

Legitimacy of Smart Contracts from the Perspective of Islamic Law: A Case Study of Blockchain Transactions

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Abstract

Blockchain smart contracts is a digital program based on the blockchain design that accommodates certain data stored in their internal logic. The decentralized nature of this technology prevents unauthorized access. This technology require the use of cryptocurrencies to be effectively utilized as a medium of exchange. While cryptocurrencies have received wide recognition as an improvement to modern business transactions. However, in the Muslim communities, Muslim scholars have divergent views on the permissibility and prohibition of cryptocurrencies on certain grounds. Islamic law is characterized by outstanding flexibility that enables it to keep pace with the development of time and place, and gives it the validity to interact to address emerging issues that stand in people's way. This study aims to examine blockhain smart contracts, how they work, the religious ruling surrounding its permissibility. As well as the consensus of Muslim Scholars on its usage by Muslim communities. The study adopts qualitative doctrinal, library based or normative judicial research to analyze blockchain smart contracts and their suitability and compatibility with Islamic law. By examining the law from the perspective of social reality, the researchers qualitatively analyzed the concept of

Smart contracts within the boundaries of law and its application under Islamic law. Delving into deductive reasoning and conclusions based on consensus of scholars. This study found that blockchain smart contracts falls within the permissibility principle, The Maliki school sale on credit and negotiations under the *ijtihadi* perspective. This research suggests the need for further study to shed light on this new type of contract to support its acceptability among Muslim communities.

Keywords: Islamic law; blockchain; cryptocurrency; smart contract

Introduction

As a result of the digital revolution sweeping across different aspects of human existence, a wide range of advanced technologies have emerged at an astonishing pace that seeks to shift financial and commercial activities from centralized regulating bodies to unregulated entities or platforms. One of the most prominent developments of this digitization is the smart contract technology associated with blockchains.

Smart contracts are computer programs stored on the blockchain that transforms traditional contracts into digital contracts.¹ Blockchain is a distributed ledger that is stored on nodes and is immutable and keeping a stored record securely.² Blockchain smart contracts is a digital program based on the blockchain design³ that accommodates certain data stored in their internal logic.⁴ It becomes decentralized,⁵ hence preventing unauthorized access and changes to be made.

Smart contracts from Islamic law perspective or in relation to Islamic law, have been well researched. While some researchers have argued in favour of smart contracts being in concert with Islamic law, some argue that smart contracts does not comply with principles of Islamic law. Antova and Tayachi, opined that the characteristics and conditions of blockchain aligns with Islamic

¹ Munawar Munawar, "The Legality of Smart Contract in the Perspectives of Indonesian Law and Islamic Law," *Al-Istinbath: Jurnal Hukum Islam* 7, no. 1 May (2022), <https://doi.org/http://dx.doi.org/10.29240/jhi.v7i1.4140>.

² Maher Alharby and Aad van Morsel, "Blockchain based smart contracts: A systematic study" *Computer Science & Information Technology (CS & IT)*, October, p 125 – 40 (217). <https://doi.org/10.5121/csit2017.71011>.

³ Kristian Lauslahti, Juri Mattila and Timo Seppala, "Smart contracts. How will blockchain technology affect contractual practices?" *SSRN Electronic Journal*, 68 (2018). <https://do.org/10.2139/ssrn.3154043>.

⁴ Siti Rohaya and others, "Artificial intelligence, smart contracts and Islamic finance", *Asian Social Science*, 18(2), p 145 (2018). <https://doi.org/10.5539/ass.v14n2p145>.

⁵ Consulting Capgemini, Smart contracts in financial services: Getting from hype to reality. *Capgemini Consulting*, p 1-14 (2016).

law principles because it creates the possibility of coordination, trust and transparency.⁶ Supporting the view of Abu-Bakar,⁷ that trust in exchange transactions and transfers can be enhanced in Islamic law using the blockchain. Siti Rohaya and others argued that even if the parties are not known in a smart contract, once the transaction is permissible under Islamic law, no party is harmed.⁸ Ahmad posited that smart contracts do not fully comply with Islamic law because a greater part of smart contracts deals with *ghabar* (uncertainty) and allows the transaction of prohibited things to be carried out.⁹ Others like Amri and others,¹⁰ Azrinuddin,¹¹ Faruq,¹² and Rajeb,¹³ argued that each pillar of Islamic law must be fulfilled to make blockchain smart contract compatible with Islamic law. Munawar examined smart contracts from the Indonesian and Islamic law perspective to determine the legal status. Where he concluded that smart contract must comply with Islamic law and the object being transacted must be halal with certainty in the transactions for it to align with Islamic law.¹⁴ Zulkepli and others¹⁵ found that although blockchain smart contracts' immutability contradicts the *ibsan* criteria under Islamic law. However, they proposed that a flexible code be written instead of a fixed code, and the upgradable proxy be applied in creating the smart contract code, so as to align

⁶ Ilinka Atova and Tahar Tayachi, "Blockchain and smart contracts: A risk management tool for Islamic fiancé" *Journal of Islamic Finance Studies*, 5.1 p 29-45 (2019). <https://doi.org/10.12785/jifs/050103>.

⁷ Mufti Muhammad Abu-Bakar, "Sharia analysis of Bitcoin, cryptocurrency, and blockchain" Working Paper (2017). <https://blossomfinance.com/bitcoin-working-paper>.

⁸ Siti Rohaya and others, "Artificial intelligence, smart contracts and Islamic FINANCE", *Asian Social Science*, 18(2), p 145 (2018). <https://doi.org/10.5539/ass.v14n2p145>.

⁹ Azlin Alisa Ahmad, Mat Noor Mat Zain and Nur Diyana Amanina Zakaria, "A comparative analysis of smart contract and Islamic contracts" *International Journal of Advanced Research*, 8(10) p 316-325 (2020). <https://do.org/10.21474/ijar01/11859>.

¹⁰ Mohamed Cherif El Amri, Mustafa Omar Mohammed and Ruslan Sabizyanov, "The potential of smart contracts for Murabahah home financing: Towards an integrated model". In *Fintech, Digital Currency and the Future of Islamic Finance*, Palgrave Macmillan, Cham, p 49 – 76 (2021).

¹¹ Az Azrinuddin, Abdo Ali Abdullah and Zamri Yusooif, "Overview of blockchain implementation on Islamic fiancé: Saadiqin experience" *Cyber Resilience Conference (CRC)*, p 1 -2 (2018).

¹² Muhammad Faruq, Omar Bamahiz, Aishath Muneeza and others, "Application of Tawaruq in Islamic banking in Malaysia: Towards smart tawaraq", *International Journal of Management and Applied Research (IJMAR)*, 7.2, 100 – 113 92020).

¹³ Dhiaeddine Rajeb, "Smart contracts contributions to Mudaraba" *Tazkia Islamic Fiance and Business Review (TIFBR)*, 15.1 P 1- 18 (2021).

¹⁴ Munawar Munawar, "The Legality of Smart Contract in the Perspectives of Indonesian Law and Islamic Law," *Al-Istinbath: Jurnal Hukum Islam* 7, no. 1 May (2022), <https://doi.org/http://dx.doi.org/10.29240/jhi.v7i1.4140>.

¹⁵ Muhammad Izzul Syahmi Zulkepli, Mohammad Taquiuddin Mohamad, and Saaidal Razali Azzuhri, "Leveraging blockchain-based smart contract in Islamic financial institutions: Issue and relevant solution" *International Journal of ISLAMIC Finance Research*, 6.1 p 18-29 (2023). <http://doi.org/10.53840/ijiefer96>.

with the *ihsan* principle of Islamic law. Those studies, determined the legality of blockchain smart contracts in Islamic banking and finance. However, in this research, using a legal parameter, this study examined the Islamic jurisprudence of the application of blockchain smart contracts in Islamic law and its compatibility relying on the Islamic law principle of *ijtihadi*

Given its importance in contemporary transactions, where a significant amount of the ongoing debate around the decentralized financial dealings of smart contracts is tied to that new contractual philosophy based on shifting trust from the intermediaries present in traditional contracting systems to trust in the technology itself,¹⁶ the pressing need arose to uncover the secrets of this technology and explore some of its deeper dimensions. This requires concerted efforts and synergy between experts across disciplines to examine its reality, efficacy, and future in aspects of human life. Since the Muslim community is an integral part of this rapidly changing world, it is imperative for Sharia and legal researchers to tackle the contractual problems posed by smart contracts based on blockchains. Owing to their relevance to one of the purposes intended for preservation and regulation in Islamic law, which is wealth.¹⁷

This paper has attempted to analyze and discuss the various technical and philosophical aspects of this new contractual model in light of the provisions of Islamic law, in order to benefit from them immediately or prevent them before falling into the trap of their serious implications for the individual and society, or to wait and see what the coming days will reveal about this emerging issue. The research aims to identify the religious ruling on smart contracts related to cryptocurrencies. What are the jurisprudential rules referred to in stating that? Many accredited Sharia bodies in the Islamic world are keen to look into the provisions of smart contract technology and the philosophy behind it, and its role in building a contractual system that may change many concepts and standards of financial transactions and global trade rules. The other importance is that smart contracts are among the latest contemporary financial technologies monitored by central financial institutions for their rapid development and the changes witnessed daily in their systems and methods.¹⁸

There is an increasing trend among global companies and governments towards studying the potential for applying smart contract technology by

¹⁶ Helen Eenmaa-Dimitrieva and Maria José Schmidt-Kessen, "Creating markets in no-trust environments: The law and economics of smart contracts," *Computer law & security review* 35, no. 1 (2019), <https://doi.org/https://doi.org/10.1016/j.clsr.2018.09.003>.

¹⁷ Hanaa Muhammad Hilal Al-Hunaiti, "Concept of Smart Contracts" (International Islamic Jurisprudence Assembly conference, Dubai, Islamic Affairs & Charitable Activities Department, 2019).

¹⁸ Munther Qahf & Muhammad Al-Sharif Al-Omari, "Smart Contracts" (International Islamic Jurisprudence Assembly conference, Dubai, Islamic Affairs & Charitable Activities Department & Government of Dubai, 2019).

developing advanced solutions to meet their needs in data storage, management and streamlining of various functions. Among the most prominent examples of these governments that have shifted towards using these modern technologies and recognizing them, are the United Arab Emirates, represented by the Dubai government,¹⁹ and some American states such as Nevada, Tennessee, Arkansas and Arizona.²⁰

This study adopts the qualitative doctrinal research method to analyze the elements of smart contracts and their suitability and compatibility with Islamic societies that adopt Islamic law as a primary source of legislation for positive law. Qualitative doctrinal research method is an approach used to analyse legal frameworks and regulations, legal texts, statutes, cases, and legal opinions to interpret the underlying principles and doctrines, such as meanings, implications, and challenges.²¹ Which involves identifying the legal rules and principles that are relevant to a particular issue and then applying those rules and principles to the facts of the case.²² Employing this method, derived from primary qualitative research, aids in the synthesis of various types of documents in legal research.²³ This type of research can be used to explore a wide range of topics²⁴ such as the impact of law on social change, the role of law in social institutions, and the ways in which law is used to regulate social behaviour. A doctrinal research is largely documentary. It is a study that focuses on statutory laws, legal documents and reports and can be used for qualitative research in several ways.²⁵ Such as identifying the legal rules and principles relevant to a particular social issue, in relation to how the law is used to regulate a particular issue,²⁶ and to analyse the impact of law on social change.²⁷ However, in this

¹⁹ Julien Chaisse and Jamieson Kirkwood, "Smart courts, smart contracts, and the future of online dispute resolution," *Stanford Journal of Blockchain Law & Policy* 5 (2022), <https://stanford-jblp.pubpub.org/pub/future-of-odr>.

²⁰ Agata Ferreira, "Regulating smart contracts: Legal revolution or simply evolution?," *Telecommunications Policy* 45, no. 2 (2021), <https://doi.org/https://doi.org/10.1016/j.telpol.2020.102081>.

²¹ Katerina Linos and Melissa Carlson, "Qualitative methods for law review writing" *U. Chi. L. Rev.*, 84, p 213 (2017).

²² Dobinson Ian and Johns Francis, "Legal research as qualitative research" *Research Methods for Law*, p 18–47 (2017).

²³ Baxter Susan, Killoran Amanda, Kelly Michael and Goyder Elizabeth, "Synthesizing diverse evidence: the use of primary qualitative data analysis methods and logic models in public health reviews" *Public Health*, 124 vol.2, p 99–106 (2010).

²⁴ Terkildse Thomas and Petersen Sofie, "The future of qualitative research in psychology—A students' perspective" *Integrative Psychological and Behavioral Science*, 49, p 202–206 (215). <https://doi.org/10.1007/s12124-015-9300-z>.

²⁵ Hutchinson Terry and Duncan Nigel, "Defining and describing what we do: doctrinal legal research" *Deakin Law Review*, 17 vol. 1, p 83–119 (2012).

²⁶ Lung, S. (2008). The Problem Method: No Simple Solution. *Willamette L. Rev.*, 45, 723.

study, the doctrinal and not statutory approach was utilized in the analysis of blockchain smart contract within Islamic law perspective.

Qualitative doctrinal legal research method differs from the doctrinal legal research.²⁸ The doctrinal legal research emphasise mainly the basic and fundamental in exploring the law as it exists.²⁹ However, the qualitative doctrinal legal research as in the case of this research, goes beyond the letters of the law to examining the law from the perspective of social reality.³⁰ It also seeks to answer broader issues.³¹ In this research, the researchers qualitatively analyzed the concept of Smart contracts within the boundaries of law and its application under Islamic law. Determining the suitability, applicability, compatibility and otherwise of smart contracts under Islamic law. While analyzing the various schools of thoughts that have alluded to a form of contract to examine the classification within smart contract. The essence is to determine the legal and religious basis for the application of smart contracts under Islamic law and whether *ijtihadi* rule when analyzed within Islamic principles provides any support. In order to bring about social change within religious bounds that keep pace with technological advancements in financial transactions.

Discussion

Smart Contracts and Blockchain Technology

Revolutionary and innovative smart contracts are very popular nowadays as a novel means to conduct online business contracting. However, to understand them, we must first know what smart contracts are and what problems they solve. Although conceptualized in technical legal circles long before, the term 'smart contracts' was officially introduced in the 1990s by Nick Szabo, a computer scientist, law scholar, and cryptographer. He defined smart contracts as 'a set of promises, specific in digital form, implicating protocols within which the parties implement these promises.' In other words, smart contracts are self-executed upon the triggering of predetermined conditions.

²⁷ Hutchinson Terry and Duncan Nigel, "Defining and describing what we do: doctrinal legal research" *Deakin Law Review*, 17 vol. 1, p 83–119 (2012).

²⁸ Nikos Kakadimitriou and Thanos Pagonis, "Planning reform and development rights in Greece: Institutional persistence and elite rule in the face of the crises", *European Planning Studies*, 27 vol. 1 p 1217-1234 (2019). <https://doi.org/10.1080/09654313.2019.1579300>

²⁹ Sanjay Kumar Verma and Afzal Wani (eds.), *Legal research methodology*. Indian Law Institute New Delhi 2nd edition, 2001, p 656-657.

³⁰ Dobinson Ian and Johns Francis, "Legal research as qualitative research" *Research Methods for Law*, p 18–47 (2017).

³¹ Ranmbir Singh, GS Bajpai and Manish Singh, "Research methodology: Qualitative and Quantitative methods in research" *Production for Courseware*, p 1-12 (2008). https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/law/09_research_methodology/08_qualitative_and_doctrinal_methods_in_research/et/8155_et_et.pdf

Szabo's idea described a purchase from a vending machine as a rudimentary form of a 'smart contract' because it involved the autonomous transfer of ownership of property, such as a confectionery item or a can of drink, upon receipt of predetermined input (i.e., money). Importantly, the party cannot stop the transaction before the vending machine fully executes the contract.

The machine cannot return the money once it supplies the product because the software of the machine embeds the terms of the transaction.

The first applications that embody smart contracts included POS (Point of Sale) terminals and cards, EDI (Electronic Data Interchange, used for ordering and other transactions between large corporations), and the SWIFT and 'FedWire'³² networks for transferring and clearing payments between banks. These implementations focused on commercial security models but often paid little heed to the contractual needs and obligations of the parties involved³³. Despite the existence of different forms of smart contracts in the 1990s, the lack of necessary technology hindered widespread implementation³⁴.

This became even more significant with the emergence of cryptocurrency, specifically Bitcoin, which resolved the problem of double spending in smart contracts. In late 2013, the programmer Vitalik Buterin introduced a new kind of blockchain-based and smart contract-focused platform known as Ethereum, which was launched two years later. Ethereum has the capability to form more complex smart contracts using an 'if-then algorithm' and is considered the largest blockchain in the world designed to utilize smart contracts in various ways.

From a technical standpoint, blockchain is a public digital ledger for record-keeping that is shared among all parties participating in a distributed computer network³⁵. It stores and records every transaction that occurs in the network, making it an immutable, validated, transparent, secure, and pseudo-anonymous database. This existence of the database is attributed to the fact that

³² Fedwire (formerly known as the Federal Reserve Wire Network) is a real-time gross settlement funds transfer system operated by the United States Federal Reserve Banks that allows financial institutions to electronically transfer funds between its more than 9,289 participants (as of March 19, 2009)

³³ Nick Szabo, "Smart contracts: building blocks for digital markets," *EXTROPY: The Journal of Transhumanist Thought*, (16) 18 (1996).

³⁴ Morgan N Temte, "Blockchain Challenges Traditional Contract Law: Just How Smart Are Smart Contracts," *WYOMING LAW REVIEW* 19 (2019), <https://scholarship.law.uwyo.edu/wlr/vol19/iss1/7>.

³⁵ Manuela Geranio, "Fintech in the exchange industry: Potential for disruption," *Masaryk University Journal of Law and Technology* 11 (2017), <https://doi.org/https://doi.org/10.5817/MUJLT2017-2-3>.

specific keys in the form of random strings represent the identity of transaction participants³⁶.

It's worth noting that there are categories of blockchains that depend on users' ability to make changes, the impact on the users of the block, or the parties' ability to view the recorded transactions on the network transparently. These categories are divided as follows:

1. Public blockchain: This type allows anyone with the appropriate computing ability to send messages for processing and participate in the consensus-reaching process or otherwise engage with the network.
2. Private blockchain: In contrast, a private blockchain has a limited number of participants who can write into the blockchain. These participants are pre-selected and subject to gated entry based on specific requirements or approval by an administrator³⁷. In such cases, participants typically belong to a single organization or a group of related organizations, such as a holding company and its subsidiaries³⁸.

As a result of the aforementioned discussion, smart contracts are essentially programmed contracts stored on distributed ledgers known as blockchains. These automated agreements between the maker and recipient are permanent and irrevocable due to their automation. Their primary objective is to automate the execution of an agreement without the need for intermediaries.

For example, let's suppose that if the seller provides goods, then the purchaser will pay using cryptocurrencies such as Bitcoin or any other agreed-upon currency. In the context of smart contracts, the cryptocurrency will be immediately released to the seller upon fulfilling their obligations. However, if the seller misses the agreed deadline or fails to provide the goods, the contract is cancelled, and the funds are reversed to the client. This scenario demonstrates how smart contracts can potentially eliminate the need for certain disputes to be taken to court, saving both parties time and money.

Therefore, by using smart contracts based on public blockchains, we can bypass the need for middlemen such as banks or lawyers because the network is

³⁶ Sai Agnikhotram and Antonios Kouroutakis, "Doctrinal Challenges for the Legality of Smart Contracts: Lex Cryptographia or a New, Smart Way to Contract," *JOURNAL OF HIGH TECHNOLOGY LAW* 19 (2018).

³⁷ J Earls, M Smith, and R Smith, "Smart Contracts: Is the Law Ready?," *Chamber of Digital Commerce* (2018), <https://lowellmilkeninstitute.law.ucla.edu/wp-content/uploads/2018/08/Smart-Contracts-Whitepaper.pdf>.

³⁸ Tanash Utamchandani Tulsidas, *Smart contracts from a legal perspective*, University of Alicante (2018), file:///C:/Users/mega/%D8%B9%D9%82%D9%88%D8%AF%20%D8%B0%D9%83%D9%8A%D9%87/Smart_Contracts_from_a_Legal_Perspective_Utamchandani_Tulsidas_Tanash.pdf.

not controlled by a single entity. This important distinction gives smart contracts key features, which include the following:

1. Smart contracts are Transparent and open-source: Therefore, this contract is publicly available for anyone to view the smart contract code, which reflects the parties' intentions. They can check whether it functions according to the agreement's terms or not³⁹.
2. Immutable agreements: This means that once deployed on blockchain networks, these entities cannot be altered by any individual. Verifying all transactions conducted through the smart contract by every member within the blockchain network enhances the security measures in place to prevent fraudulent activities.
3. Deterministic:⁴⁰ These agreements self-execute automatically when the contract terms have been met, regardless of any fraudulent inducement or changes in circumstances⁴¹.
4. Autonomous: Smart contracts operate independently, carrying out their tasks after the transaction has been confirmed using cryptographic methods. The contract parties only need to define the terms of their agreement as the contract executes itself⁴².
5. Trustless: When you interact with someone else through a smart contract, you don't need to know who they are or even have to trust them. Parties are not reliant on trusted third parties to verify the integrity of the process. As long as the conditions specified in the code are met, the interaction happens accurately due to blockchain technology, ensuring trustless transactions⁴³.

Islamic Scholars' consensus on Smart Contracts

Under Islamic law, "Originally", everything is *ibahah* (permissible).⁴⁴ This means that everything in the world is permissible. The principle has been argued

³⁹ Pauline Debono, "Transforming Public Procurement Contracts Into Smart Contracts," *International Journal of Information Technology Project Management (IJITPM)* 10, no. 2 (2019), <https://doi.org/10.4018/IJITPM.2019040103>.

⁴⁰ Maher Alharby and Aad Van Moorsel, "Blockchain-based smart contracts: A systematic mapping study," *Computer Science & Information Technology (CS & IT)* (2017), <https://doi.org/10.5121/csit.2017.71011>

⁴¹ Aaron Wright, *SMART CONTRACTS" & LEGAL ENFORCEABILITY* Cardozo Law School (October 16, 2018 October 16, 2018).

⁴² Mark Giancaspro, "Is a 'smart contract' really a smart idea? Insights from a legal perspective," *Computer Law & Security Review* 33 (06/01 2017), <https://doi.org/10.1016/j.clsr.2017.05.007>.

⁴³ Eenmaa-Dimitrieva and Schmidt-Kessen, "Creating markets in no-trust environments: The law and economics of smart contracts."

⁴⁴ Abdul Ghofur Anshori and Yulkarman Harahab, *Hukum Islam Dinamika Dan Perkembangannya Di Indonesia*. Yogyakarta: Kreasi Total Media, 2008 p 202.

to be very wide in interpretation as it covers everything without limitations⁴⁵ except that it requires a proposition that shows restriction to its permissibility says Abdulloh Hamid and friends.⁴⁶ These exceptions include issues closely related to *maysir*, *gharar*, *haram*, *riba* and *bathil*.⁴⁷ This presupposes that both smart contracts and blockchain transactions if conducted within Islamic principles are permissible. As highlighted earlier, smart contracts constitutes contract transactions without the need for intermediaries, they are basically conducted on the internet utilizing blockchain technology which is a distributed ledger. Since the development of blockchain, it has gained wide popularity, providing transformation in business transactions.⁴⁸ It equally enables organizations in modifying what they generate and the value realized. However, smart contracts using blockchain technology is not devoid of virtual currencies which is the medium for transactions. Hence, the whole idea about smart contracts using distributed ledger must be considered within Islamic principles to be fully accepted among Muslims.

According to Teddy Kusuma,⁴⁹ Islam views money as a medium of exchange and not a commodity. As such money is meant for exchange as narrated in the Hadith by Ata bin Yasar, Abu Said and Abu Hurairah and Abu Said Al-Khudri who explained that the Prophet Muhammad did not approve barter system transactions because it had the element of usury. Clearly stipulated in Al-Quran Surah Al-Kahafi (18:19) thus:

“Then send one of you to go to the city with silver coins and let him see which is the best food, so he could bring the food for you and he should behave gently and do not ever tell your thing to anyone.”

From the above quotation, money is not meant for usury or speculation but for transactions. Supporting the view of Khoirul Anwar,⁵⁰ who concluded that bitcoin has the nature of *gharar* and *maysir* when analyzing bitcoin as a currency for transaction under Islamic law. *Gharar* because the object is invisible

⁴⁵ Ghulam Zainil, “Apikasi Ijma’ Dalam Praktik Ekonomi Syariah” *Iqtishodun*, 1 Vol. 7, p 87 – 116 (2018).

⁴⁶ Abdulloh Hamid, Anis Fitria, Ubbadul Adzkiya and Santi Andriyani, “Bitcoin as a means of transaction and investment in the perspective of Islam” *Iqtishoduna: Jurnal Ekonomi Islam*, 2 vol. 10, p 33 – 48 (2021). <https://ejournal.iaisyarifuddin.ac.id/index.php/iqtishoduna>.

⁴⁷ Nida Laili Fitriyah et al., “Foreign direct investment flows in OIC country” *Iqtishoduna: Jurnal Ekonomi Islam*, 2 vol. 9, p 217 (2020). <https://ejournal.iaisyarifuddin.ac.id/index.php/iqtishoduna/article/view/495>.

⁴⁸ Zulfikri Auwal Adam Sa’ad, Salina Kassim and Anwar Hassan Abdullah Othhman, “Trust enhancement in Zakat institutions using Blockchain technology: A qualitative approach” *European Journal of Islamic Finance*, 31 – 37 (2022). <https://doi.org/10.13135/2421-2172/6312>.

⁴⁹ Teddy Kusuma, “Cryptocurrency for commodity futures trade in Indonesia: Perspective of Islamic Law” *Journal of Islamic Banking and Finance*, Jan – Mar (2020).

⁵⁰ Khoirul Anwar, in Teddy Kusuma, “Cryptocurrency for commodity futures trade in Indonesia: Perspective of Islamic Law” *Journal of Islamic Banking and Finance*, Jan – Mar (2020).

during trade and *maysir* because it possess the elements of gambling and speculations. This means that, bitcoin has a negative side as a currency, as a medium of exchange or payment or a trading commodity from scholars views, based on the fiqh proposal.

Ribbani⁵¹ advocates for the use of blockchain and smart contracts in Islamic banking as agent monitoring process for stakeholders. So that there can be transparency in agent dealing since smart contract transactions are immutable and tractable.⁵² To support this view, Lawrence added that replacing financial contracts and services with smart contract minimizes up to 95% of service costs and can revolutionize Islamic Banking.⁵³ It give a more secured and innovative way of doing business which is beneficial to all Muslims. This adheres to the principle of *maslaha* (benefits to the society) in this regard. Other researchers have argued that use of blockchain based crowdfunding addresses conventional challenges like multiple intermediate, high cost of transaction, double payment, centralized databased management and manual voting.⁵⁴ While smart contracts detects fundraising frauds.⁵⁵ Presupposing that all *haram*, *gharar*, *maysir* and all illegalities prohibited in Islam are not only easily detected but also curtailed using blockchain and smart contracts.

However, the major challenge about the acceptability and legality of blockchain smart contracts in Islam, is the fact that transactions on the blockchain and in smart contracts are concluded using cryptocurrencies as a medium of exchange. Islamic scholars have divergent views about the legality of cryptocurrencies. For instance Mufti of Egypt a grand Islamic scholar has out rightly rejected cryptocurrency on ground that it violates Maqasid al- Sharia. As such it is *haram* since there is no certainty in it.⁵⁶ That it has the element of *gharar*, since the real value is unknown which is against the Islamic fundamental

⁵¹ Mustafa Raza Ribbani, Shah Nawaz Khan and Eleftherios I. Thalassinis, "FinTech, Blockchain and Islamic Finance: An extensive literature review" *International Journal of Economics and Business Administration*, 2 vol. VIII, p 65 – 86 (2020).

⁵² Richard-Marc Lacasse, B. Lambert and Nida Khan, "Islamic Banking-Towards a Blockchain monitoring process" *Revue de Gestion et d'Economie*, 1 & 2 vol. 6, p 33 - 46 (2018).

⁵³ Richard-Marc Lacasse, B. Lambert and Nida Khan, "Blockchain technology – Arsenal for a Shari'ah-compliant financial ecosystem" *Journal of Business and Economics*, (2017).

⁵⁴ Huasheng Zhu and Zach Zhizhong Zho, "Analysis and outlook of applications of blockchain technology to equity crowdfunding in China" *Financial Innovation*, 1 vol. 2, p 29 – 36 (2016).

⁵⁵ Niforos Maria, Ramachandran Vijaya and Rehermann Thomas, Blockchain: Opportunities for private enterprises in emerging market. Washington DC, International Finance Corporation, 2017. <https://oeknowledge.worldbank.org/handle/10p986/28962>.

⁵⁶ Mustafa Raza Ribbani, Shah Nawaz Khan and Eleftherios I. Thalassinis, "FinTech, Blockchain and Islamic Finance: An extensive literature review" *International Journal of Economics and Business Administration*, 2 vol. VIII, p 65 – 86 at p 12 (2020).

principle of finance and hence *haram* says Abu Bakar.⁵⁷ Another scholar opined that it should be prohibited in Islam because it lacks intrinsic value, violates the basic social justice principles in Islamic finance.⁵⁸ On the other hand, the proponents of cryptocurrencies argued that there is no proper evidence that Bitcoin violates Islamic principles.⁵⁹ That bitcoin aligns with the *Musharakah* Islamic principle where two or more persons come together to do business and share both benefit and risk together. Bitcoin has been found to considerably reduce risk because it involves a large number of people.⁶⁰ Therefore cryptocurrency must be checked on a transaction basis to determine whether it is *haram* or *halal*.⁶¹ Since Al-Hussaini argued that cryptocurrencies fall within the category of things that are permissible in Islam.⁶² Oziev added that the permissibility of cryptocurrencies can be considered in currency exchange and payment for goods and services.⁶³ More so that bitcoin has the elements of decentralization, reliability, transparency, limited in supply⁶⁴ and less likely to be hacked, abused or forged.⁶⁵ This leads to the conclusion as discovered recently by Roslina and friends⁶⁶ that amongst Islamic scholars, crypto currency falls within three main categories: 1) permitted (falls within compliance, justified, regulates, wide acceptability and gold-backed); 2) prohibited (uncertainty, speculative, less beneficial, restricted by authorities) and 3) religious belief (has

⁵⁷ Nashirah Abu Bakar, Sofian Rosbi and Kiyotaka Uzaki, "Cryptocurrency framework diagnostics from Islamic finance perspective: A new insight of Bitcoin system transaction" *International Journal of Management Science and Business Administration*, 1 vol. 4, p 19 - 24 (2017).

⁵⁸ Ahmad Kameel Mydin Meera, "Cryptocurrencies from Islamic perspective: The case of Bitcoin" *Buletin Ekonomi Moneter Dan Perbankan*, 4 vol. 20, 475 – 492 (2018).

⁵⁹ Gapur Oziev and Magomet Yandiev, "Cryptocurrency from a Shari'ah perspective" *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)*, 2 vol. 23, 315 – 338 (2018).

⁶⁰ Charles W. Evans, "Bitcoin in Islamic Banking and finance" *Journal of Economics and Finance*, 1 vol. 3, p 1 - 11 (2015).

⁶¹ Sudias Asif, "The Halal and Haram aspects of cryptocurrencies in Islam" *Journal of Islamic Banking and Finance: Global Perspective on Islamic Finance*, 2 vol. 35 p 91 – 101 (2018).

⁶² Abulfathi Ibrahim Saleh Al-Hussaini, Adamu Abubakar, Mohamad Fauzan Noordin and Hazwani Mohd Mohadis, "Users perception of cryptocurrency system application from the Islamic views" *International Journal on Islamic Applications in Computer Science and Technology*, 1 vol. 7, p 13 – 25 (2019).

⁶³ Gapur Oziev and Magomet Yandiev, "Cryptocurrency from a Shari'ah perspective" *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)*, 2 vol. 23, 315 – 338 (2018).

⁶⁴ Dodik Siswanto, Rngga Handika and Aria Farah Mita, "The requirement of cryptocurrency for money, an Islamic view" *Helijon*, 1 vol. 6, p e0p3235 (2020).

⁶⁵ Mohamed Cherif EL Amri and Mustafa Omar Mohammed, "The analysis of cryptocurrency based on Mqasid al-Shari'ah. In Halal cryptocurrency Management. Palgrave Macmillan Shan, 20 19 p 119 – 131.

⁶⁶ Othman Roslina, Mohamad Fauzan Noordin, Mahfooz Ahmed, Nadzrah Ahmad and Kassim Salina, "Muslim Scholars and Exerts views on cryptocurrencies: A systematic review" *Sains Insani*, 1 vo. 8, p 94 – 102, (2023).

the potential for improvement, Islamic cryptocurrencies to be developed, and supported by Dinar and Dirham.

Conclusively, blockchain smart contracts must be utilized within the permissibility principle to be widely accepted amongst Musalims and to serve as Halal complying with Islamic principles. More so that Zulfikri and friends⁶⁷ concluded that blockchain technology has the ability to create a “trust stamp” which is incorruptible and censor free resistant. Thus, making it the most valuable means of transaction in this modern and technology driven age. But must be carried out within permissible Islamic Law principles.

Essential elements of smart contracts under Islamic law

For a smart contract to be considered valid from an Islamic law perspective, it must fulfil the pillars stipulated by the jurists of Islamic law in their books, which are:

1. **The two parties to the contract:** The two parties to the contract refer to the two contractors who have legal capacity. Reason is required for both, so a sale by an insane person is not valid. Imam al-Shafi'i also stipulated attaining puberty⁶⁸. In theory, the two contracting parties in a smart contract can be verified to exist and have the capacity to contract in terms of age and mental capacity by asking them when opening the account and starting the contractual relationship.

However, in actual practice, this can only be done by asking the contractor himself, since in smart contracts, it is not possible to identify the personality of the other party because the parties to smart contracts at the technical level, not individuals. but cryptographic special keys⁶⁹, it will lead to a lack of trust that either party will fulfil its commitments or that the two sides may not engage in business exchange and other market-based collaboration.⁷⁰ That may, in reality, be either fake "robots" or someone insane or under the legal age of contracting⁷¹.

2. **The subject matter of the contract:** Jurists have specified conditions that must be met for the subject matter of the contract:
 - a. It must exist, so a sale of something non-existent is not valid.
 - b. It must be property because the sale is the exchange of property for property.

⁶⁷ Zulfikri Auwal Adam Sa'ad, Salina Kassim and Anwar Hassan Abdullah Othhman, "Trust enhancement in Zakat institutions using Blockchain technology: A qualitative approach" *European Journal of Islamic Finance*, 31 – 37 (2022). [Hts://doi.org/10.13135/2421-2172/6312](https://doi.org/10.13135/2421-2172/6312).

⁶⁸ Aladdin Al-Kassani, *Bada'i' al-Sana'i' in the Order of Sharia* (Beirut: Arab Book House, Beirut, 1982).

⁶⁹ Debono, "Transforming Public Procurement Contracts Into Smart Contracts."

⁷⁰ Eenmaa-Dimitrieva and Schmidt-Kessen, "Creating markets in no-trust environments: The law and economics of smart contracts."

⁷¹ Al-Omari, "Short Smart Contracts."

- c. The contract must be permissible and lawful.
- d. It must be owned.
- e. Its delivery must be feasible at the time of contracting⁷².

These conditions are fulfilled in smart contracts, even if some are done in a formalistic manner that differs from traditional contracts as well as in electronic contracts⁷³. Therefore, the smart contract system provides a complete description of the two currencies being exchanged in the contract so that there is no room for doubt about the type, characteristics and descriptions of the property, eliminating any ignorance regarding what is being contracted⁷⁴.

iii. The contract formula: This refers to the offer and acceptance. The offer is a definitive, decisive expression that clearly indicates the intention of the offeror to accept contracting under certain conditions⁷⁵. The formula of offer and acceptance in smart contracts is fully binding and is achieved through the means of writing, which indicates the consent of the two parties⁷⁶.

It is known that jurists consider writing to be an expression of will. Writing is equivalent to verbal address, as stated in the jurisprudential maxim: "Writing is like speech"⁷⁷.

Formally, it can be said that smart contracts have fulfilled all the pillars of contracts stipulated by Sharia, including the presence of competent contractors with the capacity to bind and be bound⁷⁸, the contract formula, which is clicking the button to agree to the contract, and fulfilling the conditions of the subject matter in terms of the existence of owned property that can be delivered. However, the issue with smart contracts is summarized in the type of exchanged property and the extent to which it is considered valuable property since smart contracts only take place through cryptocurrencies, which have not yet been deemed to be valuable property, as we will explain later.

⁷² Al-Kassani, *Bada'i' al-Sana'i' in the Order of Sharia*.

⁷³ Omar Al-Jamili, "Smart contracts, their reality and their relationship to virtual currencies" (International Islamic Jurisprudence Assembly conference Dubai, Dubai, Islamic Affairs & Charitable Activities Department & Government of Dubai, 2019).

⁷⁴ Fabian Schär, "Decentralized finance: On blockchain-and smart contract-based financial markets," *Federal Reserve Bank of St. Louis REVIEW*, no. 1 (2021), <https://doi.org/https://doi.org/10.20955/r.103.153-74>.

⁷⁵ Mahmoud Jamal al-Din Zaki, *The summary In the general theory of obligations*, 1978, Egypt.

⁷⁶ Al-Jamili, "Short Smart contracts, their reality and their relationship to virtual currencies."

⁷⁷ Al-Kassani, *Bada'i' al-Sana'i' in the Order of Sharia*.

⁷⁸ Muhammad Abu Zahra, *Property and contract theory in Islamic law* (Egypt: Dar Al-Fikr Al-Arabi, 1996).

Sharia classification of smart contracts

Due to the novelty of smart contracts, there is a significant scarcity in Sharia studies related to the Sharia classification of smart contracts. This paper reviewed some opinions of Islamic jurists about the Sharia classification of smart contracts. Their views on this are summarized below:

1. First classification: A smart contract is a Sale on credit

Sale on credit, as defined by jurists, is: "Obtaining goods from the seller bit by bit and paying their price afterwards"⁷⁹. Ibn Abidin says:"⁸⁰Every time he takes something, a sale is concluded for its known price"⁸¹. Sale on credit according to the Malikis has several types:

- a. A person leaves money with the seller, then takes a known amount of goods for a part of the money, and so on. This sale is valid, because the goods and price are known.
- b. He leaves one dirham with the seller, and says to him: I will take from you such and such amount of dates, for example, or milk or something else. He specifies some goods with him and estimates its price to some amount, and leaves the goods to take whenever he wants, or specifies a time to take them. This sale is also valid.
- c. He leaves a dirham with the seller for specified or unspecified goods, on the condition that he takes from it daily at its price. They contracted on this sale. This sale is invalid, because the price they contracted on is unknown, which is the ambiguity that invalidates the sale.
- d. A person takes what he needs from the seller for a known price, so he takes a known weight each day for a known price, and the price is due at a known term, or at harvest if the harvest is known and guaranteed. This sale is valid⁸².

The author sees that "smart contracts have an origin close to what previous jurists mentioned when they referred to sale on credit or sale of the people of the city, or what the Malikis call "Monthly Payment", which is the buyer taking the goods bit by bit whether he pays the price immediately or delays it. The jurists permitted this sale if the price was known while permitting delay of one of the exchanges. The matter is not so with smart contracts; rather,

⁷⁹ Wahba bin Mustafa Al-Zahli, *Islamic jurisprudence and its comprehensive evidence of Sharia evidence Sectarian opinions, the most important jurisprudential theories, and the verification and graduation of the Prophet's hadiths* (Syria, Damascus: Dar Al-Fikr, 1997).

⁸⁰ Ibn 'Abidin, a writer of the book on Islamic jurisprudence (fiqh) in the 18th-century Islamic scholar titled *Radd al-Muhtār 'ala al-Durr al-Mukhtār* (Arabic: *رد المحتار على الدر المختار*) https://en.wikipedia.org/wiki/Radd_al-Muhtar.

⁸¹ Ibn Abidin, *Radd al-Muhtār 'ala al-Durr al-Mukhtār* 2ed., vol. 4 (Beirut: Dar Al-Fikr, Beirut, 1992).

⁸² Malik bin Anas bin Malik, *Selected for explanation of Al-Muwatta*, vol. 5, ed. 1 (Egypt: Happiness Press, 1913).

each part of the goods, if divisible, has a share of the price. If the goods are delivered, their price is delivered in full immediately. That is, smart contracts are more precise and regulated, so their permissibility is more warranted⁸³."

2. Second classification: A smart contract, the sale by negotiation

The sale by negotiation, according to jurists, is when the seller and buyer take possession from one another without a formula, i.e., without offer and acceptance, even if there is a verbal expression from one of them⁸⁴. Ibn Abidin says: "If he gave him the dirhams and started taking five "monds" from him every day, without initially saying 'I bought from you', it is valid and permissible, even if his intention at the time of payment was to buy; because a sale is not concluded by mere intention, rather this sale is now concluded by taking possession."⁸⁵ the sale by negotiation has two forms:

First: Taking possession without any speech or indication from either party.

Second: Taking possession along with speech from one party and delivery occurring⁸⁶.

Smart contracts have been classified as the sale by negotiation, which is each contracting party giving the other what is exchanged without offer and acceptance... The truth is the analogy is apparent, except that smart contracts have prior agreement on the price and consideration, so describing the comparison may be specious since each has its own particularities... I say that since jurists permitted the sale by negotiation, then sale and other dealings in smart contracts are closer to the objectives explained by Islamic law⁸⁷.

The researcher does not see any relevance of the first and second classifications to smart contracts. While smart contracts may have fulfilled the pillars of traditional contracts in terms of existence, these pillars are different in reality from making a connection between these old contracts and smart contracts, a far-fetched classification. That is because these aforementioned contracts have agreed upon the legitimacy of the currencies circulated in executing them, unlike smart contracts, where cryptocurrency is considered the intermediary currency through which payment is made and contracts are executed. The reliance of smart contracts on this element represents the fundamental difference between them and traditional contracts.

⁸³ Al-Jamili, "Short Smart contracts, their reality and their relationship to virtual currencies."

⁸⁴ Badr Al-Din Al-Aini, *The building in explaining guidance*, ed. Ayman Saleh Shaaban, 1 ed., vol. 6 (Beirut, Lebanon: House of scientific books, 2000).

⁸⁵ Abidin, *Radd al-Muhtār 'ala al-Durr al-Mukhtār* 4.

⁸⁶ Abu Omar Dabyan bin Muhammad Al-Dabyan, *Financial transactions, authenticity and modernity*, 2 ed., 20 vols., vol. 1 (Riyadh - Kingdom of Saudi Arabia: King Fahad National Library, 2010).

⁸⁷ Al-Jamili, "Short Smart contracts, their reality and their relationship to virtual currencies."

3. Third classification: A smart contract is a means or instrument subordinate to the user.

Proponents of this view believe that a smart contract is not a contract in itself but rather a means used by the user. Researcher Muhammad Mahmoud Al-Jamal considers: "The smart agent is a tool and means used by the user, who is liable for the resulting implications of its actions because it has no capacity, comprehension, domicile or responsibility. It also cannot express its will by itself, which makes it difficult to accept, considering it an agent of its user. Therefore, it requires the user's intervention, who provides it with the information he wants to disclose to others... Hence, the smart agent is nothing more than a subordinate means or instrument of the user, and the subordinate is subordinate. Thus, the user's liability for the acts of his subordinate is established"⁸⁸. In fact, this classification seems logical, in the researcher's opinion, for two reasons:

- a. Based on the previous definitions of the concept of smart contracts, it is clear that they are software protocols that use code to encode the terms of the contract and record it in encrypted form on blockchain technology. So, they are modern means to execute contracts.
- b. The description of "smart contracts" stems from the self-executing, starting to operate as soon as the parties sign using their private keys, permitting the smart contract program to work independently. However, everything preceding the signing resembles traditional contracts regarding conditions and pillars. They are essentially ordinary contracts but executed via a virtual electronic platform called blockchain, and cryptocurrencies are used as a means of payment to execute them.

Based on the preceding explanation, and given the revealed nature of these smart contracts and their components, it can be said that these contracts are, in essence, innovative conditions in contracts in order to facilitate and simplify the execution of traditional contracts and completion of old transactions, and to obviate any third party and their service fees. Therefore, their validity or invalidity is subject to that of the primary conditions in contracts, and the obligation to abide by them is subject to that of conditions in traditional contracts. Smart contracts are thus among the new contracts introduced to people's lives, and the general Sharia rules governing Islamic financial transactions are applied to them because they are ijtihadi rulings without textual basis. They are subject to the default permissibility and customary norms that do not contradict a text or consensus or principle of Islamic law, unless they prohibit something permitted or permit something

⁸⁸ Muhammad Mahmoud Al-Gammal, "Smart electronic mediator from the perspective of Islamic jurisprudence" (International Islamic Jurisprudence Assembly conference, Dubai, Islamic Affairs & Charitable Activities Department & Government of Dubai, 2019).

prohibited⁸⁹. However, the ruling on these contracts depends on resolving the existing Sharia issues with them, which we will address next:

Islamic Law Issues facing Smart contracts

The discussion of the religious ruling on smart contracts is done by studying several fundamental issues in the topic, which can be identified as follows:

A. The legal enforceability of smart contracts: Contracts generally organize the interests of the contracting parties, with the judiciary remaining the primary and final reference in case of disputes, where the disputants resort to courts. But with smart contracts, this will be extremely difficult, as courts still do not recognize this type of contract and its enforceability⁹⁰, except for some legislation adopted by certain American states such as.

1. Arizona approved legislation (Bill HB 2417) in 2017 that addressed utilizing blockchain technology, including smart contracts, in business transactions involving selling products, leases, and title papers⁹¹. The approved legislation was not entirely new but rather an amendment to the Arizona Electronic Transactions Act, which legalizes electronic records and signatures. Notably, this legislation is considered the first of its kind in the United States to specify the legal status of smart contracts, aiming to eliminate legal uncertainty. It defines a smart contract as an "event-driven program with the state that runs on a distributed, decentralized, shared, and replicated ledger and can take custody of and instruct the transfer of assets on that ledger"⁹².

Furthermore, it defines blockchain technology as a distributed, decentralized, shared, and replicated ledger that can be public or private, permissioned or permissionless, and powered by tokenized crypto-economics or without tokens. The legislation specifically emphasizes that 'data on the ledger is safeguarded with encryption, is immutable, and auditable, providing an unfiltered truth.'

2. Tennessee enacted similar legislation in March of 2018 (Bill SB 1662)⁹³, and Arkansas followed suit in 2019 (Bill HB 1944)⁹⁴, both providing legal recognition for smart contracts in their respective states.

⁸⁹ Qutb Mustafa Sano, "Smart contracts in light of principles, purposes and outcomes Analytical vision" (International Islamic Jurisprudence Assembly conference, Dubai, Islamic Affairs & Charitable Activities Department & Government of Dubai, 2019).

⁹⁰ Richard-Marc Lacasse, Berthe Lambert, and Nida Khan, "Blockchain technology-Arsenal for a Shariah-compliant financial ecosystem," *Journal of Business and Economics* (2017).

⁹¹ <https://www.azleg.gov/legtext/53leg/1r/bills/hb2417p.pdf>

⁹² Jared Arcari, "Decoding smart contracts: technology, legitimacy, & legislative uniformity," *Fordham Journal of Corporate & Financial Law* 24, no. 2 (2019).

⁹³ <https://legiscan.com/TN/text/SB1662/id/1691046>.

⁹⁴ <https://trackbill.com/bill/arkansas-house-bill-1944-hb1944-concerning-blockchain-technology/1733271/>.

Tennessee's definitions of blockchain and smart contracts align with Arizona's statute. They also specify that signatures, records, and contracts secured by a party using blockchain technology will be considered legally valid electronic signatures and electronic records⁹⁵.

3. North Dakota has enacted legislation (Bill 1045) that addresses blockchain-secured data and provides legal acknowledgement and acceptance of the enforceability of smart contracts. The definitions of blockchain technology and smart contracts in North Dakota's legislation are based on those of Arizona and Tennessee, which appear to have served as a model for other US states⁹⁶. Several states are considering similar legislation to encourage the development of blockchain technology, recognition of smart contracts, and innovation in the blockchain sector.
4. Nevada's bill is similar to Illinois' Blockchain Technology Act (BTA),⁹⁷ which became effective on January 1, 2020. The BTA is considered one of the most comprehensive laws concerning blockchain technology and smart contracts, aiming to clarify some of the legal uncertainties surrounding the status of blockchain and smart contracts in Illinois. Unlike in other US states, the BTA comprehensively addresses all three key aspects related to smart contracts:
 - a. Enforceability: Nevada's law defines smart contracts as agreements stored as electronic records, verified through blockchain usage.
 - b. Admissibility as evidence: In legal proceedings, evidence of a smart contract, record, or signature should not be disregarded solely because it was created, stored, or verified via a blockchain.
 - c. Local regulations: If a law mandates that a record must be in writing, providing a blockchain that electronically includes the record satisfies that requirement. Vermont has also enacted similar legislation addressing the evidential effect of smart contracts⁹⁸. In addition to that, Nevada became the first US state to prohibit local governments from imposing fees on blockchain usage when it amended the Uniform Electronic Transactions Act through Law 398 in June 2017.⁹⁹
5. New York has been making efforts to develop its blockchain and smart contracts legislation since 2017. During that time, New York introduced four pieces of legislation, aiming to position itself as a forward-thinking,

⁹⁵ Eliza Mik, "Smart contracts: A requiem," *Journal of Contract Law*, *Forthcoming* (2019).

⁹⁶ Joseph Jasperse, "50-State Review of Cryptocurrency and Blockchain Regulation," *Available at SSRN 4146004* (2022).

⁹⁷ <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=4030&ChapterID=20>.

⁹⁸ Ferreira, "Regulating smart contracts: Legal revolution or simply evolution?."

⁹⁹ https://www.leg.state.nv.us/Session/79th2017/Bills/SB/SB398_EN.pdf.

blockchain-friendly state¹⁰⁰. However, only one of these bills, Bill 8783,¹⁰¹ was enacted into law. This particular bill focused on establishing a task force to study the impact of cryptocurrencies on New York's financial markets and was successfully introduced in 2017¹⁰².

6. Wyoming is among the states that have bolstered blockchain and smart contract regulations. It has enacted 13 pieces of blockchain legislation to provide blockchain businesses and consumers with a welcoming, comprehensive, and friendly legal framework¹⁰³. While some states have hurried to pass legislation governing smart contracts, others are still waiting for federal guidance. For example, a Florida bill (HB1375)¹⁰⁴ aimed at regulating smart contracts and blockchain technology was introduced in January 2018. Despite receiving unanimous support from all relevant committees, including the Government Accountability Committee, it was ultimately withdrawn to allow more time for further development of the situation¹⁰⁵.

In addition, the US Chamber of Digital Commerce, in its policy statement on smart contracts, expressed the opinion that current US law supports the establishment and enforcement of smart contracts under state law. They cautioned that "new state legislation, inconsistently drafted, may confuse the market and potentially hinder innovation." The US legal system, both at the federal and state levels, fundamentally operates under the common law system. Even without formal statutory recognition of smart contracts, the judiciary can rely on existing common law and statutory contract law sources to establish their enforceability¹⁰⁶.

Due to the increasing interest in smart contracts as a novel method for conducting commercial transactions, the number of laws related to blockchain and smart contracts in the US reached 133 by April 2019.¹⁰⁷ Furthermore, on the

¹⁰⁰ "4 Blockchain Bills Introduced in New York Legislature," CoinDesk, 2021, <https://www.coindesk.com/markets/2017/12/04/4-blockchain-bills-introduced-in-new-york-legislature/>.

¹⁰¹ <https://legiscan.com/NY/bill/A08783/2017>.

¹⁰² M Dell'Erba, "Do Smart Contracts require a new Legal Framework," *Regulatory Fragmentation, Self-Regulation, Public Regulation* (2018).

¹⁰³ "Wyoming's Pro-Blockchain Laws Tame The Wild West of Crypto," Sygna, 2023, <https://www.sygna.io/blog/wyomings-pro-blockchain-laws-tame-cryptos-wild-west/>.

¹⁰⁴ <https://www.flsenate.gov/Session/Bill/2018/1357/BillText/Filed/PDF>.

¹⁰⁵ Arcari, "Decoding smart contracts: technology, legitimacy, & legislative uniformity."

¹⁰⁶ "State-by-State Smart Contract Laws? If It Ain't Broke, Don't Fix It," CoinDesk, 2018, <https://www.coindesk.com/markets/2018/02/26/state-by-state-smart-contract-laws-if-it-aint-broke-dont-fix-it/>.

¹⁰⁷ Arcari, "Decoding smart contracts: technology, legitimacy, & legislative uniformity."

federal level, 32 blockchain bills have been introduced during the current term of the US Congress. These bills cover a range of topics, including the use of cryptocurrency in terrorism, money laundering, and human and sex trafficking, as well as regulatory frameworks for cryptocurrency and blockchain, the concept of the digital dollar, and the utilization of blockchain technology by the US Government¹⁰⁸.

The lack of recognition of smart contracts in most current laws in Islamic countries poses a Sharia obstacle that prevents ruling on smart contracts. This is because contracts often involve disputes that are referred to the judiciary for resolution, and the legal non-recognition of these contracts puts the contractors in the problem of resolving the existing dispute between them, which may cause loss of financial rights, something which contradicts the objectives of Sharia which observes the preservation of wealth.

B. Extent of recognizing cryptocurrencies: Since smart contracts can only be executed through the circulating encrypted currencies used as a means of payment,¹⁰⁹ the fundamental issue surrounding these encrypted currencies is that they are unlicensed by any governmental authority in all Islamic countries that consider Islamic law as one of the main sources of legislation, this issue is, in fact, the real fundamental issue related to smart contracts. The lack of support and licensing of these cryptocurrencies has led to the current instability of their value, which has led many Sharia researchers to refrain from ruling on them until their image becomes clear, as the International Islamic Fiqh Academy has done. Dr. Rafiq al-Masri indicates that the authority in the process of issuing currency belongs to the state, and no other entity is allowed to undertake this task under any circumstances. The evidence for this is the significant jurisprudential rule, "What cannot be achieved except through it is obligatory." Applying this rule to reality reveals that any deviation from the state's role in this task leads, with certainty or strong likelihood, to harm that cannot be avoided for both the state and society. Additionally, it is a facet of sovereignty that cannot be compromised¹¹⁰.

On the other hand, the instability of cryptocurrency values can cause harm to contract parties and even lead to market collapse or economic crises.

¹⁰⁸ "Congress Has Now Introduced 32 Crypto And Blockchain Bills," Forbes, 2020, <https://www.forbes.com/sites/jasonbrett/2020/04/28/congress-has-introduced-32-crypto-and-blockchain-bills-for-consideration-in-2019-2020/?sh=b21e3891d617>.

¹⁰⁹ Ghassan Adhab Atiyah, Nazura Abdul Manap, and Saidatul Nadia Abd Aziz, "Legal Status of Cryptocurrency Circulation in Iraq: Lessons from the United Arab Emirates and the United States," *Hasanuddin Law Review* 9, no. 1 (2023), <https://doi.org/10.20956/halrev.v9i1.3867>.

¹¹⁰ Sanaa Rahmani & Masoud Flossi, "The role of jurisprudence rules in smart contract arbitration," *El Ihyaa* 22, no. 30 (2022).

This is a significant harm that must be addressed, and as stipulated in jurisprudential rules, harm must be removed. Although these smart contracts have many benefits, such as facilitating transactions and more, the harm caused by currency instability may outweigh their advantages.

Islamic jurisprudence is expressed towards the principles of fiqh. Where the authorities have the obligation to protect and regulate all matters relating to the lives of people while giving priority to what benefits the people.¹¹¹ Clearly explained in these words:

“The actions or policies of the Imam [the authority holder] towards the people must be oriented to the *mashlahat*.”¹¹²

Islamic scholars are divided on their opinion on the permissibility or otherwise of the use of cryptocurrencies as currency and on the smart contract blockchain transactions. The permissibility are divided into five category while the prohibition of the use of cryptocurrencies are divided within three categories.¹¹³ For instance, Muslim scholars who rely on the permissibility principle, support their argument with the following justifications:

1. That cryptocurrencies meet all the requirements of money from an Islamic perspective just like conventional currencies.¹¹⁴
2. Cryptocurrencies possess certain characteristics that meet the requirements of its usage as money in Muslim communities. Subject to regulatory requirements by administrators and authorities.¹¹⁵
3. Cryptocurrencies have a widespread acceptance in global transactions including businesses, industries and its listing on exchange platforms.

¹¹¹ Teddy Kusuma, “Cryptocurrency for commodity futures trade in Indonesia: Perspective of Islamic Law” *Journal of Islamic Banking and Finance*, Jan – Mar (2020).

¹¹² As-Suyuti, (2004).

¹¹³ Othman Roslina, Mohamad Fauzan Noordin, Mahfooz Ahmed, Nadzrah Ahmad and Kassim Salina, “Muslim Scholars and Exerts views on cryptocurrencies: A systematic review” *Sains Insani*, 1 vo. 8, p 94 – 102, (2023).

¹¹⁴ Nughroho Bayu Adi, “Spillovers and bivariate portfolios of gold-backed cryptocurrencies and gold during the Covid-19 outbreak” *Journal of Islamic Accounting and Business Research*, 7 vol. 12, p 1055 -1076 (2021), <https://doi.org/10.1108/JIABR-10-2020-0328>; Gapur Oziev and Magomet Yandiev, “Cryptocurrency from a Shari’ah perspective” *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)*, 2 vol. 23, 315 – 338 (2018).

¹¹⁵ Polas Mohammed Rashed Hasan, Md Muhibbullah and Bhattacharjee Amitab, “Is Bitcoin Halal or Haram in the Islamic Banking and finance? An overview” *Journal of Economics, Business and Market Research*, 2 vol. 2 p 96 – 104 (2020); Virgana Targa Sapanji and Mohd Haizam Mohd Sadi, “Conceptual research: Sharia-based cryptocurrency” *Journal of Advanced Research in Dynamical and Control Systems*, 3 Special vol. 11, 138 – 143 (2019); Yuneline Mirza Hedismarlina, “Analysis of cryptocurrency’s characteristics in four perspective” *Journal of Asian Business and Economic Studies*, 2 vol. 26, p 206 – 219 (2019), <https://doi.org/10.1108/jabes-12-2018-0107>.

Justifying its usage by Muslim communities in accordance to Islamic perspective.¹¹⁶

4. Accept its usage as gold or silver-backed cryptocurrencies based on the historical use of gold and silver as means of exchange.¹¹⁷
5. Expressing concerns on the volatility, speculative nature, and potential illegality of the usage of cryptocurrencies, which they argue that the issues are similar in conventional currencies and as such can be used by the Muslim communities in accordance to Islamic principles.¹¹⁸

On the other hand, those who argue for the prohibition of cryptocurrencies justify their arguments within these categories:

1. Speculative nature of cryptocurrencies volatility and uncertainty. Arguing further that investor usually use cryptocurrencies for gambling to gain profit.¹¹⁹
2. The traditional beliefs, relying on the fact that Muslim scholars must reach a consensus before implementing an issue or drawing a conclusion on a matter.¹²⁰
3. Some prohibit the use of cryptocurrencies due to the restrictions imposed by the federal authorities.¹²¹

¹¹⁶ Sami and Abdallah “How does the cryptocurrency market affect stock market performance in the MENA region?” *Journal of Economic and Administrative Sciences*, 4 vol.37, p 741 – 753 (2021), <https://doi.org/10.1108/JEAS-07-2019-0078>; Yusof bin Faizal Mohd, Rasid Ab Lisasari and Masri Rid zuan, “Implementation of Zakat payment platform for cryptocurrencies” *AZKA International Journal of Zakat & Social Finance*, 1 vol. 2, p 17 -31 (2021), <https://doi.org/10.51377/azjaf.vol2no1.41>.

¹¹⁷ Abdeldayem Marwan Mohamed, Al Dulaimi Saeed Hameed and Al Dulaini Fuaad Hameed, “A qualitative approach to evaluate the reconciliation of GOLDX and OnegRam in Islamic Finance” *Original Scientific Paper*, 1 vol. 39, p 113 – 134 (2021), <https://doi.org/10.18045/zbefri.2021.1.113>. Aloui Chaker, Hamida Hela ben and Yarovaya Larisa, “Are Islamic gold-backed cryptocurrencies different?” *Finance Research Letters*, 39 (2021), <https://doi.org/10.1016/j.frl.2020.101615>; Hanif Muhammad, “Developing a fair currency system” *ISRA International Journal of Islamic Finance*, 3 Vol. 2, p 325 - 345 (2020). <https://doi.org/10.1108/IJLF-02-2019-0024>.

¹¹⁸ A-Hussaini Nigeria, Ibrahim Adamu Abubakar, Noordin Mohamad Fauzen and Mohadis Hazwani Mohd, “Islamic approach towards purification of transaction with cryptocurrency” *Journal of Theoretical and Applied Information Technology*, 6 vo. 68, p 1050-1067 (2020); Taghdiri Ali, “Assessing the compatibility of cryptocurrencies and Islamic law” *Intellectual Property and Technology Law Journal*, 25, p63 (2020)

¹¹⁹ Adzimatinur Fauziyah, Manula Vigory Gloriman and Rahimi Faishal, “The Sharia compliance of Gold-backed-cryptocurrency: Analysis of volatility and risk” *European Union Digital Library*, (2021), <https://doi.org/10.4108/eai.12-12-2020.2304995>; Fatarib Husnul and Sali Merison Alizar, rypocurrency and digital money in Islamic Law: Is it right?” *Jurisdictie: Jurnal Hukum dan Syariah*, 2 vol. 2, p 237 - 261 (2021). <https://doi.org/10.18860/j.v11i2.8687>.

¹²⁰ Mnif Emna and Jarboui Anis, “Islamic view towards Bitcoin”, *European Journal of Islamic Finance*, p 1 -8 (2020); Shetwey Nsreen, Laadam Jamal Ait and Li Jun Jiang, “Challenges of the Bitcoin in Arab Countries” *Research on Humanities and Social Sciences*, (2019), <https://doi.org/10.7176/rhss/9-5-01>.

There are also the non-committal Muslim scholars who suggest that cryptocurrencies can be adopted and implemented according to Sharia rulings on its potential improvements¹²² to business transactions and on the need to address the underlining issues¹²³ for its permissibility.

Therefore, since cryptocurrency is a major component of blockchain smart contracts transactions, the permissibility of cryptocurrency as a medium of exchange will validate the use of blockchain smart contracts. This is because, scholars have come to the Conesus that transactions on the blockchain can be trusted. Since they are distributed, transparent, immutable, validated, secured and pseudo-anonymous which held in the non-alteration of smart contracts.¹²⁴ However, it is more appropriate to exercise caution in issuing a religious ruling regarding dealing with these cryptocurrencies until the necessary conditions and regulations are met for them to be considered a licensed currency by governmental authorities or until they become backed by a financial asset that ensures their stability in value.

C. The ignorance of the contracting parties:¹²⁵ lies in the fact that smart contracts operate through digital platforms, which vary. Some of these platforms rely on blockchain technology and are limited in terms of the number of known users who must adhere to specific terms and specifications. Examples include digital platforms for financial institutions, companies, insurance firms, and others. In contracts executed on these platforms, the contracting parties are identifiable with their identities, qualifications, and all the data and information required by the contracts and

¹²¹ Mohd Noh Mohd Shahid and Abu Bakar Mohammed Syakir., "Cryptocurrency as a main currency: A Maqasidic approach" *Al-Uqud: Journal of Islamic Economics*, 1 vol. 4, p 115 - 132 (2020), <https://doi.org/10.26740/al-uqud.v4n1.p115-132>; Hamid Abdul Gafar, Fitriana Anis, Adzkiya Ubbadul and Santi Andriyani, "Bitcoin as a means of transaction and investment in the perspective of Islam" *IQTISHODUNA: Journal Ekonomi Islam*, 2 vol. 100,p 944 (2021), <https://do.org/10.36835/iqtishoduna.v1oi2.944>.

¹²² Alaklabi Saad and Kang Kyeong, "Perceptions towards cryptocurrency adoption: A case of Saudi Arabian citizens" *IBIMA Business Review* (2021), <https://doi.org/10.5171/2021.110411>; Abdullah Ayedh, Omar Mohammed Mispah Said and Echchabi Abdelghani, "Factors influencing Bitcoin investment intention: The case of Oman" *International Journal of Internet Technology and Secured Transactions*, 1 vol. 11, p 1 - 15 (2021), <https://doi.org/10.1504/IJTST.2021.112897>.

¹²³ Lucero M.A.G, R., "Cryptocurrencies regulation in the Islamic environment: OneGram case study" *Journal of Sociology of Religion*, 1 vol. 11, p 1-9; Rahman Naim Abdul, "Cryptocurrency from the perspective of Shari'ah" in *Al-Shajarah University Utara Malaysia*, (2021).
https://www.academia.edu/4195474//Cryptocurrency_from_the_persective_of_Sharia'h.

¹²⁴ Chong Felicia Hui Ling, "Enhancing trust through digital Islamic finance and blockchain technology" *Qualitative Research in Financial Markets*, 3 vol. 13, p 328 -341 (2021). <https://doi.org/10.1108/QRFM-05-2020-0076>.

¹²⁵ Eenmaa-Dimitrieva and Schmidt-Kessen, "Creating markets in no-trust environments: The law and economics of smart contracts."

institutional regulations. This type of platform is subject to conditions and restrictions imposed by countries. For instance, some countries require users of digital platforms to register their identities and information, while other platforms may be open and do not reveal the identities of users when contracts are executed. In such cases, it is impossible to verify the eligibility of the parties involved in the smart contract¹²⁶.

The issue arises from the ignorance of the parties involved in contracts conducted through open platforms. The ignorance of the contracting parties can lead to prohibited deception from a Sharia perspective,¹²⁷ given the disputes and conflicts it may result in. In reality, this ignorance is relative because, through technical investigation, it is possible to identify the parties involved¹²⁸. Moreover, the public declaration of the contract among users and the witnessing of many witnesses to it, ensuring the ability to access the smart contract in all its components, safeguards the contracts and obligations of all parties from the effects of not knowing the detailed circumstances of the parties involved.

The Islamic jurisprudential principles that can be used as a basis for determining the Sharia ruling on smart contracts.

Since we have established that smart contracts are a modern form of contracts for which there is no explicit textual guidance or previous jurisprudential rulings, it is necessary to exercise jurisprudential reasoning to determine their legal status. Below are some jurisprudential principles that may be referred to when determining the Sharia ruling on smart contracts, including:

Jurisprudential principles that can be invoked by those permitting smart contracts

1. The principle of permissibility is the default when it comes to things until evidence indicates prohibition:¹²⁹ This principle means that Allah, may He be exalted, has permitted what is lawful and prohibited what is forbidden, and has prescribed obligations and recommended actions in His book and through the words of His Messenger (peace be upon him). He remained silent about many things without forgetting them. Therefore, the ruling for things about which there is no specific guidance is permissibility, and this is the majority opinion.

¹²⁶ Weiqin Zou et al., "Smart contract development: Challenges and opportunities," *IEEE Transactions on Software Engineering* 47, no. 10 (2019).

¹²⁷ Munawar Munawar, "The Legality of Smart Contract in the Perspectives of Indonesian Law and Islamic Law," *Al-Istinbath: Jurnal Hukum Islam* 7, no. 1 May (2022), <https://doi.org/http://dx.doi.org/10.29240/jhi.v7i1.4140>.

¹²⁸ Al-Ayashi Al-Sadiq Fadad, "Smart contracts" (International Islamic Jurisprudence Assembly conference, Dubai, Islamic Affairs & Charitable Activities Department & Government of Dubai, 2019).

¹²⁹ al-Sabki, *Similarities and isotopes*.

Certainly, this principle can be invoked to determine the Sharia ruling for smart contracts, especially for those who consider smart contracts as new and innovative contracts for which there is no explicit text or previous consensus. Moreover, if these contracts serve legitimate interests and benefits, the default principle is permissibility, especially when they do not contradict any established Islamic legal principles.

2. The principle of need can be considered equivalent to the principle of necessity, whether it is general or specific.¹³⁰ The term "Need" here refers to what is less than an absolute necessity, while "necessity" is the state that compels what is essential. Necessity represents one of the most pressing needs for humans, and disobeying it poses a danger. If there is a general need for a group of people or a specific need for an individual, this need can be elevated to the level of necessity in order to permit it. However, need is based on facilitating and expanding what a person can abandon, unlike necessity, which requires doing what is essential to relieve oneself of a burden that binds the person and cannot be abandoned¹³¹.

Smart contracts are part of the digital economy and serve various interests needed by individuals in society, ensuring optimal and faster investment of funds. Has the need for such contracts become urgent to the extent that they are treated as necessary, allowing them to be used within the framework of necessity rules? This principle may be invoked by those who see a pressing need for smart contracts that serve the interests of people, even if they are specific to a particular group of individuals.

3. The principle is to distinguish between corruptions if it enters the essence of the contract and if it enters into one of its attributes or descriptions. The meaning of this principle is that the impact of corruption on a contract differs when it enters the essence of the contract as opposed to when it affects one of its attributes or descriptions that are external to its nature. If the cause of corruption affects the essence of the contract, such as the exchange or what is being exchanged, then the contract becomes corrupt at its core. It becomes invalid in most of its provisions, and there are no legal effects related to ownership rights or possession. Rectifying the contract doesn't make it valid again; instead, the contract needs to be renewed entirely¹³².

This principle can apply to smart contracts when the exchange or what is being exchanged involves cryptocurrencies that do not have official

¹³⁰ Muhammad Sidqi Al-Borno Abu Al-Harith Al-Ghazi, *Encyclopedia of jurisprudential rules*, 1 ed., vol. 1 (Beirut, Lebanon: Al-Resala Foundation, 2003).

¹³¹ Muhammad Mustafa Al-Zahili, *Jurisprudential rules and their applications in the four schools of thought*, 1 ed., vol. 1 (Damascus, Syria: Dar Al-Fikr, 2006).

¹³² Flossi, "The role of jurisprudence rules in smart contract arbitration."

recognition or existence in the real world. The cryptocurrencies used in smart contracts are not officially recognized as legal tender at present. Therefore, it may be questioned whether contracts based on such cryptocurrencies are considered invalid due to the uncertainty of their legal status.

4. The principle of fellow remains a fellow and does not have an exclusive ruling:¹³³ which means that what is subordinate is not treated separately regarding its legal status¹³⁴. It implies that something that doesn't exist independently but rather depends on something else is considered as if it doesn't exist on its own regarding legal rulings. It cannot be separated in terms of legal judgments. Examples include a fetus in its mother's womb, a characteristic that describes something, or a right like the right of passage or the right to drink, which is dependent on the land¹³⁵.

Applying this principle to smart contracts, if one views them not as standalone contracts but as intelligent tools for conducting contracts, they would be considered subordinate to the underlying contract, and their legal status would be derived from the main contract. This means that the smart contract cannot have a separate legal status and must follow the rules and judgments of the main contract it is associated with.

The legal principles that objectors to smart contracts may refer to include

1. The principle that "knowledge raises ignorance" asserts that one of the conditions for a valid sale is that both parties know the item being sold, the price, the term, and other relevant aspects of the sale. Ignorance leads to disputes between the parties, and if such ignorance exists, the sale is rendered invalid because the ignorance that results in disputes prevents delivery and acceptance¹³⁶. Without these, the sale does not achieve its intended purpose, which is mutual consent, as sales are contingent on mutual consent¹³⁷. This principle can be invoked by those who believe that the lack of knowledge about the parties involved in a smart contract due to the execution of some smart contracts on open platforms that do not reveal user identities at the time of execution, and the inability to verify the eligibility of the parties involved, may lead to disputes after the contract has been executed, resulting in its annulment.

¹³³ Jalal al-Din al-Suyuti, *Similarities and isotopes*, 1 ed. (Syria: House of Scientific Books, 1990).

¹³⁴ Shihab al-Din al-Hamawi, *Winking eyes of insight in explaining similarities and counterparts*, 1 ed. (Lebanon: House of Scientific Books, 1985).

¹³⁵ Flossi, "The role of jurisprudence rules in smart contract arbitration."

¹³⁶ Flossi, "The role of jurisprudence rules in smart contract arbitration."

¹³⁷ Mustafa Al-Zarqa, *Sales contract*, 2 ed. (Damascus, Syria: Dar Al-Qalam, 2012).

2. The principle of repelling harm takes precedence over bringing benefits.¹³⁸ This principle may be invoked by those who see an overlap between the benefits and harms present in smart contracts. Although smart contracts bring benefits such as facilitating transactions, ensuring transparency, and security in executing contracts due to their reliance on blockchain technology, the harms that may affect one or both parties to the contract due to the legal status of the circulating encrypted currency used to execute smart contracts may pose an obstacle to permitting them.
3. The principle that harm is removed.¹³⁹ This principle may be invoked by those who believe that smart contracts intrinsically contain harm that impacts economic stability due to the instability of the circulating cryptocurrencies used to execute smart contracts, which negatively affects dealers in these contracts, resulting in harm to one or both parties or the society as a whole if the circulation of these contracts becomes widespread. These are some jurisprudential principles that the researcher believes can be referred to in explaining the Sharia ruling on smart contracts.

Conclusion

In examining blockchain smart contract, a digitalized program based on distributed ledger technology that accommodates certain stored data for tamper free smart contracts. This study examined this concept against Islamic law principles to validate such transactions and become applicable within the Muslim communities. The study described the concepts of smart contracts and blockchain technology and its' inter relatedness for a transparent smart contract transactions. The study highlighted the fact that blockchain smart contracts cannot be effectively carried out without the use of cryptocurrency a virtual medium of exchange to conclude the transactions on the internet. That although these transactions have gained wide recognition across the globe, yet it remains an issue within the Islamic communities. Hence, the study sought the legality and basis of its applicability within Islamic law and principles. It was discovered that the acceptance of cryptocurrency as a medium of exchange is subject to divergent opinion of scholars, ranging from those that argue for the permissibility on several grounds including the fact that cryptocurrencies aligns with all Islamic principles, those that argued in favour of its prohibition rely on the uncertainty, volatility and likelihood of usage for gambling which is haram, while the non-committal scholars (those that are neither in favour of permissibility or prohibition) argue for the need to develop principles for its acceptance because of its enormous advantages in modern day business transactions and in all sectors. It further discovered that smart contracts validity

¹³⁸ al-Suyuti, *Similarities and isotopes*.

¹³⁹ al-Sabki, *Similarities and isotopes*.

lies within the sale on credit principles of the Maliki School, permissibility principle and the concept of negotiation relying on the *Ijtihadi*.

Therefore, although cryptocurrencies are riddled with volatility and uncertainty, yet they share similar fate either conventional currency that have been generally accepted. As such, while permissibility rule should be adopted in utilizing blockchain smart contracts due to its global relevance. However, caution should be exercised in its application so that its usage would comply with Islamic principles.

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