as stipulated under the Contract Act 1950 that are applicable in Malaysia must be followed accordingly. In this study, based on the nature of Blockchain

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technology, the researchers evaluate the current position of Malaysian laws in dealing with smart contracts. Additionally, the researchers also looked at the acceptable legal practice of smart contracts in Malaysia.

Keywords: Smart contract, Blockchain, Fintech, Contract Act 1950, and Malaysia.

Abstrak: Rantaian blok atau blockchain menerima peningkatan popularitи sehubung dengan pelaburan digital, matawang kripto, dan teknologi kewangan (fintech). Pada tahun 2017, pasaran teknologi rantaian blok di peringkat global dijangka mencecah US$339.5 juta dan dijangka bertambah kepada US$2.3 bilion menjelang 2021. Kontrak pintar (smart contract) mempunyai peranan yang semakin bertambah dalam mengawal hubungan undang-undang antara pihak-pihak yang berminat. Makalah ini mengkaji kedudukan semasa kontrak pintar dan daya maju rangka perundangan di Malaysia dalam menghadapi kemajuan teknologi tersebut. Penyelidikan ini menggunakan pendekatan kualitatif dan pendekatan doktrinal dalam menganalisis amalan undang-undang semasa, undang-undang yang berkaitan dan daya maju rangka perundangan *di Malaysia. Pendekatan ini perlu dijalankan untuk memastikan* kesesuaian kontrak pintar dalam rantaian blok di bawah undang-undang yang terpakai di Malaysia. Di samping itu, amalan kontrak pintar dari pengalaman antarabangsa dikumpulkan sebagai kajian kes dalam kajian ini. Sebagai sebahagian daripada penemuan, para penyelidik mendapati bahawa kontrak pintar adalah bersifat lebih kurang sama dengan kontrak tradisional. Oleh itu, syarat yang ditetapkan di bawah Akta Kontrak 1950 yang terpakai di Malaysia mesti diikuti dengan sewajarnya. Dalam kajian ini, berdasarkan sifat teknologi rantaian blok, para penyelidik menilai kedudukan semasa undang-undang Malaysia dalam menangani kontrak pintar. Di samping itu, para penyelidik juga melihat amalan undang-undang yang boleh diterimapakai berkaitan kontrak pintar di Malaysia.

Kata Kunci: Kontrak pintar, rantaian blok, teknologi kewangan, Akta Kontrak 1950, dan Malaysia.

Introduction

Closely related to the famous cryptocurrency or Bitcoin, a new technology was unleashed to the world and it was known as Blockchain. With the increasing popularity of Bitcoin, Blockchain technology has received an increasing interest from the public. This innovation is considered important, especially with vast public and private sectors that are gradually adopting Blockchain in their systems. Based on Statista Report 2017, there is a gradual increase worldwide in the size

of Blockchain technology market. It is predicted that the said market value is reaching 339.5 million U.S. dollars and with a forecast to grow up to 2.3 million U.S. dollars by 2021 (Statista Report, 2017). This statistic portrays the increasing demands on Blockchain technology and the shift of the global market towards more innovative Fintech based transactions. With such increase, a new form of contract i.e. smart contract gains significance in daily digital transactions.

In Malaysia, there is an increasing interest in the utilisation of Blockchain technology and smart contracts. The Central Bank of Malaysia issued the Financial Technology Regulatory Sandbox Framework on the 18th of October 2016 (The Central Bank of Malaysia, 2018). Thus, from the perspective of the legal framework of Malaysia, this chapter seeks to achieve four main objectives. These objectives are: (i) to explore the current position of smart contracts in Malaysia, (ii) to identify the viability of the Malaysian legal framework in facing the practices of smart contracts, (iii) to analyse the international experiences in practising smart contracts as case studies, and (iv) to evaluate the current position of Malaysian laws in dealing with smart contracts.

Additionally, the study also looks at the acceptable legal practice of smart contracts in Malaysia. Based on a best practice approach, the researchers provide some recommendations at the end of the discussion. This research is carried out based on a qualitative research method. In analysing the legal framework of Malaysia, a doctrinal legal method is employed in exploring the existing laws and legal practices of smart contracts.

The Operation of Smart Contract

In normal transactions involving sale and purchase agreement, the involved parties usually agree to the terms of an agreement and conclude it with an exchange of asset and payment of money. Under the English Common Law, which also regulates *Sharī'ah*-compliant transactions in Malaysia, the traditional contract depends on four main elements. These main elements are: (i) offer, (ii) acceptance, (iii) consideration, and (iv) intention to create legal relation (which usually presumed or derived from the conducts of the parties). A traditional contract can be formed either directly or indirectly. The direct form can be done with a face-to-face offer and acceptance (this can be done orally or with understandable sign language), with a certain payment as consideration

and the exchange of the goods or asset on the spot. While, the indirect form of contract can be concluded via writing or exchanges of letters or emails with indications of offer and acceptance. Later, it can be transmitted with the exchange of payment as a consideration for the goods or assets. The sealed agreement itself can be treated as binding and can be considered as a kind of record between the parties.

Unlike the normal transaction, the smart contract in a digital transaction (such as for the purpose of sale and purchase) has its own complexities. The early practice of smart contract can be traced to the operation of digital vending machine. The inventor of smart contract i.e. Nick Szabo (a computer scientist and cryptographer) explained that "The basic idea of smart contracts is that many kinds of contractual clauses (such as liens, bonding, delineation of property rights, etc.) can be embedded in the hardware and software we deal with, in such a way as to make breach of contract expensive (if desired, sometimes prohibitively so) for the breacher. A canonical real-life example, which we might consider to be the primitive ancestor of smart contracts, is the humble vending machine. Within a limited amount of potential loss (the amount in the till should be less than the cost of breaching the mechanism), the machine takes in coins, and via a simple mechanism, which makes a beginner's level problem in design with finite automata, dispense change and product fairly. Smart contracts go beyond the vending machine in proposing to embed contracts in all sorts of property that is valuable and controlled by digital means" (Szabo, 1996). As predicted by Szabo earlier, smart contract reaches its highest potential within the digital transaction depending on the use of cryptocurrency and recorded by Blockchain.

The application of smart contracts gains a momentum when the parties that participated in the use of cryptocurrencies want to have a solid financial obligation in the exchange of asset. The first use of smart contract in Blockchain can be traced from to the operation of Ethereum. Unlike Bitcoin, Ethereum as the Blockchain platform ties down the exchange of ether (the cryptocurrency token) and the asset to the terms of smart contract. Unlike the hardcopy and printed version of an agreement, smart contract is attached and depends on the Blockchain as the digital ledger system.

Blockchain and Smart Contract

The early introduction of Blockchain technology can be traced back to Satoshi Nakamoto in 2008 through a white paper titled *Bitcoin: A Peer-to-Peer Electronic Cash System*. Basically, Nakamoto proposed for "a system for electronic transactions without relying on trust… with the usual framework of coins made from digital signatures, which provides strong control of ownership…" (Nakamoto, 2018). Such system is supported with "a peer-to-peer network using proof-of-work to record a public history of transactions" (Nakamoto, 2018). At the early stage, Blockchain technology is used as the underline technology for the operation of digital money or cryptocurrency that is called Bitcoin. Later, the said technology continues to be developed which enable new usage and spread to other industrial systems. As the underlined platform for creation of smart contracts, Blockchain is important as the recording digital ledger system for any changes done to the smart contracts or their terms.

In comparison to another earlier established technology like TCP/IP (transmission control protocol or internet protocol) in 1972 which gave birth to the development of the Internet. Blockchain technology stands with significant advantages to smart contracts. According to Williams (2017), these advantages can be traced from: (i) transparency, (ii) less costs of transaction, (iii) speedy settlement of transaction, (iv) user-controlled networks, and (v) decentralisation.

(i) Transparency is important, especially when it involves finance, business and trades. Blockchain technology receives a round of applause from investors when it comes with a transparency feature. Blockchain technology ensures that it is always an open source that is visible to the public. There is no secrecy with Blockchain. Any user has the chance to modify it as it fits with their businesses or transactions. Even though, Blockchain technology is open source, it does not mean it is easy to be modified. The logged data of the Blockchain is extremely difficult to be modified because any single action is visible to everyone in the network. Moreover, anyone in the network can go and check the modified logged data. With any improper modification of logged data within Blockchain, everyone in the network can be alarmed and the person who modifies it can be easily detected. This kind of open access security is added value to Blockchain technology.

(ii) Blockchain technology has the capacity to lessen the costs of transaction. Under Blockchain technology, an emphasis is given to peer-to-peer transactions. This peer-to-peer transaction allows the conclusion of business-to-business without any existence of intermediary or third party. Without the existence of any intermediary or third party, the transaction can be completed directly and without any increase of costs or any kind of related fees. This eventually leads to reduction of costs for every transaction.

(iii) Speedy settlement of transaction can be ensured with peer-to-peer transaction under Blockchain technology. Instead of having the time consuming, lengthy and complicated processes or procedures, Blockchain technology can be used for settlements of transactions within 24 hours. With different time zones around the globe, Blockchain technology ensures that business can be carried out around the clock. This advantage has the ability to multiply the settlements of transactions and speed up the profit-making process. It is also a convenience to investors, regardless of their different places and time zones.

(vi) Blockchain technology appreciates the user-controlled networks. This means, instead of depending on one particular party to control the networks, the users of the Blockchain have the privilege to control it. Any changes in the network can be detected and known to the users of the network.

(v) Blockchain technology also celebrates the decentralisation of central data hub which allows the operation of individual transactions. Without going through into a certain data centre, the validity and authorisation of individual transactions can be carried out without any restriction of approval. Moreover, when there is a lea in information, Blockchain technology ensures that only a small amount of information can be obtained due to the usage of individual servers. The decentralisation may be viewed negatively since it "was conceived by many as disruptive, as it challenges not only the current operating model and protocol, but it also tries to disconnect human conduct from a centralised power hierarchy" (Bakar, 2018). According to Buterin, the decentralisation of Blockchain indicates "politically decentralised (no one controls them) and architecturally decentralised (no infrastructural central point of failure) but they are logically centralised (there is one

commonly agreed state and the system behaves like a single computer" (Buterin, 2017).

Thus, when the Blockchain technology is adopted or improvised, it does not mean it can be excused from being legally regulated. It also indicates that the roles of legal and regulation may have become more important than previously accepted. Moreover, Blockchain has the potential to effectively record any changes in smart contracts.

Currently, there is no definite or precise definition of smart contracts under the existing Malaysian laws. Under the National Institute of Standards and Technology, US Department of Commerce, they defined a smart contract as "… a collection of code and data (sometimes referred to as functions and state) that is deployed to a Blockchain (e.g. Ethereum)" (Yaga *et al*, 2018).

Prior to the researchers from National Institute of Standards and Technology, Szabo explained in another short version of definition that smart contract is "a set of promises, specified in digital form, including protocols within which the parties perform on these promises" (Szabo, 1995). The researchers of National Institute of Standards and Technology (US Department of Commerce) explained the operation of smart contract as "Future transactions sent to the Blockchain can then send data to public methods offered by the smart contract. The contract executes the appropriate method with the user provided data to perform a service. The code, being on the Blockchain, is immutable and therefore can be used (among other purposes) as a trusted third party for financial transactions that are more complex than simply sending funds between accounts" (Yaga *et al*, 2018).

Instead of having written clauses in a piece of paper like the traditional contract, smart contracts depend on the use of code in computer language. The clauses of the smart contracts appear virtually and the Blockchain records themself within a specific block, together with the process of offer and acceptance between the network's users. Figure 3 shows the smart contract's basic code that was used in the Ethereum's blockchain. The terms of the smart contract are encoded to the Blockchain.

Blockchain and Smart Contract in Malaysia: A Change in Regulations

Closely influenced from the global finance and business market, Malaysia has an earlier exposure to the Blockchain technology through its robust dual banking and financial services. With the growing momentum of cryptocurrencies such as Bitcoin and Ethereum among the investors at the global scale, the Central Bank of Malaysia takes a cautious step in ensuring the safety of Malaysian local finance and business market. On the 2nd of January 2014, the Central Bank of Malaysia declared that the Bitcoin is not to be treated as a legal tender in Malaysia, and thus the operations of Bitcoin are not regulated under the supervision of the Central Bank of Malaysia. Based on their official statement, any member of the public that invested in the Bitcoin were advised to be cautious with the usage of Bitcoin and its related risks (The Central Bank of Malaysia, 2014). Later, on February 2014, the advice from the Central Bank of Malaysia was viewed positively especially with the loss of 850,000 Bitcoins that valued USD$450 million from the world largest Bitcoin exchange Mt. Gox (Greenberg, 2014).

Reaching towards 2015, majority of Central Banks of the developing and developed countries started to make their own pilot experiments with digital currencies, Blockchain technology, and smart contracts. According to the Economist, they identified that: "All large banks already have teams poring over Blockchain. Many of their back-office settlement platforms seem destined for a move to decentralised ledgers. One barrier is the difficulty of finding staff who can get them up to speed on the technology" (*The Economists*, 2015). Moreover, the legal obligations of the banks and their customers become more complex and the digital transactions need to be tied down to smart contracts. In catching up with the regulatory trend, the Central Bank of Malaysia issued the Financial Technology Regulatory Sandbox Framework on 18th of October 2016 (The Central Bank of Malaysia, 2016).

The said Sandbox Framework incorporated the proposals outlined in the discussion paper issued in July 2016. The related administering laws that are relevant to the said Sandbox Framework are: (i) the Financial Services Act 2013, (ii) Islamic Financial Services Act 2013, (iii) Development Financial Institutions Act 2002, and (iv) Money Services Business Act 2011. With another advance step, the Central

Bank of Malaysia is planning to issue regulations on cryptocurrencies by the end of March 2018. The draft of the regulations for cryptocurrency exchanges is made available in the Central Bank of Malaysia's website since December 2017 (De, 2018).

Moreover, an amendment is made to the Anti-Money Laundering and Counter Financing of Terrorism (AML/CFT), specifically on Digital Currencies (Sector 6) (The Central bank of Malaysia, 2018). The amendment is made pursuant to the Guidance for a Risk-Based Approach for Virtual Currencies issued by the Financial Action Task Force on June 2015. Any form of crypto-currency exchange (crypto-to-fiat, or fiat-to-crypto, or crypto-to-crypto), the identity of the trader must be fully recognised. The trader cannot be treated as an anonymous as previously practiced.

There is also a new trend of crimes involving digital assets and mining machines. Recently, a local newspaper reports that police officers from Malaysian Criminal Investigations Department have arrested nine suspects for thefts of Bitcoin mining computer equipment that valued approximately RM1 million since January 2018 (Tee, 2018). However, it is apparent that no changes are made relating to Malaysian Penal Code for misuse of digital currencies or fraud in the usage of Blockchain technology or smart contract. Up to 2018, the crimes that involved digital assets, mining machines, misused of digital currencies or fraud in the usage of Blockchain technology or smart contract are still scarce in Malaysia. Thus, it does not warrant any possible change to the applicable laws. However, this position may be changed in the future.

Blockchain transactions as transpired from the booming Islamic financial services industry in Malaysia are also emerging Fintech companies that offer the use of Blockchain and smart contracts that are in compliance with *Sharī'ah* nature. While, the position of cryptocurrencies received mixed feedback from Muslim scholars. Majority of Muslim scholars are divided into two main groups. The first group said that the cryptocurrency is prohibited due to elements of *Gharar* (uncertainty) and *Maysir* (speculation). The second group insisted that the cryptocurrency is permissible based on *Maṣlaḥah* (public interest). Such a situation does not constrain the Fintech companies to come out with their version of Blockchain and smart contracts that they considered *Sharī'ah* compliance. The great efforts can be traced

from several Fintech companies. For examples, it is provided here two Fintech companies i.e. HelloGold and Finterra claim to be *Sharī'ah* compliant in providing platforms for smart contracts and Blockchain.

- HelloGold: It introduced the first *Sharī'ah* certified gold-backed cryptocurrency or GOLDX. The *Sharī'ah* consultation is carried out by Amanie Advisors. Every single GOLDX token issued by the HelloGold is backed up with an existing and physical gold. The Gold is stored in a secured vault in Singapore. By employing Blockchain technology, the HelloGold's Chief Executive Officer Mr. Robin Lee hoped for "democratize assets such as gold for the mass market" (Cosseboom, 2018). According to Mr. Robin Lee, it is important to have a high standard for the usage of Blockchain (Cosseboom, 2018). Based on their website, the clarification on the operation of GOLDX's Blockchain and smart contract is not presented; unless with a serious participation with the GOLDX (learning t
- Finterra: It introduced the world's first philanthropic Blockchain that is called Finterra Endowment (*Waqf*) Chain. Since it is based on the instrument of *Waqf*, it must accordingly follow the *Sharī'ah* compliance nature. They utilised a crowdfunding platform that depends on Blockchain technology which eventually creates the smart contracts. These smart contracts will be linked to certain *Waqf* projects. According to Finterra's Chief Executive Officer Mr. Hamid Rashid, "We are trying to change the financial terrain in its approach to crowdfunding and development of *Waqf*". Based on their official website (Finterra, 2018), the operation of the *Waqf* Blockchain is described as a structured transaction where (i) the tokens are backed by real assets, (ii) the dividends earning tokens, and (iii) tokens are transferable. This is expected to be the first successful project to have *Waqf* on the Blockchain.

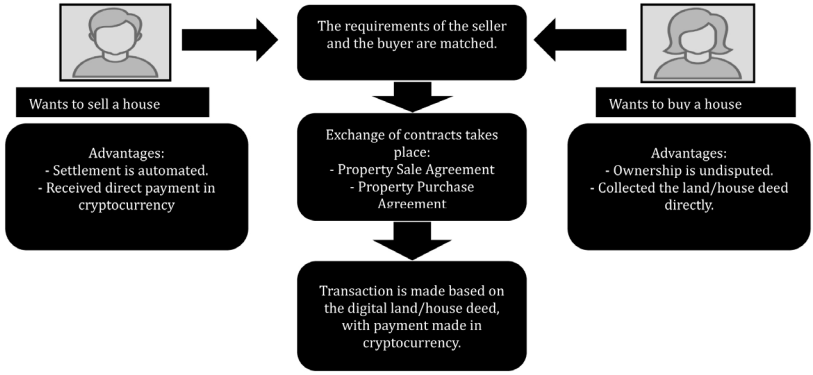
There is an apparent increase in the usage of Blockchain technology and smart contracts in Malaysia. According to the International Data Corp. (IDC), Malaysia was predicted to spend in 2018 worth of US$17.57 billion on technology, where 50% goes to telecommunications. Moreover, the gross domestic product (GDP) in Malaysia is predicted to be at least 20% digitalised by 2021. Based on analysis made by Datuk

Seri Nazri Razak (former CIMB Group Chairman), "Transactions in Malaysia are projected to be almost 'cashless' by 2025, given rate of development in today's technology, coupled with the fierce race to profit from optimising technology in banking" (Daily Express, 2018). With such situation, it is important for Malaysia to have a viable legal framework.

When it comes to a smart contract, it is important to know that the terms of the contracts are coded in a certain computer algorithm. This certain computer algorithm is a series of instructions (step by step) that execute immediately and automatically to the next step. These series of steps will be continued until the transaction cycle is completed. This kind of smart contract can be recognised legally when it fulfils the required conditions stipulated by the laws. In Malaysia, the main reference for smart contract is the Contracts Act 1950. One may argue that Contracts Act 1950 is only suitable for traditional contracts. However, regardless of how innovative the smart contract is, it needs to fulfil the required main elements in obtaining its validity and legality. Faster in comparison to the traditional contract, the smart contract has the ability to secure and record all transactions from the automate execution to settlement of the contract. Moreover, with the existence of Blockchain, the data of the contract is stored in every computer within the network. Once the smart contract is concluded, it is difficult to repudiate its existence. Thus, there are two important parts of smart contract that does not employ the traditional contract, i.e. (i) recorded transactions, and (ii) automated ledger.

Upon the agreement of the parties to the coded terms of the contract, they may place their cryptographical signature or digital signature on the smart contract. Later, the smart contract is automatically recorded in the Blockchain distributed ledger. Upon conclusion of the smart contract, the computer programme will automatically update the subsequent action. The subsequent action is the final action that depends on the regulators of the network. The final action for a smart contract of Blockchain that is created by a specific Fintech company depends on their final evaluation and control. In relation to confidentiality, the details of the concluded contract between the parties may be controlled by using the Blockchain.

Figure 1.0: Operation of Smart Contract



Source: Authors' own

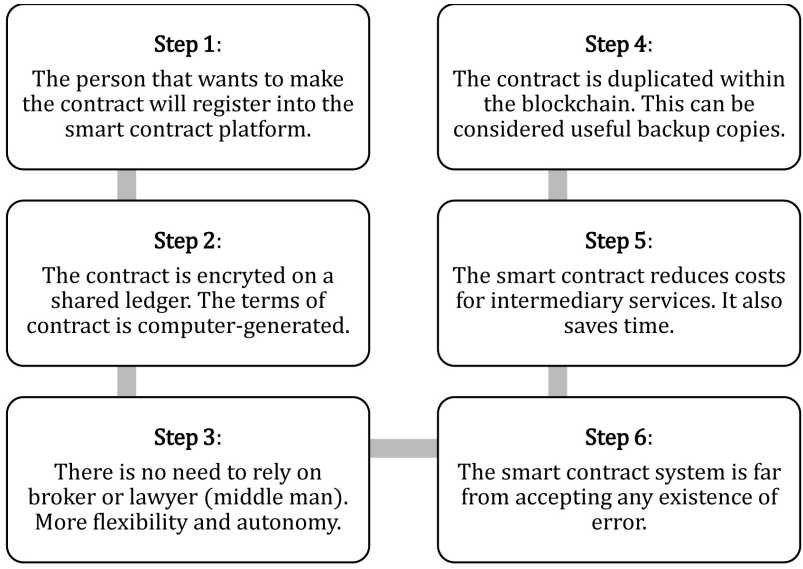
The consideration of the smart contract can be done through two main methods, which are: (i) digital assets or on-chain assets, and (ii) physical assets or off-chain assets. The digital assets are in the form of cryptocurrencies. When the party has cryptocurrencies stored within his cryptocurrency's wallets or accounts, the consideration or payment for the transactions can be completed automatically without any delay. This can be considered similar to the practice of payment on the spot in the real word. If the consideration or payment is completed with physical assets, the smart contract is tied down to exchange of stocks or payment with tangible fiat money or any other form of valuable materials such as gold. All of these transactions are recorded in the Blockchain distributed ledger. Based on the stipulated provisions of Contracts Act 1950, the most important and relevant provisions are listed as follows:

- Section 10 (1) Contracts Act 1950 states that: "All agreements are contract if they are made by the free consent of parties competent to contract, for lawful consideration and with lawful object, and are not hereby expressly declared void";
- Section 2 (a) Contracts Act 1950 (offer): "When one person signifies to another his willingness to do or to abstain from doing anything, with a view to obtaining the assent of that other to the act or abstinence, he is said to make a proposal".
- Section 5(1) Contracts Act 1950: revocation can be made at any time before communication of acceptance is complete.

- Section 2(b) Contracts Act 1950: Acceptance is a final and unqualified assent to all the terms of the offer.
- Section 2 (d) Contracts Act 1950: "When at desire of the promisor, the promisee or any other person has done or abstained from doing, or does or abstains from doing, or promises to do or to abstain from doing, something, such act or abstinence or promise is called a consideration for the promise".

The abovementioned provisions of Contracts Act 1950 must be followed accordingly in the process of smart contract. This is essential to avoid any disputed issue that may bring the involved parties of smart contract to the court of law.

Figure 2.0: Flow of Smart Contract



Source: Authors' own

International Experiences in Practising Smart Contracts

In viewing the international experiences in practising smart contracts of Blockchain technology, this study chooses several countries in different regions based on their advancement in the Blockchain technology. Their experiences are provided as follows:

Australia: There is no reported case recorded concerning smart contract in Australian courts. Australian legal firms are amongst the earliest firms that embarked into a process of learning and training about Blockchain technology and smart contracts. One of the legal firms in Australia, known as Allens published a comprehensive report titled "Blockchain Reaction" which considers the regulatory and legal challenges that may be faced in Australia due to the adoption Blockchain technology and smart contract (Allens, 2016). Another legal firm of King Wood and Mallesons published an open source report titled "Digital and Analogue (or DnA) smart contract architecture" that tried to bridge the gap in development of smart contract (Thomson Reuters, 2016). Gilbert and Tobin had a full day workshop with Taylor Gerring the co-founder and advisor of Ethereum Foundation (Thomson Reuters, 2016). Hall & Wilcox also made their participation with their client Westpac in the Westpac's BlockHack 16 to know further about the application of Blockchain technology (Thomson Reuters, 2016). Mr. Michael Bacina from Piper Alderman observed the current legal issues for smart contracts in Australia by saying: "A legally enforceable smart contract must still meet all the

traditional elements of a binding contract. Any duress, undue influence or unconscionable dealings could render a smart contract void at law, despite being potentially unstoppable in the digital world. Of particular concern are the purest 'the code is the contract' smart contracts, lacking any notification of their terms as the terms exist only in machine readable code. The identity of the other party to the contract, or whether that party has capacity to enter into the contract, is usually unknown. Australian courts are yet to address a smart contract dispute" (Bacina, 2017). Based on research, it is considered as a good practice in Australia to reduce the

smart contract into printable format, instead of leaving it virtually on the Blockchain distributed ledger.

United States of America: the legal movement of cryptocurrency laws in USA can be observed as aggressive with the competition States to become the first crypto capital. Pioneer laws can be traced to Tennessee and Arizona. In California, an Assembly Bill 2658 was introduced to update the laws on electronic records on Blockchain signatures and smart contracts. The said Bill submitted by Ian Calderon

an Assembly member expands the definition of electronic records and signature as provided under the Uniform Electronic Transactions Act. The wording of the said Bill is "a record that is secured through Blockchain technology is an electronic record". The current law stipulates that "a record or signature may not be denied legal effect or enforceability solely because it is in electronic form and that a contract may not be denied legal effect or enforceability solely because an electronic record was used in its formation". The said Bill is currently approved by Governor of California, it was approved on the 28th of September 2018 and it was filed with the Secretary of State on the same date. The accepted Bill (now an Act) focuses to add and repealed Sections 11546.8 and 11546.9 of the Government Code on the use of Blockchain technology (California Legislative Information, 2019). Beside of having the introduction of the new cryptocurrencies' laws and amendments to electronic transactions laws, there were recorded cases in US that related to money laundering. There is no landmark decision from US courts concerning smart contracts as of yet.

Europe: in this region, Malta becomes the first country that has a robust legal framework with their own version of crypto-friendly laws. As the Maltese Parliament officially passed three purposed Bills into Acts on the 4th of July 2018, the practice of Blockchain, cryptocurrency and distributed ledger technology are accepted in positive vibe (Forbes, 2018). The said Acts are: (i) Malta Digital Innovation Authority Act introduced the Malta Digital Innovation Authority that is responsible to certify any distributed ledger technology platform. (ii) Innovative Technology Arrangement and Services Act governs the setting up of companies that involve in the cryptocurrency market, and (iii) Virtual Financial Assets Act that covers the provisions relating to ICOs, exchanges in cryptocurrency, wallet providers, and etc. These Acts are important to protect the market integrity, industry, and stakeholders' legal protections, especially for the consumers.

Earlier in 2018, the Government of Spain indicated that they would have their own Blockchain-friendly legislation with possibility of tax incentives. According to MP Teodoro Garcia Egea, the new legislation was expected to be completed by the end of 2018 (Coin Telegraph, 2018). However, reaching towards March 2019, there is no new update on the new legislation from the Government of Spain. The motivation behind the new legislation is to make Spain as the first country to have

the safest framework in the investment of Initial Coin Offerings in Europe.

There is an active movement made by the European legislatures to have cryptocurrency laws and electronic transactions. However, there is no recorded case from European courts concerning to Blockchain and smart contract directly. However, there is a significant increase in money laundering cases. According to Director of Europol, around 5.5 billion US dollars is laundered in Europe through various types of cryptocurrencies.

England: John Thomas (Baron Thomas of Cwmgiedd) is one of the top and long serving judges for England and Wales, he made a statement about Blockchain technology and smart contract. As the Lord Chief of Justice for England and Wales and most senior judge, Baron Thomas indicated that the UK law may require certain updates when it comes to digital currencies, Blockchain and smart contracts. He recommended for an establishment of independent body to monitor and recommend reform actions on the legal development in UK to the government. Baron Thomas said: "Certainly, the European Commission takes the view that legislative change will be needed to deal with new forms of contract such as the Blockchain and smart contracts. I have no doubt that we must consider whether our law (as it will then be) will need similar legislative updating" (Higgins, 2017). There is also an initiative made by the UK Law Commission to do a new research project on how Blockchain-based smart contracts can keep the competitive environment within the global market (Coin Law, 2018).

Catching up with the booming industry, University of Oxford through their Law Faculty initiated a research collection on law and technology. This is important to ensure their young legal talents are coping up with the latest changes in the industry (Oxford Law Faculty, 2017). They also offer to the public a 6 week online short course through their Oxford Blockchain Strategy Programme under their Business School. Besides having a few money laundering cases, there is no recorded case directly concerned about smart contracts in England. There is also an absence of any amendment to their laws.

The Viability of the Malaysian Legal Framework for Smart Contracts

When viability is mentioned here, it indicates to the practicality of Malaysian legal framework in facing the new innovation of smart contracts that directly or indirectly interlink with Blockchain technology. As a highly regulated country, it is interesting to see that Malaysia already has a rather comprehensive legal framework in catching up with Blockchain and smart contracts. These laws are important to protect all the relevant stakeholders, especially the customers. It seems that only minor amendments or a guideline can be done to the legislations, instead of having an in-depth introduction of a new legislation. The viability of the laws is summarised as follows:

- Banking and Financial Laws: under this category of laws, there are several important legislations that can be referred to. Among others, the laws are: (i) the Financial Services Act 2013, (ii) Islamic Financial Services Act 2013, (iii) Development Financial Institutions Act 2002, (iv) Money Services Business Act 2011, and (v) Financial Technology Regulatory Sandbox Framework.

- Security and Criminal Laws: under this category of laws, the most visible laws are: (i) *Anti-Money Laundering*, *Anti-Terrorism Financing* and Proceeds of Unlawful Activities *Act* 2001 (AMLA); (ii) Malaysian Penal Code, (iii) all the guidelines under the authority of CyberSecurities Malaysia, (iv) Computer Crimes Act 1997, and (v) Prevention of Corruption Act 1961.

- Customers Protection Laws: (i) Consumer Protection Act 1999 (which the researchers propose for the inclusion of new part relating to digital assets); (ii) Personal Data Protection Act 2010; (iii) Consumer Protection (Electronic Trade Transactions) Regulations 2012.

- Digital and Multimedia Laws: the relevant laws are: (i) Electronic Commerce Act 2006, (ii) Electronic Government Activities Act 2017, (iii) Digital Signature Act 1997, (iv) Digital Signature (Amendment) Act 2001, (iv) Communication and Multimedia Act 1998, (v) Copyright Act 1987, (vi) Trademarks Act 1976, and (vii) Patents Act 1983.

- Business and Competition Laws: the relevant laws are: (i) Companies Act 2016, (ii) Partnership Act 1961, (iii) Limited Liability Partnership Act 2012, (iv) Contract Law 1950, and (v) Competition Act 2010.
- Taxation and Revenue Laws: the relevant laws are: (i) Income Tax Act 1967, (ii) Guidelines on Taxation of Electronic Commerce, (iii) Goods and Services Act 2014, (iv) Digital tax (which is yet to be announced by the end of 2018).
- Dispute Resolution Regime: it related to court system in Malaysia and alternative dispute resolution regime. The relevant laws are: (i) Mediation Act 2012, (ii) Arbitration Act 2005, amended by Arbitration (Amendment) Act 2011, and (iii) the Rules of Court 2012.

In relation to *Sharī'ah* compliance nature of Blockchain and smart contracts, a proper reference should be made to the principles of *Sharī'ah* accompanied with methodological aspects of Islamic jurisprudence. A careful treatment should be taken by the industry stakeholders and Muslim scholars in analysing the *Sharī'ah* compliance nature of Blockchain and smart contracts. This is necessary since they are new innovations that never exist during the time of Prophet Muhammad (SAW). The general rules on prohibition of *Gharar* (speculation), *Maysir* (gambling) and *Rib*ā (interest) must be taken carefully, especially when the products of the Blockchain and smart contracts involve *Ribawi* items such as gold and silver.

In Malaysia, with the establishment of Shariah Advisory Council under the Central Bank of Malaysia, it can be seen that the members of the Shariah Advisory Council are needed to increase their knowledge regarding to Blockchain and smart contracts. These new innovations can be treated as their new challenges in issuing rulings according to *Sharī'ah* principles. Thus, a careful treatment should be employed to every aspect of Blockchain and smart contract. Moreover, it is necessary to consider the mixed opinions of Muslim scholars globally when it comes to the permissibility of cryptocurrency.

Acceptable Legal Practice of Smart Contracts in Malaysia

As a part of the findings, the researchers found that the smart contracts of Blockchain technology are more or less similar with the traditional

contracts. Therefore, the requirements as stipulated under the Contracts Act 1950 that are applicable in Malaysia must be followed accordingly. The Malaysian legal framework can be considered viable and practical in facing these new innovations of Blockchain and smart contracts. However, it is recommended that the definition of electronic transaction is expanded to cover the smart contract and Blockchain transactions. Under the law of taxation, digital assets should be considered as taxable property. With the increasing number of Fintech companies that offer their services, it is necessary to avoid any existence of unhealthy competition among them.

When comes to *Sharī'ah* compliance nature of products offered by these Fintech companies, it is recommended to the Malaysian regulators and authorities to make a proper investigation on their operation, regardless whether they engaged with popular *Sharī'ah* advisors or famous *Sharī'ah* advisory firms. Such investigation is not to diminish the *Sharī'ah* advisors' reputations, but to ensure that the *Sharī'ah* compliance nature is not compromised due to high payment. Moreover, such a step is necessary to secure public trust and Malaysia's reputation as the best Islamic investment market in the world. The researchers suggest for a certificate to be issued by the relevant Malaysian regulators and authorities to this so-called *Sharī'ah* compliance Blockchain and smart contract-based products after the investigation is carried out. A continuous independent examination to the Fintech companies by the regulators and authorities must be carried out annually to ensure that they are promoting and using proper *Sharī'ah* principles and fulfil the requirements of *Sharī'ah*.

In a matter of legal drafting, a concern should be placed on whether such computer codes manage to clearly portray the intention of the parties in doing their offer and acceptance. Moreover, regardless how paperless smart contracts are, a tangible proof must be presented before the court or the alternative dispute resolution channels in reaching into a just and fair decision. A reminder should be placed here that computer codes cannot be treated or accepted as terms of contracts especially when the computer codes cannot be understood.

Conclusion

Nowadays, the smart contracts of Blockchain technology are widely used to seal the transactions between the parties within the network.

The smart contracts generate new type of assets that are called digital assets. In order to have valid and binding contracts under the laws, it is necessary for this smart contract to fulfil the required elements as stipulated under the laws. It is also necessary to acknowledge that computer scientists are not lawyers and vice versa. Regardless of how the computer scientists claim that smart contracts are binding contracts, it is still the roles of the lawyers to examine the laws and legality of the smart contracts. Nevertheless, it is the responsibility of the computer scientist to come out with the correct computer codes for the smart contracts' terms. Thus, a bridging between these two different fields should be done through having proactive exchanges of knowledge and understanding.

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