Artificial Intelligence, Algorithmic Contracting and The Doctrine OF Consensus in Contract Law

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Abstract

The increasing deployment of artificial intelligence and automated systems in commercial transactions is transforming the manner in which contractual relationships are formed and performed. Unlike conventional electronic contracting, in which technology principally facilitates the communication of decisions made by human parties, algorithmic contracting permits automated systems to generate, negotiate, communicate and implement contractual decisions with varying degrees of human intervention. This development raises fundamental questions concerning the continued adequacy of the doctrine of consensus, particularly the traditional requirements of offer, acceptance, intention and consensus ad idem. This article examines whether contractual assent can be established where the immediate manifestation of agreement is generated by an algorithm rather than directly by a human actor. Using a doctrinal and comparative methodology, the article examines traditional principles of contractual formation under Nigerian law alongside relevant judicial authorities, legislation, international instruments and contemporary scholarship on automated contracting. Particular attention is given to the United Nations Convention on the Use of Electronic Communications in International Contracts 2005 and the UNCITRAL Model Law on Automated Contracting 2024. The article argues that algorithmic contracting does not render the doctrine of consensus obsolete but exposes the limitations of understanding consensus solely through contemporaneous human intention. It proposes an attribution-based conception of contractual assent under which automated outputs may constitute legally effective manifestations of agreement where they fall within authority deliberately conferred upon the system. The article further examines the implications of algorithmic error, unexpected outcomes, contractual autonomy and allocation of liability. It concludes that Nigerian contract law possesses principles capable of accommodating aspects of algorithmic contracting but requires legislative clarification on attribution, automated decision-making, unexpected outcomes and technological risk allocation. Such reform should preserve the foundational principles of contractual autonomy, certainty and accountability while ensuring that contract law remains responsive to emerging forms of AI-mediated commercial activity.

Keywords: Algorithmic Contracting; Artificial Intelligence; Attribution; Contract; Consensus *ad idem*; Contractual assent.

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1. Introduction

The law of contract has traditionally been constructed around the premise that contractual obligations arise from the voluntary agreement of legally competent parties. Although the law does not invariably require the parties to share an actual subjective state of mind, the formation of a contract ordinarily depends upon conduct that can be attributed to the parties and objectively understood as expressing assent. The familiar concepts of offer, acceptance, consideration, intention to create legal relations and certainty of terms are consequently rooted in the assumption that human actors make, communicate and evaluate the decisions from which contractual obligations arise. In Nigerian law, as in other common-law jurisdictions, the formation of a binding contract requires agreement on essential terms supported by the other requirements of enforceability. The Supreme Court has repeatedly emphasised the significance of consensus between contracting parties[1], including the requirement that parties be ad idem on the essential terms of their agreement.[2]

Technological development has progressively altered the circumstances in which contractual relationships are created. Electronic commerce first displaced the physical document and face-to-face transaction with electronic communications, digital records and online acceptance mechanisms. Automated contracting has taken the process further. Transactions may now be initiated, negotiated, accepted and performed through computer systems operating according to pre-programmed rules or, increasingly, through artificial intelligence systems capable of processing information and generating outputs without contemporaneous human intervention. The distinction is significant. Electronic contracting changes principally the medium through which human parties communicate their decisions; algorithmic contracting may alter the decision-making process itself[3].

The emergence of increasingly autonomous contracting systems therefore presents a more fundamental question than whether an electronic communication is legally equivalent to a paper document. The question is whether traditional contract doctrine can adequately identify contractual assent where the immediate act producing the contractual outcome is generated by an algorithm. A human party may configure an artificial intelligence system to negotiate prices, select contractual counterparties, accept specified terms or purchase goods when predetermined conditions are satisfied. The resulting transaction may be entirely consistent with the system's instructions, yet the particular transaction may not have been contemplated by the human operator. Conversely, an AI system may produce an outcome that was not expressly authorised and could not reasonably have been predicted by its user[4].

This development creates tension between two propositions. The first is that technological means should not, merely because they are technological, prevent otherwise valid transactions from receiving legal recognition. The second is that contractual liability should ordinarily rest upon a legally attributable manifestation of consent. The challenge is therefore not simply whether machines can enter contracts. It is whether existing principles can attribute machine-generated conduct to human or corporate actors in a manner sufficiently consistent with consent, autonomy, certainty and accountability.

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[1] (2011) 5 NWLR (Pt 1239) 95.
[2] (1990) 4 NWLR (Pt 147) 723, 741–742;
[3] Edwin Peel, *Treitel: The Law of Contract* (15th edn, Sweet & Maxwell 2020) 1–35
[4] Hugh Beale (ed), *Chitty on Contracts* (35th edn, Sweet & Maxwell 2023) vol 1, 1–150

The international legal response is already moving beyond the earlier framework governing ordinary electronic transactions. UNCITRAL adopted the Model Law on Automated Contracting in 2024, expressly addressing automated systems, artificial intelligence, smart contracts and machine-to-machine transactions. The Model Law seeks to facilitate automation while preserving technological neutrality and party autonomy, and introduces rules concerning the legal recognition and attribution of outputs generated by automated systems.[5] Its development demonstrates that automated contracting is no longer merely a speculative problem for contract theory but an emerging issue of positive law.

Nigerian law already recognises important aspects of electronic transactions through provisions dealing with electronic signatures and electronically generated evidence. Section 17 of the Cybercrimes (Prohibition, Prevention, etc) Act 2015, as amended, provides for the binding effect of electronic signatures in specified transactions[6] , while sections 93 and 84 of the Evidence Act 2011, as amended, recognise electronic signatures and establish rules for the admissibility of computer-generated evidence[7]. Section 101 of the Companies and Allied Matters Act 2020 similarly recognises electronic signatures for the authentication of corporate documents.[8] These provisions facilitate digital transactions, but they do not amount to a comprehensive legal framework for autonomous algorithmic contracting.

The central argument of this article is that algorithmic contracting does not render the doctrine of consensus obsolete. Rather, it exposes an assumption embedded within conventional contract doctrine: that the manifestation of assent and the process producing that manifestation can ordinarily be attributed directly to a human actor. Where algorithms or artificial intelligence intervene between the human principal and the contractual outcome, attribution becomes the crucial legal mechanism through which consensus is reconstructed. The law should therefore move from an exclusive focus on direct human assent towards a framework based on authorised technological agency, reasonable attribution, transparency and carefully defined rules for unexpected algorithmic outcomes.

The article adopts a doctrinal methodology, examining Nigerian contract law alongside relevant statutory provisions, judicial authorities and international developments. Particular attention is given to the UNCITRAL Model Law on Automated Contracting because it provides a contemporary international reference point for addressing the legal problems generated by automated contracting. Comparative materials from other common-law and international settings are considered where they illuminate the development of principles capable of application within the Nigerian legal system.

2. Conceptual Foundations of Algorithmic Contracting

2.1 Meaning and Characteristics of Algorithmic Contracting

Algorithmic contracting may be understood as the formation, negotiation, modification, execution or performance of contractual relationships through an

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[5] United Nations Commission on International Trade Law, *UNCITRAL Model Law on Automated Contracting* (2024).
[6] Cybercrimes (Prohibition, Prevention, etc) Act 2015, s 17
[7] Evidence Act 2011, ss 84, 93, as amended by the Evidence (Amendment) Act 2023.
[8] Companies and Allied Matters Act 2020, s 101.

automated system capable of generating or implementing decisions according to predetermined rules, computational processes or artificial intelligence. The concept is broader than the use of electronic communications in contracting. An electronic contract may involve parties who independently formulate their contractual decisions and merely communicate those decisions electronically. Algorithmic contracting arises where the technological system performs a substantive function in producing the contractual outcome.[9]

The distinction assumes particular significance in the context of artificial intelligence. Conventional automated systems generally operate according to predetermined instructions: where a specified condition occurs, the system performs a corresponding action. Artificial intelligence systems may operate differently. They can process information, identify patterns, generate language, evaluate alternatives and produce outputs based upon models whose precise responses may not have been expressly programmed by the user. The resulting degree of technological autonomy creates a greater separation between the human decision to deploy a system and the particular contractual decision ultimately generated by that system.

Algorithmic contracting should therefore be understood as a continuum. At the simplest level, an automated system may execute a transaction when a predetermined condition is satisfied. At a more sophisticated level, an algorithm may select a counterparty or determine a price within prescribed limits. At the most advanced level, an artificial intelligence system may negotiate contractual terms, evaluate the commercial circumstances of a proposed transaction and communicate acceptance without contemporaneous human intervention. The legal significance of the technology increases as the distance between the initial human instruction and the ultimate contractual decision becomes greater.

The development of international law confirms the emergence of this distinction. The United Nations Convention on the Use of Electronic Communications in International Contracts 2005 already recognised the possibility of contracts being formed through automated message systems. Article 12 provides that a contract formed through the interaction of an automated message system and a natural person, or through the interaction of automated message systems, cannot be denied legal effect merely because no natural person reviewed the individual actions carried out by the system.[10] The provision represented an important departure from the assumption that contractual communication necessarily requires contemporaneous human intervention.

The 2024 UNCITRAL Model Law on Automated Contracting represents a further development. Adopted on 11 July 2024, the Model Law is expressly directed towards the use of automation in contracts, including artificial intelligence techniques, smart contracts and machine-to-machine transactions.[11] It establishes supplementary rules concerning the legal recognition and effectiveness of automated transactions, the use of computer code and dynamic information, attribution of outputs generated by automated systems and unexpected outcomes. It also emphasises that automation cannot be used to avoid compliance with other applicable legal requirements.

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[9] Emily M Weitzenboeck, 'Electronic Agents and the Formation of Contracts' [2001] 9 *International Journal of Law and Information Technology* 204–234.

[10] United Nations Convention on the Use of Electronic Communications in International Contracts (adopted 23 November 2005, entered into force 1 March 2013) art 12.

[11] UNCITRAL, Model Law on Automated Contracting (2024).

The emergence of this international framework is significant because it demonstrates that the legal problem created by algorithmic contracting is not simply whether electronic communications can satisfy formal requirements of contract law. The deeper question concerns the legal significance of a contractual decision produced through an automated system. UNCITRAL's approach recognises that existing rules concerning electronic transactions provide an important foundation but may require supplementation where technology participates directly in the process of contractual decision-making.

Algorithmic contracting is consequently distinguishable from ordinary electronic contracting by reference to the role played by the technological system. In electronic contracting, technology ordinarily functions as a medium through which human decisions are communicated. In algorithmic contracting, technology may become an active component of the decision-making process. That distinction provides the conceptual basis for examining whether traditional doctrines of contractual consensus remain adequate.

2.2 Electronic, Automated and AI-Assisted Contracting

The distinction between electronic, automated and AI-assisted contracting should be maintained because the legal difficulties associated with each are not identical. Electronic contracting primarily concerns the use of electronic means to communicate an agreement. Automated contracting introduces a system capable of executing contractual decisions without human intervention at each stage. AI-assisted contracting introduces a further element because the system may generate or select contractual outcomes based upon computational processes that are not completely determined by explicit instructions from the user.[12]

Electronic contracting is now firmly established within international commercial law. UNCITRAL's Model Law on Electronic Commerce 1996 established the principles of non-discrimination against electronic means, technological neutrality and functional equivalence.[13] Its purpose was not to create a separate substantive law of electronic contracts but to ensure that transactions would not be denied legal effect merely because they were conducted electronically. The United Nations Convention on the Use of Electronic Communications in International Contracts subsequently developed these principles in the international contractual context.[14]

The Nigerian literature has similarly focused on the extent to which traditional contract principles can accommodate electronic transactions. Ilobinso examines the application of conventional rules concerning offer, acceptance, the time and place of formation and authentication to electronic contracts, demonstrating that technological change does not necessarily displace established contractual doctrine.[15] This is significant for the present inquiry because algorithmic contracting builds upon, rather than completely replaces, the earlier phenomenon of electronic contracting.

Automated contracting introduces an additional issue because the system does not merely transmit the contracting party's decision. It may execute the decision automatically. Article 12 of the 2005 Convention is particularly important in this

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[12] Anthony J Bellia Jr, 'Contracting with Electronic Agents' [2001] 50 *Emory Law Journal* 1047–1093

[13] UNCITRAL, Model Law on Electronic Commerce (1996) arts 5, 6, 11–15

[14] United Nations Convention on the Use of Electronic Communications in International Contracts (2005).

[15] Ihuoma K Ilobinso, 'Formation of Electronic Contracts: Melding the Traditional Contract Law with Contemporary Electronic Commerce' [2016] 2 50 *Commercial and Industrial Law Review* , 50–63.

respect because it recognises contracts formed through automated message systems without requiring individual human review.[16] The provision reflects the commercial reality that requiring a human being to examine every computational transaction would defeat much of the purpose of automation.

AI-assisted contracting presents a more complex situation. An AI system may be instructed to negotiate within broad parameters rather than execute a predetermined decision. It may interpret information, generate contractual language and determine whether a particular transaction satisfies the objectives specified by the user. The human party therefore delegates not merely execution but an element of decision-making. This development has consequences for the doctrine of contractual assent. If a person personally accepts contractual terms after reviewing them, the connection between human intention and contractual manifestation is relatively direct. If an automated system communicates acceptance without human intervention, the law must determine whether the system's action is attributable to the user. If an AI system generates the acceptance after independently evaluating the circumstances of the transaction, the problem becomes more difficult because the particular decision may not have been contemplated by the user.

The 2024 UNCITRAL Model Law addresses this distinction by providing a framework for automated contracting rather than treating every technologically mediated transaction as identical. Its purpose is to complement existing electronic-transactions law by addressing legal issues specifically associated with automated systems.[17] The Model Law therefore represents a movement from a law concerned primarily with electronic communication towards a framework capable of accommodating automated contractual decision-making.

The distinction is equally relevant to Nigerian law because existing legislation recognises electronic signatures and electronic records, but recognition of electronic form does not necessarily resolve questions concerning autonomous decision-making. A signature may authenticate a decision already made by a person; an AI-generated contractual output may involve the system in producing the decision itself. The legal issue is consequently no longer simply one of authentication but of attribution[18].

2.3 Consensus and the Formation of Contract

Consensus constitutes a foundational concept in contract law because contractual obligations are ordinarily justified by the agreement of the parties. The traditional expression consensus ad idem describes a meeting of minds, but the modern law of contract does not generally require proof that the parties possessed identical subjective intentions. Instead, contractual formation is ordinarily assessed objectively by reference to the parties' words and conduct in their relevant circumstances.

This distinction has long been recognised in common-law contract doctrine. In *Smith v Hughes*[19], Blackburn J stated that if a person's conduct leads another reasonably to understand that the person intended to contract on particular terms, the person may be bound notwithstanding an undisclosed subjective intention to the contrary. The

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[16] Nataliia Filatova-Bilous, 'Contract Formation Using Algorithms: Old Problems and New Challenges in the Context of AI Application' [2025] 171 *Problems of Legality* 63–77

[17] UNCITRAL, Model Law on Automated Contracting (2024)

[18] Uju Obuka, 'Regulation of Electronic Contracts in Nigeria and South Africa: A Comparative Analysis' [2023]*Nigerian Journal of Legal Studies* 11.

[19] (1871) LR 6 QB 597, 607

decision remains an important foundation for the objective approach to contractual assent.

The objective approach has been developed in subsequent authorities. In *RTS Flexible Systems Ltd v Molkerei Alois Müller GmbH & Co KG,*[20] the Supreme Court emphasised that the existence of a contract depends upon what the parties objectively agreed rather than upon undisclosed subjective intention. In *Investors Compensation Scheme Ltd v West Bromwich Building Societ*y,[21] Lord Hoffmann's formulation of contextual contractual interpretation further demonstrated the importance of examining contractual language against its relevant factual background.

The objective theory is particularly relevant to algorithmic contracting because a counterparty cannot ordinarily observe the internal operation of an AI system or determine the subjective intentions of the person who deployed it. A legal requirement that the counterparty establish the user's actual mental state would therefore create considerable uncertainty. An objective approach permits the law instead to examine whether the system's output was reasonably attributable to the party and whether the counterparty was entitled to treat it as an expression of that party's contractual position.

Nigerian contract law similarly treats consensus as fundamental to contractual formation. In *Okubule v Oyagbola*,[22] the Supreme Court emphasised the importance of positive evidence of acceptance. In *Orient Bank of Nigeria Ltd v Bilante International Ltd*,[23] the Court of Appeal recognised the necessity of consensus between the parties and examined contractual formation through the established principles of offer and acceptance. In *Bilante International Ltd v Nigerian Deposit Insurance Corporation*,[24] the Supreme Court likewise considered consensus ad idem in the context of contractual obligations.

The objective approach does not eliminate intention from contract law. Rather, intention is assessed through legally relevant external conduct. This distinction provides a means of accommodating automated contracting. A party may manifest contractual intention not by personally making each decision but by deliberately configuring and deploying an automated system for a defined contractual purpose. The system's subsequent output may therefore constitute the external manifestation of an earlier human decision to delegate contractual authority. The significance of consensus ad idem in this context should consequently not be understood as requiring contemporaneous human cognition. Its more defensible function is to ensure that contractual obligations arise from conduct sufficiently attributable to the parties. The legal question becomes whether the automated output can be treated as the manifestation of a party's authorised contractual position.

2.4 Offer and Acceptance in Automated Transactions

The conventional structure of offer and acceptance becomes more complicated where automated systems perform both functions. An automated system may continuously monitor market conditions and issue offers whenever specified conditions are satisfied. A counterparty's system may then analyse those offers and automatically

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[20] [2010] UKSC 14, [2010] 1 WLR 753.
[21] [1998] 1 WLR 896 (HL)
[22] (1990) 4 NWLR (Pt 147) 723
[23] (1997) 8 NWLR (Pt 515) 37.
[24] (2011) 15 NWLR (Pt 1270) 407

communicate acceptance. Contract formation may consequently occur through machine-to-machine interaction without direct human communication. The common law has previously accommodated contractual transactions involving machines. In *Thornton v Shoe Lane Parking Ltd*,[25] the Court of Appeal considered the contractual consequences of an automatic ticket machine. Lord Denning MR treated the machine's operation as part of the contractual mechanism established by the operator. The case demonstrates that a machine does not need legal personality for its operation to have contractual significance.

The same principle can be observed in the law governing instantaneous communications. In *Entores Ltd v Miles Far East Corporation*,[26] the Court of Appeal considered the point at which acceptance communicated through telex became effective. The House of Lords subsequently considered related issues in B*rinkibon Ltd v Stahag Stahl und Stahlwarenhandelsgesellschaft mbH*,[27] emphasising that the application of contractual rules to instantaneous communications must take account of the circumstances in which the communication occurs.16

These cases illustrate the adaptability of contract law. The law did not create a separate category of 'telex contracts' or 'machine contracts'. It applied existing principles to determine the legal consequences of new forms of communication and transaction. The challenge presented by AI is nevertheless more significant because contemporary systems may generate contractual decisions rather than merely communicate decisions already made by humans.

The United States addressed automated transactions legislatively through § 14 of the Uniform Electronic Transactions Act 1999. The provision recognises contracts formed through interactions between electronic agents and does not require a natural person to review the individual actions or resulting terms generated by the electronic agent.[28] The rule reflects a legislative recognition that automated contractual processes can produce legally binding agreements notwithstanding the absence of contemporaneous human supervision. Article 12 of the 2005 UNCITRAL Convention recognises contracts formed through automated message systems and establishes that such contracts cannot be denied legal effect merely because no natural person reviewed the individual actions undertaken by the system.[29]

The principle should not, however, be understood as providing unlimited protection to automated transactions. Recognition of automation establishes the possibility of contractual formation; it does not necessarily determine whether every automated outcome is attributable to a particular party. The distinction between formation and attribution becomes particularly important where the system produces an outcome outside the parameters contemplated by its user[30].

2.5 Problem of the 'Meeting of Minds' with Objective Assent

The phrase meeting of minds is potentially misleading when applied to automated contracting because the system itself does not possess legally recognised

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[25] [1971] 2 QB 163 (CA).
[26] [1955] 2 QB 327 (CA).
[27] [1983] 2 AC 34 (HL)
[28] Uniform Electronic Transactions Act 1999, § 14.
[29] United Nations Convention on the Use of Electronic Communications in International Contracts (2005) art 12.
[30] Kevin Werbach and Nicolas Cornell, 'Contracts Ex Machina' [2017] 67 *Duke Law Journal* 313–382.

consciousness, while the human user may not have contemplated the precise transaction produced by the system. The continued use of the concept must therefore be reconciled with the objective theory of contractual formation.

The development of modern contract law demonstrates that subjective intention has never been the sole basis of contractual obligation. Atiyah's analysis of freedom of contract illustrates the extent to which classical conceptions of contract based upon individual will have been modified by objective rules, reliance and broader considerations of commercial policy.[31] Treitel similarly analyses agreement through the objective manifestations of the parties rather than requiring direct proof of subjective consensus.[32] Chitty on Contracts likewise treats agreement principally through the doctrines of offer and acceptance and the objective interpretation of contractual conduct.[33]

This doctrinal position is particularly valuable where contractual communications are generated by algorithms. The counterparty ordinarily has no ability to determine whether the AI system's output precisely corresponds to the user's subjective intention. What the counterparty observes is the external communication. The legal system must therefore determine whether that communication is attributable to the user.

The problem may be illustrated by an AI purchasing system instructed to obtain goods at the ‘best commercially available price’. If the system negotiates with several suppliers and concludes an agreement at a price that the human user would not personally have selected, the absence of direct human approval should not necessarily invalidate the transaction. The user deliberately entrusted the system with the task of identifying and concluding an advantageous transaction. The system's decision falls within the functional authority delegated to it. A different situation arises where the AI system purchases goods wholly unrelated to the user's business because of a software malfunction or erroneous data. Here the question is whether the transaction falls within the authority objectively represented by the user. If it does not, the doctrines of authority, mistake and reasonable reliance may become relevant.

The distinction demonstrates why algorithmic contracting should be analysed through attribution rather than subjective machine intention. The law need not ask whether the algorithm ‘intended’ to contract. It should ask whether the person deploying the system authorised the relevant contractual activity and whether the counterparty was reasonably entitled to rely upon the resulting manifestation.

2.6 Contractual Autonomy Vis- a -Vis Technological Delegation

The deployment of artificial intelligence in contracting does not necessarily undermine contractual autonomy. On the contrary, the decision to delegate contractual functions to an automated system may itself constitute an exercise of autonomy. A commercial party may decide that certain transactions should be concluded automatically because continuous human supervision would be inefficient or commercially impracticable. The relevant issue is therefore not whether a human being personally made each contractual decision but whether the human party exercised meaningful control over the delegation of authority. A company that establishes parameters within which an AI procurement system may negotiate and

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[31] Patrick S Atiyah, *The Rise and Fall of Freedom of Contract* (Clarendon Press 1979).
[32] Edwin Peel, *Treitel: The Law of Contrac*t (15th edn, Sweet & Maxwell 2020)
[33] Hugh Beale (ed), *Chitty on Contracts* (35th edn, Sweet & Maxwell 2023) vol 1

conclude transactions has exercised an antecedent contractual choice. The subsequent automated transactions are the execution of that choice.

This reasoning is consistent with the principle of party autonomy recognised in the UNCITRAL Model Law on Automated Contracting. The Model Law is designed to permit parties to use automated systems while preserving their ability to determine the legal arrangements governing their use, subject to mandatory law.[34] Technological delegation may therefore be treated as analogous, in certain respects, to delegation through an employee or agent. The principal does not personally perform every act undertaken by an authorised representative, but the representative's conduct may nevertheless create contractual consequences for the principal. The analogy should not be taken to confer legal personality upon AI. Rather, it demonstrates that contract law already possesses mechanisms through which one person's prior decision can produce legal consequences through another mechanism.

The difficulty arises where autonomous systems depart materially from the parameters contemplated by the deploying party. AI systems may produce unexpected outputs because of faulty data, erroneous assumptions, model limitations or interactions between variables that were not anticipated by the user. The resulting transaction may therefore exceed what the user subjectively intended while still appearing externally valid. The legal literature has begun to identify this problem as one of algorithmic or automated mistake. Cristina Frattone distinguishes between "automation mistakes" and ‘autonomy mistakes’, arguing that the traditional law of mistake may require adaptation when contractual decisions are generated by automated systems.[35] Her analysis is significant because it demonstrates that not every machine-generated error presents the same legal problem: some errors arise from the automation process itself, while others result from the autonomous operation of the system.[36]

The principle of technological delegation must therefore be accompanied by a principle of reasonable risk allocation. A party that chooses automation should ordinarily bear the consequences of transactions falling within the authority deliberately delegated to its system. The law should not, however, necessarily impose every conceivable technological failure upon that party regardless of the circumstances. The counterparty's knowledge, the nature of the error, the apparent authority of the system and the reasonable expectations generated by the transaction may all be relevant.

2.7 The Limits of Traditional Contract Doctrine in Algorithmic Contracting

The preceding analysis demonstrates that traditional contract doctrine remains capable of addressing many automated transactions. The doctrines of offer, acceptance, objective assent, agency, authority and mistake provide a substantial conceptual foundation. The difficulty is that those doctrines were developed primarily on the assumption that the contractual decision could be connected relatively directly to a human actor.

Algorithmic contracting weakens that assumption. An automated system may act continuously, select contractual partners, determine terms and communicate

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[34] UNCITRAL, Model Law on Automated Contracting (2024)

[35] Cristina Frattone, ‘Algorithmic Mistakes in Machine-Made Contracts: The Legal Consequences of Errors in Automated Contract Formation’ [2024] 28 *Uniform Law Review* 407–425

[36] ibid

acceptance without a human being reviewing the particular transaction. An AI system may also generate outputs that were not explicitly programmed and may operate in ways that are difficult for its user to predict. The legal distance between human authorisation and contractual outcome is consequently greater than in conventional electronic transactions. The appropriate response is not to regard traditional contract law as obsolete. Such an approach would disregard the considerable capacity of contract law to adapt to technological change. The development from physical contracts to electronic communications, automatic machines and online transactions demonstrates that the law can accommodate new technologies while preserving its fundamental principles.[37]

The more appropriate approach is to refine the doctrine of attribution. The central question should be whether an automated output is sufficiently connected to the contracting party through authorisation, deployment, representation or another legally recognised basis of responsibility. This approach avoids the conceptual difficulty of treating artificial intelligence as an independent legal person while also avoiding the equally problematic requirement that a human being personally approve every automated transaction. The 2024 UNCITRAL Model Law adopts an approach broadly consistent with this reasoning. It establishes supplementary rules for the legal recognition of automated contracting and specifically addresses the attribution of outputs generated by automated systems.[38] It also recognises the possibility of unexpected outcomes and provides a legal framework through which such outcomes may be addressed without undermining the general validity of automated contracting.

For Nigerian law, the significance of this development is substantial. Existing Nigerian scholarship on electronic contracts has established that traditional contractual principles can accommodate many forms of electronic commerce, but the emergence of autonomous AI systems presents a more difficult question. Ilobinso's analysis of electronic contracts demonstrates the continuing relevance of offer, acceptance and authentication in digital transactions, while the wider Nigerian literature identifies continuing gaps in the statutory regulation of electronic contracting.

The conceptual foundation for future Nigerian regulation should therefore rest upon three propositions. First, an automated system should not be denied contractual significance merely because a human being did not review the particular transaction. Secondly, an automated system should not be treated as an independent legal person merely because it performs functions associated with contractual decision-making. Thirdly, contractual consequences should depend upon the legal attribution of the system's output to the party that deployed or authorised it, subject to appropriate rules concerning authority, reliance, mistake and unexpected outcomes.

Algorithmic contracting consequently requires a reconstruction of consensus rather than its abandonment. The relevant question is no longer simply whether the parties personally and contemporaneously expressed agreement. It is whether the contractual outcome represents a legally attributable manifestation of the authority that the parties chose to delegate to an automated system. That shift provides the doctrinal bridge between traditional contract law and the emerging reality of AI-mediated transactions.

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[37] See generally Amelia H Boss, 'Electronic Contracting: The History and Future of an Emerging Law' *[*1998] 4 *Law and Information Technology* 1; UNCITRAL, Model Law on Electronic Commerce (1996)

[38] UNCITRAL, Model Law on Automated Contracting (2024).

3. Algorithmic Contracting and the Formation of Contractual Consensus

The most significant challenge presented by algorithmic contracting concerns the identification of the point at which legally recognisable consensus arises. In conventional transactions, the sequence is conceptually straightforward: an offer is made, the offeree accepts it, and the acceptance is communicated in accordance with the applicable rules. In automated transactions, each stage may be performed by software.

This phenomenon is not entirely new. The law has previously accommodated contractual transactions conducted through automatic machines. In *Thornton v Shoe Lane Parking Ltd*, an automatic ticket machine formed part of the contractual mechanism. Lord Denning MR treated the machine's operation as capable of constituting the contractual offer and regarded the customer's insertion of money as acceptance.[39] The significance of the decision lies not in the technology itself but in the law's willingness to analyse automated conduct according to ordinary contractual principles. The machine did not possess legal personality; its operation was attributable to the operator of the parking facility.

Electronic communications similarly required contract law to adapt without abandoning its fundamental principles. In *Entores Ltd v Miles Far East Corporation*,[40] the Court of Appeal distinguished instantaneous communications from postal communications and held that acceptance through telex became effective upon receipt. The House of Lords subsequently considered the issue in *Brinkibon Ltd v Stahag Stahl und Stahlwarenhandelsgesellschaft mbH*, reaffirming the importance of examining the circumstances of the particular communication when determining where and when contractual acceptance occurs.[41] These authorities demonstrate that contract law has historically responded to technological change by adapting existing principles rather than creating an entirely separate law of technological contracts.

Algorithmic contracting presents a more difficult variation because the technology may not merely transmit a human decision; it may generate the decision. The central legal question is consequently whether the algorithmic output can constitute the manifestation of the principal's assent. The answer should ordinarily depend upon authorisation and attribution rather than the existence of a human act at the exact point of formation. Where a party deliberately configures an automated system to conclude transactions within defined parameters, the resulting transaction should ordinarily be attributable to that party. The system functions as an instrument through which the party has chosen to participate in the market. Requiring renewed human confirmation of every automated transaction would defeat the very purpose of automation.

This approach is broadly consistent with international developments. The United Nations Convention on the Use of Electronic Communications in International Contracts 2005 recognises that contracts may be formed through the interaction of automated message systems and natural persons or through the interaction of automated message systems themselves, without each individual action being

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[39] [1971] 2 QB 163.

[40] [1955] 2 QB 327 (CA); [1955] EWCA Civ 3

[41] *Brinkibon Ltd v Stahag Stahl und Stahlwarenhandelsgesellschaft mbH* [1983] 2 AC 34.

reviewed by a natural person.[42] The 2024 UNCITRAL Model Law on Automated Contracting goes further by establishing rules specifically designed to provide legal recognition to automated systems and to address attribution of their outputs.[43]

The problem becomes more complex where the algorithm generates a transaction that falls outside the user's expectations. Suppose a company authorises an AI procurement system to negotiate the purchase of equipment but the system, relying upon its training data and contextual assessment, agrees to terms substantially different from those anticipated by the company. The mere fact that the result was unexpected should not automatically negate the contract. Commercial actors routinely authorise employees and agents to exercise discretion, and the law does not normally invalidate a contract merely because an authorised decision produces an unfavourable result.

The more difficult case arises where the system acts beyond the authority conferred upon it. If an AI procurement system instructed to purchase ten units instead purchases ten thousand, the legal consequences cannot be determined solely by asking whether a machine technically executed the transaction. The relevant questions include the scope of the authority granted, the nature of the system, the representations made to the counterparty, the reasonableness of reliance and whether the error was detectable. The concept of electronic agency provides a useful starting point, but it should not be stretched beyond its conceptual limits. The AI system does not need to become an independent agent in the juridical sense. It may instead be understood as an instrument through which the principal's authorised conduct is operationalised. This approach preserves the distinction between the technological mechanism and the legal person to whom the transaction is attributed.

The doctrine of mistake also requires reconsideration. Traditional mistake doctrine is concerned with circumstances in which the parties' assumptions or communications fail to correspond with the contractual reality. Algorithmic mistakes introduce a different category: the human party may have provided correct instructions, but the system may produce an unexpected result because of faulty programming, erroneous data, model malfunction or an unforeseen interaction between computational variables. The difficulty is determining whether such an outcome should be treated as a contractual mistake, a failure of authority, a technological defect or a risk that the principal assumed by choosing to automate the transaction.

A technology-neutral approach suggests that the mere fact that the mistake was generated by software should not create an automatic defence. The legal consequence should depend upon established principles concerning authority, communication, reliance, causation and allocation of risk. The UNCITRAL Model Law's treatment of unexpected outcomes is significant precisely because it recognises that automated contracting creates distinctive risks without assuming that every unexpected result should produce the same legal consequence.[44]

The doctrine of consensus should therefore be understood functionally. Consensus does not require that a human being personally formulate every contractual term. It requires a legally attributable basis for concluding that the party authorised the transaction and that the other party was entitled to rely upon the resulting

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[42] United Nations Convention on the Use of Electronic Communications in International Contracts (adopted 23 November 2005, entered into force 1 March 2013) art 12.
[43] UNCITRAL, *Model Law on Automated Contracting* (2024),
[44] ibid

manifestation of assent. In algorithmic contracting, the relevant manifestation may be generated through a technological system, but its legal significance derives from the human or corporate actor behind that system.

4. Algorithmic Contracting, Autonomy and Liability: Comparative Perspectives

The increasing use of artificial intelligence in contractual transactions raises a deeper issue concerning contractual autonomy. Classical contract theory associates contractual obligation with the freedom of parties to determine whether, with whom and on what terms they will contract. Automation appears, at first sight, to distance the human party from the contractual decision. Yet automation does not necessarily diminish autonomy. A party may exercise autonomy precisely by choosing to delegate routine contractual decisions to an automated system.

The more appropriate question is therefore whether the party retained meaningful control over the parameters within which the system operated. An individual who deliberately configures an automated purchasing system to enter transactions below a particular price has exercised an initial act of autonomous decision-making. The subsequent transaction is the operational consequence of that decision. The legal system should not treat the absence of contemporaneous human intervention as equivalent to absence of consent.

This principle is particularly important in commercial settings, where automation is often adopted precisely because human intervention in every transaction would be inefficient. The legal recognition of automated contracting therefore serves not only technological innovation but also commercial predictability. If parties could routinely repudiate automated contracts on the ground that no employee personally reviewed the final transaction, the economic value of automation would be substantially reduced. At the same time, autonomy cannot be reduced to technological delegation. An AI system may generate outputs that its user neither intended nor reasonably anticipated. The system may also be influenced by data that contain errors or biases, or may respond unpredictably to novel circumstances. The legal system must therefore establish a principled allocation of risk.

The United Kingdom's experience with automated transactions illustrates the possibility of adapting traditional contract principles to technological mechanisms without recognising separate legal personality for machines.[45] The common-law authorities concerning instantaneous communication and automated machines demonstrate that the law can focus upon the contractual significance of the transaction rather than the metaphysical status of the technology producing it.[46]

The United States has similarly approached automated contracting through electronic transactions legislation. Section 14 of the Uniform Electronic Transactions Act provides for contracts formed by the interaction of electronic agents, including where the parties are unaware of the electronic agent's specific actions or results. The provision reflects a legislative decision that the absence of direct human review of each computational act should not, by itself, defeat contractual formation.[47] The US approach is important because it explicitly separates the legal effect of automated conduct from the need for a human being to supervise each transaction.

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[45] *Entores Ltd v Miles Far East Corporation* [1955] 2 QB 327 (CA);
[46] *Thornton v Shoe Lane Parking Ltd* [1971] 2 QB 163;
[47] Uniform Electronic Transactions Act 1999, § 14.

At the international level, UNCITRAL's 2005 Electronic Communications Convention provides a comparable foundation. Article 12 recognises the possibility of contracts formed through the interaction of automated message systems and expressly rejects the argument that a contract should be denied legal effect merely because no natural person reviewed each individual action carried out by the automated system.[48] The provision is technologically neutral and does not depend upon a particular type of software.

The 2024 UNCITRAL Model Law on Automated Contracting represents a significant development because it addresses problems that electronic commerce instruments could not fully resolve. It recognises automated systems in the formation and performance of contracts, provides rules concerning attribution of outputs and addresses unexpected outcomes.[49] The Model Law deliberately avoids creating a general legal personality for artificial intelligence. Its approach instead centres upon the legal consequences of using automation within contractual relationships.

This approach offers an important conceptual lesson. The central problem is not whether AI should be considered a person but whether existing legal persons should bear responsibility for the systems they deliberately deploy. Assigning legal personality to software could obscure rather than resolve the question of risk. Developers, deployers, users and contracting counterparties may occupy materially different positions and possess different capacities to prevent or mitigate technological error.

Liability should consequently be allocated according to control, authority, reliance and risk. A party that controls an automated system and represents it as authorised to transact should ordinarily bear the consequences of transactions falling within the represented authority. A developer who negligently designs a system may, depending upon the applicable relationship and duty, bear responsibility towards its client. A counterparty who knowingly exploits an obvious system malfunction should not necessarily receive the same protection as an innocent party who reasonably relied upon an apparently valid transaction.

The emerging comparative approach therefore supports a principle of attributable automation rather than autonomous machine liability. Contract law can recognise the transaction without treating the algorithm as a legal person. The principal remains the contracting party; the technology constitutes the mechanism through which the principal's contractual conduct is manifested[50].

5. Algorithmic Contracting under Nigerian Law

The Nigerian legal framework does not presently contain a comprehensive statute governing algorithmic contracting. Nevertheless, existing contract, evidence, electronic-signature and data-protection rules provide several components from which an appropriate framework can be developed.

At common law, Nigerian contract law continues to require agreement, consideration, intention to create legal relations and capacity, subject to the particular characteristics of the transaction. The courts have consistently insisted upon agreement on essential

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[48] United Nations Convention on the Use of Electronic Communications in International Contracts (2005) art 12.

[49] UNCITRAL, *Model Law on Automated Contracting* (2024).

[50] Maarten Herbosch, 'To Err Is Human: Managing the Risks of Contracting AI Systems' [2025] 56 (106) *Computer Law & Security Review* 110

terms. In *Okubule v Oyagbola*[51], the Supreme Court emphasised the requirement of positive evidence of acceptance and the general rule that acceptance must be communicated. In *Best (Nigeria) Ltd v Blackwood Hodge (Nigeria) Ltd*, the Supreme Court reiterated that a binding contract requires agreement on essential terms and compliance with applicable conditions.[52] These principles remain relevant to algorithmic contracting because technological automation does not remove the substantive requirements for contractual validity[53].

The challenge lies in determining how the existing rules apply when the manifestation of acceptance is generated by an automated system. Nigerian law already contains statutory recognition of electronic signatures. Section 17(1) of the Cybercrimes (Prohibition, Prevention, etc) Act 2015 provides that an electronic signature in respect of purchases of goods and other transactions is binding, subject to the statutory framework. Section 93(2) of the Evidence Act 2011 similarly provides that where a rule of evidence requires a signature, an electronic signature may satisfy the requirement.[54] Section 101 of the Companies and Allied Matters Act 2020 provides that an electronic signature satisfies the statutory requirement for signing documents requiring authentication by a company.[55]

These provisions are important but limited. They establish that electronic form does not, by itself, invalidate a transaction. They do not comprehensively answer whether an AI-generated contractual communication constitutes the authorised act of the person who deployed the AI system. The distinction between electronic signature and autonomous decision-making is therefore crucial. A signature may authenticate a decision already made by a human or corporate actor; algorithmic contracting concerns circumstances in which the system participates in generating the decision itself.

The Evidence Act is nevertheless relevant to the evidentiary dimension of the problem. Section 84 provides for the admissibility of statements contained in computer-produced documents subject to specified conditions.[56] In an algorithmic contracting dispute, evidence may include system logs, prompts, configuration records, transaction histories, authentication data, model outputs and records showing the instructions given to the system. The evidentiary framework will therefore be central to determining what the system was instructed to do and whether the resulting transaction fell within the scope of that authority.

The absence of a comprehensive electronic transactions statute is significant. Nigeria has considered electronic transactions legislation over a considerable period, but the earlier Electronic Transactions Bill did not become the general statutory framework that had been anticipated.[57] The result is a fragmented regulatory environment in which common-law contract principles coexist with provisions concerning electronic signatures, electronic evidence, cybersecurity, data protection and corporate authentication.

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[51] *Okubule v Oyagbola* (1990) 4 NWLR (Pt 147) 723;
[52] *Best (Nigeria) Ltd v Blackwood Hodge (Nigeria) Ltd* (2011) 5 NWLR (Pt 1239) 95.
[53] Cristina Frattone, 'Algorithmic Mistakes in Machine-Made Contracts: The Legal Consequences of Errors in Automated Contract Formation' [2023] 28(3–4) *Uniform Law Review* 407–425.
[54] Cybercrimes (Prohibition, Prevention, etc) Act 2015, s 17(1);
[55] Companies and Allied Matters Act 2020, s 101
[56] Evidence Act 2011, s 84, as amended
[57] Judith E Jessah, 'Electronic Commerce: The Validity of Internet Sale of Goods Contract under the Current Nigerian Law' [2019] 1(2) *International Review of Law and Jurisprudence*

The Nigeria Data Protection Act 2023 introduces another relevant dimension. Automated contracting systems may process personal data in evaluating customers, determining prices, assessing creditworthiness or selecting contractual counterparties. Although data protection law does not determine whether a contract has been formed, the processing of personal data in the course of automated decision-making may impose independent obligations upon the controller or processor. The contractual and data-protection questions should therefore be treated as related but distinct[58].

Agency doctrine may provide an important conceptual bridge. Where a principal authorises an agent to enter contracts within defined limits, the principal may be bound by acts performed within that authority. An algorithmic system may be viewed functionally as a technological instrument through which such authority is exercised. The analogy should not, however, be taken to mean that AI is itself an agent with legal personality[59]. The legal relationship remains between the principal and the counterparty, while the algorithm supplies the mechanism through which the principal's authority is operationalised.

The question of unexpected algorithmic outcomes remains the most difficult issue. Nigerian law could potentially address such disputes through existing doctrines rather than immediately creating an entirely new category of contract. Where the system acts within the authority deliberately granted to it, the resulting contract should ordinarily bind the principal. Where the system produces an outcome materially outside that authority, the court should examine the scope of authorisation, the representations made to the counterparty, the circumstances of the transaction and the reasonableness of reliance.

The approach would also accord with Nigerian judicial reluctance to rewrite agreements or relieve parties merely because the consequences of their bargain become inconvenient. In *BFI Group Corporation v Bureau of Public Enterprises*, the Supreme Court emphasised that courts are not entitled to rewrite the parties' agreement.[60] The principle has significance in automated contracting because a party should not ordinarily be permitted to evade an authorised transaction merely because the algorithm produced an economically undesirable result. Nevertheless, the law should distinguish between contractual risk knowingly assumed by a party and technological malfunction that fundamentally undermines the basis upon which the counterparty relied. The absence of clear statutory rules creates uncertainty in this respect. Nigerian courts may be required to adapt existing principles incrementally, but judicial development alone may not provide sufficient predictability for widespread commercial adoption of autonomous contracting technologies.

6. Recommendations

The Nigerian legal framework should recognise that algorithmic contracting represents an extension of electronic commerce rather than a phenomenon requiring the abandonment of established contract principles. Accordingly, the following are recommended:

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[58] ibid

[59] Xiaoshui Zhai, 'What a Party Knows: Rethinking Knowledge Assessment in Automated Contracting' [2026] 61 (106) *Computer Law & Security Review* 336.

[60] (2012) 18 NWLR (Pt 1332) 209.

Proper understanding of Contractual consensus

Contractual consensus should be understood in terms of legally attributable assent rather than direct human intervention at every stage of the transaction. Where a party deliberately deploys an automated system and authorises it to conclude contracts within specified parameters, the output of that system should generally be attributable to the party. Such an approach would provide certainty to counterparties while preventing technological form from becoming an artificial obstacle to contractual enforcement.

Express Recognition of Automated contracting

Nigerian law should expressly recognise automated contracting. The UNCITRAL Model Law on Automated Contracting provides a useful legislative reference point because it is specifically designed to accommodate AI systems, smart contracts and machine-to-machine transactions while retaining technological neutrality.[61] Nigeria need not reproduce the Model Law mechanically. Its principles could instead be adapted to Nigerian contract law, with particular attention to attribution, unexpected outcomes, disclosure and evidentiary reliability.

Establish a Clear Rule On Attribution

The relevant question should ordinarily be whether the automated system was deployed or authorised by a party and whether the transaction falls within the system's authorised function. This would provide greater certainty than attempting to determine whether an AI system possesses subjective intention. The law should distinguish between an authorised automated decision and an unauthorised technological event.

Develop mechanisms for unexpected outcomes

The law should provide a carefully defined mechanism for dealing with unexpected outcomes. Automatic invalidation would undermine commercial certainty, while automatic enforcement of every machine-generated transaction could unfairly allocate technological risks to parties who did not control the system. A balanced framework could consider the degree of deviation from authorised parameters, the foreseeability of the outcome, the representations made by the deploying party, the counterparty's reliance and the availability of reasonable technological safeguards.

Establish contractual rules governing the scope of automated authority

Parties using autonomous contracting systems should be encouraged, and where appropriate required, to establish contractual rules governing the scope of automated authority. Commercial agreements should identify the functions that an automated system may perform, financial or transactional limits, circumstances requiring human intervention, procedures for correcting erroneous transactions and mechanisms for maintaining reliable transaction records. Such provisions would enable contractual autonomy to operate effectively in an automated environment.

Development of Evidentiary framework

The evidentiary framework should be developed alongside substantive rules. Algorithmic disputes will frequently turn upon evidence concerning system instructions, configuration, transaction logs, authentication, data inputs and outputs. Existing provisions of the Evidence Act provide an important foundation, but future

[61] UNCITRAL, *Model Law on Automated Contracting* (2024)

reforms should ensure that courts can assess the integrity, provenance and reliability of records generated by increasingly complex AI systems.

Preservation of technological neutrality

the legal framework should preserve technological neutrality. The law should regulate the legal consequences of automated contracting rather than prescribe a particular technology. A rule that is drafted exclusively around one form of AI, blockchain or software architecture may become obsolete as technological systems develop. The principles of technological neutrality and functional equivalence already reflected in UNCITRAL's electronic commerce instruments provide a suitable legislative orientation.[62]

Finally, the development of Nigerian law should maintain a distinction between contractual validity and technological governance. Questions concerning whether a contract has been formed are not identical to questions concerning whether an AI system complied with data-protection, cybersecurity, consumer-protection or other regulatory obligations. A single transaction may therefore generate several independent legal questions. Separating these questions would allow contract law to retain its doctrinal coherence while enabling other regulatory regimes to address the risks associated with AI.

7. Conclusion

Algorithmic contracting presents contract law with a problem of attribution rather than a reason to abandon consensus as a foundation of contractual obligation. The fact that a contractual decision is generated through an automated system does not, by itself, deprive the resulting transaction of legal significance. What matters is whether the transaction can be connected, through principles of authorisation and attribution, to a legally recognised contracting party. The traditional language of a "meeting of minds" is therefore increasingly inadequate if understood as requiring direct human deliberation at every stage of contractual formation. It remains useful if understood more carefully as a requirement that contractual obligations arise from conduct legally attributable to parties who have assumed responsibility for the transaction. Automation changes the mechanism through which that conduct is expressed; it does not necessarily change its juridical source. The future of contract law should consequently lie neither in treating artificial intelligence as an independent contracting person nor in forcing every automated transaction into a purely human model of decision-making. The more sustainable approach is to recognise authorised automation while developing principled rules for attribution, unexpected outcomes and allocation of technological risk.

For Nigeria, the immediate challenge is the absence of a comprehensive statutory framework specifically addressing automated contracting. Existing rules on contract formation, electronic signatures and electronic evidence provide a foundation, but they do not sufficiently resolve the distinctive problems created by autonomous systems. The UNCITRAL Model Law on Automated Contracting offers a timely framework from which Nigerian lawmakers and courts can develop rules suited to the country's digital economy. The essential task is therefore one of doctrinal adaptation. Contract law must remain sufficiently stable to preserve certainty and sufficiently responsive to recognise new methods of contracting. Algorithmic contracting does not require a new conception of contractual obligation; it requires a more sophisticated

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[62] UNCITRAL, *Model Law on Electronic Commerce* (1996)

understanding of how consent may be manifested, attributed and relied upon when technology increasingly participates in the process of agreement.