

DETERMINING THE ROLE OF LAW IN SMART CONTRACTS

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INTRODUCTION

Through blockchain, smart contracts have redefined the ways in which individuals and organisations may enter into contractual relationships. Beyond its familiar applications like cryptocurrencies and Non-Fungible Tokens (NFTs), blockchain has unfurled a realm where contracts transcend paper to become digital code, securely nestled within transparent, communal databases.² These contracts, aptly known as ‘Smart Contracts’, offer an unprecedented level of security, shielding their terms from deletion, tampering, or revision. Moreso, their execution is seamlessly automated, eliminating inefficiencies prevalent in traditional contracts.³

However, with all its benefits and possible advantages, some postulate that smart contracts bring a new complexity to contract law as it requires a certain technological skill set and sophisticated procedures to ensure these contracts are well crafted. Furthermore, many suggest that the role of lawyers has been reduced to, at best, drawing up the standard terms of the contract which will be reproduced in the Smart Contract. In this article, we will examine the correctness or otherwise of this assertion as well as the legal implications with regards to the implementation of smart contracts and its potential impact on the Nigerian commercial space.



UNDERSTANDING SMART CONTRACTS

The term 'Smart Contract' denotes computer code designed to autonomously execute components or the entirety of an agreement, residing on a Blockchain-based platform. Representing a contemporary evolution in contract law, Smart Contracts aim to bypass, or at the very least, operate independently from traditional contractual frameworks.⁴ It is a self-executing digital contract which involves the conversion of contractual terms into codes that regulate the performance and execution of the said contractual terms thereby reducing human intervention. The nomenclature ‘smart’ implies that these are contracts with automated features utilising software which improves the security and functionality of a contract.⁵

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² A shared database that grants access to individuals, organisations or entities to contribute and utilise collectively.

³ J.M. Sklaroff ‘Smart Contracts and the Cost of Inflexibility’ *University of Pennsylvania Law Review*, Vol. 166, No. 1 (December 2017), pp. 263-303 (41 pages) https://www.jstor.org/stable/45154933?read-now=1&seq=2#page_scan_tab_contents

⁴ <https://businessday.ng/news/legal-business/article/blockchain-and-contract-law-determining-the-role-of-law-in-automated-transactions> accessed 1 March 3:00 pm

⁵ Frontiers | What Do We Mean by Smart Contracts? Open Challenges in Smart Contracts ([frontiersin.org](https://www.frontiersin.org)) accessed 29 Feb 24 3 am

Smart Contracts offer a solution to a persistent challenge faced by parties entering agreements. In conventional scenarios, one party bears the risk that its performance might not be reciprocated, given the sequential nature of actions. Consequently, the fulfilling party must trust that the counterparty will uphold their end of the agreement. This reliance compels the performing party to lean on remedies provided by state institutions like courts or alternative dispute resolution mechanisms in cases of non-performance or other breaches. Three issues arise with this framework: first, the Court may not always enforce agreements; second, parties may not always receive the same outcome from the Court even when the Court makes every effort to enforce the agreement; and third, parties may encounter unavoidable but unnecessary risks when seeking enforcement from the Court. However, smart contracts revolutionise traditional agreements by automating enforcement. For example, smart contracts track goods throughout the supply chain. If a shipment deviates from the agreed route or temperature range, the system can trigger alerts or reroute the shipment, and even trigger payment modes in the event of late delivery. Also, escrow services in blockchain-based transactions ensure that funds are released only when predefined conditions are met. Smart contracts handle this automatically, reducing the need for intermediaries. By automating enforcement, smart contracts dispense with the lengthy legal battles often associated with the enforcement of traditional contracts.

Smart Contracts solve the above issues by automating and guaranteeing performance immediately the set parameters are met. This is done by setting the terms of the contract in codes replicated across multiple nodes of a Blockchain. To this extent, Smart Contracts, by their nature, do not need the Court System to enforce their rights in some cases. However, this is not to suggest that the considerations for a valid contract are wholly irrelevant to a Smart Contract.⁶

ADVANTAGES OF SMART CONTRACTS

Speed and Efficiency: One of the defining features of Smart Contracts is their ability to expedite the contractual process by automating the execution of contractual terms. This automation dispenses of paperwork, and the risk of human error. By eliminating the involvement of third parties, transactions can be executed swiftly and seamlessly.⁷

Security and Trust: Smart contracts eliminate the risk of manipulation of contractual terms since it is encrypted on a public blockchain which is accessible to all parties. This proffers a solution to the uncertainty of trust and security in a contract as all parties are aware of any alteration of terms in a smart contract.⁸

Immutability and savings: Smart contracts are immutable to the extent that once the code for the contract is deployed, it cannot be altered unilaterally. As these contracts are automated once the parties fulfil the terms of the contract, it ensures that the contract is executed as intended by the parties. Smart contracts also aid with savings due to the blockchain feature which ensures that the history of the transaction is recorded forever.⁹

⁶ <https://businessday.ng/news/legal-business/article/blockchain-and-contract-law-determining-the-role-of-law-in-automatedtransactions/> accessed 1 March 3:00 pm

⁷ Smart contracts: Enabling Efficiency in the P2P Economy <https://fastercapital.com/content/Smart-contracts--Enabling-Efficiency-in-the-P2P-Economy.html#:~:text=By%20leveraging%20blockchain%20technology%2C%20smart,transactions%20more%20efficient%20and%20reliable.> Accessed 29 Feb 24 9:12a.m.

⁸ Smart Contracts in Web3: Everything You Need to Know <https://metav.rs/web3/smart-contracts/> accessed 29 Feb 24 9:24a.m.

⁹ G.Xynou Immutability in a smart contract: a blessing or a curse? <https://www.lexology.com/library/detail.aspx?g=9b0e1787-f6cc-428a-8d55-93e5994bf416> accessed 29 Feb 24 9:44 a.m.

Ensuring Compliance: Smart contracts are designed to execute specific actions automatically once predetermined conditions are met. In the context of transactions, these conditions typically involve the transfer of funds or assets upon the occurrence of the triggering events. It can also enforce penalties if certain objective conditions are not satisfied within the specified parameters. These penalties are typically programmed into the contract and are triggered automatically when the conditions are not met. Thus, where a party fails to fulfil a term, the contract swiftly imposes the predefined penalties on the party in breach.



DISADVANTAGES OF SMART CONTRACTS

Inflexibility: Due to the nature of smart contracts being pre-conditioned and automated, it takes away the freedom of parties to voluntarily alter the terms of the contract. In a traditional contract, a party can decide to waive certain rights or obligations owed to him or her in a contract due to some unexpected circumstances however, this will be difficult with a smart contract due to its blockchain feature.¹⁰ This feature also prevents the rectification of mistakes that might be made in a contract and limits the ability of a contract to be adaptable to changes in circumstances.¹¹

Legal Uncertainty: Due to the nature of smart contracts, there is some uncertainty as to how these contracts will be regulated in certain jurisdictions. Concerns have been raised as to how smart contracts will execute or recognise implied contractual terms such as ‘good faith’ which is a subjective statement that could lead to a potential dispute.¹² Consequently, there will be difficulty in determining the perimeters and regulatory framework that governs the validity of such contracts.¹³

¹⁰ O.Borgogno ‘Usefulness and Dangers of Smart Contracts in Consumer and Commercial Transactions’ <https://deliverypdf.ssrn.com/delivery.php?ID=08502511711709400509710402000309102505208707204501703507308602010002111806711010609905403410004511202200407310902508209306712011201301204401906811610510012009008900609503306200107008511610007808609111208206410012311512210710809800403111080097028068110:06.a.md&INDEX=TRUE> accessed 29 Feb 24 10:06.a.m.

¹¹ LimitationofSmartContracts:<https://fastercapital.com/startuptopic/LimitationofSmartContracts.html#:~:text=3.Lack%20of%20Flexibility%3A%20Smart%20contracts%20are%20designed%20to%20be%20self,they%20are%20not%20very%20flexible>. Accessed 29 Feb 24 10:08.a.m. see also J.M. Sklaroff ‘Smart Contracts and the Cost of Inflexibility’ University of Pennsylvania Law Review, Vol. 166, No. 1 (December 2017), pp. 263-303 (41 pages) https://www.jstor.org/stable/45154933?read-now=1&seq=2#page_scan_tab_contents

¹² <https://deliverypdf.ssrn.com/delivery.php?ID=08502511711709400509710402000309102505208707204501703507308602010002111806711010609905403410004511202200407310902508209306712011201301204401906811610510012009008900609503306200107008511610007808609111208206410012311512210710809800403111080097028068106&EXT=pdf&INDEX=TRUE> accessed 29 Feb 24 10:56 a.m.

¹³ <https://fastercapital.com/startuptopic/LimitationofSmartContracts.html#:~:text=3.Lack%20of%20Flexibility%3A%20Smart%20contracts%20are%20designed%20to%20be%20self,they%20are%20not%20very%20flexible>. Accessed 29 Feb 24

Complexity: Developing smart contracts necessitates a deep understanding of programming languages and cryptographic principles. The technical complexity involved may present a barrier to entry for non-technical users. Furthermore, the conditional nature of Smart Contracts prevents Smart Contracts from being used/adopted for complex commercial transactions particularly concerning transactions that require subjective judgment calls.¹⁴

Security Vulnerabilities: Despite the inherent security of blockchain, smart contracts are not immune to bugs and vulnerabilities in their code. Exploiting these weaknesses can lead to financial losses and compromise the integrity of transactions.¹⁵



LEGAL CONSIDERATIONS ON THE APPLICATION OF SMART CONTRACTS

In understanding the legal considerations with regards to Smart Contracts, a scenario is provided for clarity. Alice is interested in purchasing a rare collectable item from Bob, a seller on an online marketplace. To facilitate this transaction, they opt to use a smart contract, a digital agreement stored on a blockchain, which automates and secures the process. Firstly, both parties agree on the terms of the sale, specifying details such as the item's price, condition, and delivery arrangements. With these terms settled, they set up a smart contract containing all agreed-upon conditions. Both parties digitally sign the contract, indicating their acceptance. Next, Alice transfers the payment for the collectable to a secure escrow account managed by the smart contract. This account holds the funds until the conditions for release are met. Meanwhile, Bob dispatches the item to Alice using a reputable courier service, ensuring it's adequately tracked. Upon receiving Alice notifies the smart contract of receipt, triggering the release of funds from the escrow account to Bob's account. However, in the event of discrepancies in the item's description or damage during shipping, Alice may nevertheless sue for recovery of sums paid to Bob. Similarly, Bob may use the instrumentality of the law to recover compensation where funds are not released by Alice. In essence, although the law does not play a role in the performance of the terms, the law plays a supervisory role in the overall transaction.

¹⁴ <https://businessday.ng/news/legal-business/article/blockchain-and-contract-law-determining-the-role-of-lawinautomatedtransactions/#:~:text=The%20very%20nature%20of%20Smart,System%20to%20enforce%20their%20terms.>

¹⁵ <https://fastercapital.com/startuptopic/LimitationsofSmartContracts.html#:~:text=3.Lack%20of%20Flexibility%3A%20Smart%20contracts%20are%20designed%20to%20be%20self,they%20are%20not%20very%20flexible.> accessed 29 Feb 24

While smart contracts operate within the realm of code and blockchain technology, they are not immune to legal considerations. The law may order the reversal of Smart Contract transactions in certain circumstances or order the performance of certain obligations notwithstanding the absence of the agreed-upon objective parameters. Some of these circumstances include:

Presence of Vitiating Elements: In cases where a Smart Contract contains a vitiating feature, the court has the authority to compel the transaction to be reversed. For instance, a legitimate contract cannot contain a vitiating feature, according to contract law. The absence of an illiterate jurat, illegality, lack of capacity, etc. are examples of vitiating factors. Also, Contracts pertaining to loans, products (except for those pertaining to necessities, i.e., items appropriate for the newborn's state of life at the time of sale and delivery), and accounts mentioned, are null and void against an infant. As a result, in cases where a minor enters into a loan agreement using a smart contract, the court has the authority to compel a transaction reversal.

Error in Transaction: The court may issue an order to reverse a transaction if an error has occurred during the course of the transaction. This error could stem from various sources, such as a flaw in the code of the Smart Contract, a breach in the security of the Blockchain on which the Smart Contract operates, or even a mistake from the oracle that provides off-chain information. While Smart Contracts enforce the terms of the contract automatically based on their programmed instructions, legal intervention may be necessary to reverse the transaction if deemed appropriate by the law.¹⁶

Doctrine of Quantum Meruit: Even if the objective terms of a contract have not been entirely fulfilled, the law may still mandate the performance of provisions outlined in a smart contract. This situation can arise when one party has largely fulfilled their obligations under the smart contract, but due to the actions or inactions of the counterparty, they fail to meet the agreed-upon criteria that would trigger enforcement under the smart contract. In such instances, the affected party may pursue compensation through the court under the doctrine of quantum meruit, seeking payment for the value of the work or services rendered.



¹⁶ <https://businessday.ng/news/legal-business/article/blockchain-and-contract-law-determining-the-role-of-lawinautomatedtransactions/#:~:text=The%20very%20nature%20of%20Smart,System%20to%20enforce%20their%20terms.>

FUTURE OUTLOOK

In the business world, companies prioritize fast, cost-effective, and efficient solutions, especially in time-sensitive transactions, leading to the increasing adoption of smart contracts. This trend indicates a growing prevalence of this contract type. However, smart contracts typically rely on simple conditional language, which may not be suitable for all types of agreements. Despite the lack of a legislative framework, particularly in Nigeria, smart contracts are progressively replacing traditional contracts across various industries. This development underscores the urgent need to establish new regulations and amend existing ones. For example, Arizona, in the United States, paved the way for smart contract adoption by defining terms such as "cryptographic signatures" and providing legislative approval for their use¹⁷



CONCLUSION

Smart contracts are increasingly seen as the future of contract law worldwide due to their promising benefits, which appeal to corporations and businesses by ensuring reliability, security, and cost efficiency, among other advantages. However, there are concerns regarding their implementation in various jurisdictions and their ability to address practical aspects of contracts, such as performing obligations to industry standards and acting in utmost good faith. Nonetheless, this is a welcome development in the world of commerce, imposing the responsibility on regulatory bodies to establish an appropriate framework for the regulation of smart contracts.

¹⁷ <https://neo-project.github.io/global-blockchain-compliance-hub//united-states-of-america/USA-smart-contracts.html#:~:text=As%20of%20that%20date%2C%20Arizona,contracts%3A%20Nevada%2C%20and%20Vermont.> Accessed 29 Feb 24

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