



Ecuadorian civil law and the digitalisation of contracts

Derecho civil ecuatoriano ante la digitalización de los contratos

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ABSTRACT

The objective of the research is to analyse Ecuadorian civil law in the light of the digitalisation of contracts. The research was developed under a qualitative approach, using the documentary research technique and the analytical-synthetic method. A selection of documentary sources was made, identifying 18 articles published in indexed scientific journals. The digitisation of contracts and the incorporation of technologies such as blockchain, artificial intelligence and smart contracts have transformed the contractual sphere, posing opportunities and challenges for Ecuadorian civil law. This process requires the reinterpretation of traditional principles, such as party autonomy and legal certainty, to adapt them to the new digital dynamics.

Descriptors: right to justice; civil law; computer law. (Source: UNESCO Thesaurus).

RESUMEN

Se prescribe como objetivo de investigación analizar el derecho civil ecuatoriano ante la digitalización de los contratos. La investigación se desarrolló bajo un enfoque cualitativo, utilizando la técnica de investigación documental y el método analítico-sintético. Se realizó una selección de fuentes documentales, identificando 18 artículos publicados en revistas científicas indexadas. La digitalización de los contratos y la incorporación de tecnologías como blockchain, inteligencia artificial y contratos inteligentes han transformado el ámbito contractual, planteando oportunidades y desafíos para el derecho civil ecuatoriano. Este proceso exige la reinterpretación de principios tradicionales, como la autonomía de la voluntad y la seguridad jurídica, para adaptarlos a las nuevas dinámicas digitales.

Descriptor: derecho a la justicia; derecho civil; derecho de la informática. (Fuente: Tesoro UNESCO).

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Research articles section



INTRODUCTION

The digital transformation has had a significant impact on legal relations, particularly in the contractual sphere, where tools such as smart contracts, artificial intelligence and blockchain technology have begun to redefine the way in which agreements between parties are concluded, interpreted and executed. In the Ecuadorian context, civil law faces the challenge of adapting to these technological innovations, which not only introduce new dynamics in contracting, but also raise questions about essential aspects such as the formation of consent, the validity of legal acts, data privacy and the liability of the parties in digital environments.

The digitisation of contracts has opened a legal debate on the need to update regulatory frameworks to ensure legal certainty and the protection of contracting parties' rights. In this regard, studies such as Andrade-Ureña et al. (2023) and Cuví-Santacruz et al. (2023) have analysed the incorporation of smart contracts in the Ecuadorian legal system, highlighting their capacity to automate contractual obligations and reduce transactional costs. However, they also warn about the challenges posed by their implementation, such as the absence of specific regulation, the risks of algorithmic errors and the difficulties in harmonising these technologies with traditional civil law principles.

On the other hand, digitalisation also raises ethical and legal issues related to the protection of personal data and privacy, as pointed out by Burgos-Arcenales et al. (2024), as well as to the formation of consent in digital environments, an issue addressed by Cáceres-Malagón (2023) and Pinochet-Olave (2004). These problems highlight the need for a comprehensive normative approach that makes it possible to reconcile technological development with the fundamental principles of civil law, such as the autonomy of the will, good faith and contractual balance, .

Based on the above, the objective of the research is to analyse Ecuadorian civil law in the light of the digitalisation of contracts.



METHOD

The research was developed under a qualitative approach, using the documentary research technique and the analytical-synthetic method.

A selection of documentary sources was made, identifying 18 articles published in indexed scientific journals. The selection criteria included thematic relevance, prioritising studies related to digital contracts, smart contracts, blockchain, artificial intelligence and their impact on civil law. We assessed the timeliness of the publications, selecting recent articles (2019-2024) that reflected the most recent advances in the field, as well as academic quality.

ANALYSIS OF THE RESULTS

In the case of Ecuadorian civil law, the advent of technologies such as blockchain, artificial intelligence (AI) and smart contracts poses both opportunities and challenges. Table 1 analyses the main issues related to the digitisation of contracts, exploring their impact on Ecuadorian laws, ethical and legal challenges, and possible solutions to adapt to this new reality.

Civil law in Ecuador faces the challenge of combining its traditional principles with the demands of an ever-changing digital world. From digital transformation and smart contracts to the use of AI in legal processes, each topic reflects the need to create specific rules that guarantee legal certainty and protect people's rights. Topics such as labour relations on digital platforms, ethical issues of AI and the importance of learning from international experience to improve the regulatory framework are also addressed.



Table 1. Ecuadorian civil law in the face of the digitalisation of contracts.

Theme	Sub-themes	Aspects	Relationship to Ecuadorian law	Reference
General context	<ul style="list-style-type: none"> - Digital transformation - New technologies - Legal challenges 	<ul style="list-style-type: none"> - Impact on civil law, especially on contracting. - Use of blockchain, artificial intelligence (AI) and smart contracts. - Adaptation of traditional principles to new forms of contracting. 	<ul style="list-style-type: none"> - Ecuadorian law faces the challenge of adapting its traditional principles to new technologies. - These technologies are beginning to be recognised in the Ecuadorian legal framework, but still lack specific regulation. - Ecuadorian regulations must guarantee legal certainty in digital contracts and smart contracts. 	Rivas-Alvarado et al., 2024; Andrade-Ureña et al., 2023.
2. Digital contracts and smart contracts	<ul style="list-style-type: none"> - Definition - Advantages - Challenges - Guiding principles in Ecuador - Case studies - Ratification of informal agency 	<ul style="list-style-type: none"> - Self-executing contracts based on blockchain. - Transparency, automation, reduction of intermediaries. - Lack of specific regulation, problems of algorithmic consent and jurisdiction. - Autonomy of will, legal certainty, adaptation to current regulations. - Problems of forum, jurisdiction and right of withdrawal in B2C contracts. - Use of smart contracts to modernise tax processes. - Analysis of the figure of informal agency in bilateral contracts. 	<ul style="list-style-type: none"> - In Ecuador, smart contracts are recognised as an innovative tool, but their implementation requires legal adjustments. - They can be useful in sectors such as e-commerce and tax collection in Ecuador. - The lack of specific regulations in Ecuador generates uncertainty in their practical application. - These principles are fundamental to integrate smart contracts into the Ecuadorian legal framework. - In Ecuador, this figure can be relevant in digital contracts, but requires further regulatory development. 	Cáceres-Malagón, 2023; Novoa et al., 2020; Cuvil-Santacruz et al., 2023; Martínez-Boada, 2024; Borja-Tipán & D'ambrocio-Camacho, 2023
3. Artificial intelligence and civil law	<ul style="list-style-type: none"> - Impact on the administration of justice - Ethics and 	<ul style="list-style-type: none"> - Automation of judicial processes. - Ethical use of AI in judicial and 	<ul style="list-style-type: none"> - In Ecuador, AI could improve judicial efficiency, but poses ethical 	Bodero-Solis et al., 2024; Zabala-



	<p>accountability</p> <ul style="list-style-type: none"> - Falsification of evidence through AI - Privacy and access to public information 	<p>administrative processes.</p> <ul style="list-style-type: none"> - Challenges in the validation of digital evidence. - Protection of personal data in the face of advanced technologies. 	<p>and accountability challenges.</p> <ul style="list-style-type: none"> - Ecuadorian regulations must ensure the responsible use of AI in the judicial sphere. - In Ecuador, the falsification of digital evidence is a growing challenge that requires specific regulation. - Ecuadorian legislation should strengthen the protection of personal data from the use of AI and digital technologies. 	<p>Balladares et al., 2024; Santiago-Basantes et al., 2024; Burgos-Arcenales et al., 2024.</p>
4. Employment and digital contracts	<ul style="list-style-type: none"> - Labour relations on digital platforms - Labour flexibility 	<ul style="list-style-type: none"> - Employment issues in contracts with delivery drivers. - Analysis of temporary contracts in the context of digitalisation. 	<ul style="list-style-type: none"> - In Ecuador, the labour relationship between delivery workers and digital platforms is not yet clearly regulated. - Labour flexibilisation in Ecuador must balance workers' rights with the needs of digital companies. 	<p>Porras-Velasco, 2023; Vega-Atiencie et al., 2022</p>
5. Legal and ethical challenges	<ul style="list-style-type: none"> - Algorithmic consent - Ethics in the use of AI - Protection of fundamental rights 	<ul style="list-style-type: none"> - Debate on the validity of machine-generated consent. - Liability in judicial and administrative proceedings. - Right to privacy and legal certainty. 	<ul style="list-style-type: none"> - In Ecuador, algorithmic consent raises questions about its compatibility with traditional civil law principles. - Ecuadorian regulations should establish clear limits for the use of AI in legal processes. - In Ecuador, the protection of fundamental rights should be a priority in the implementation of digital technologies. 	<p>Cáceres-Malagón, 2023; Zabala-Balladares et al., 2024; Burgos-Arcenales et al., 2024.</p>
6. Proposals and perspectives	<ul style="list-style-type: none"> - Adaptation of legislation - Legal education - International cooperation 	<ul style="list-style-type: none"> - Incorporate digitalisation principles in the Ecuadorian Civil Code. 	<ul style="list-style-type: none"> - The Ecuadorian Civil Code needs to be updated to include specific provisions on 	<p>Cuvi-Santacruz et al., 2023; Rivas-Alvarado et al.,</p>



	<ul style="list-style-type: none"> - Contract exceptionality - Blockchain issues - Formation of consent 	<ul style="list-style-type: none"> - Training in emerging technologies for lawyers and judges. - Learning from experiences in other countries (e.g., Spain, Colombia). - Re-emergence of traditional principles in crisis contexts (e.g., COVID-19). - Analysis of the legal challenges of blockchain and smart contracts. - Use of new technologies for the formation of consent in digital contracts. 	<p>digital contracts and smart contracts.</p> <ul style="list-style-type: none"> - In Ecuador, legal training should include knowledge on blockchain, AI and digital contracts. - Ecuador can benefit from international experience to develop its regulatory framework around the digitisation of civil law. - In Ecuador, the pandemic highlighted the need to reinforce traditional principles in exceptional situations. - In Ecuador, the use of blockchain requires specific regulation to ensure its legal validity. - In Ecuador, the formation of consent in electronic contracts must be aligned with traditional civil law principles. 	<p>2024; Arroyo-Amayuelas & Schulze, 2021; Calahorrano-Latorre, 2020; Padilla Sanchez, 2020; Pinochet-Olave, 2004</p>
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Source: Own elaboration.

The Ecuadorian Civil Code, enacted in 1860 and based on Andrés Bello's Chilean model, is based on a legal paradigm that prioritises traditional contractual relations, where physical interaction and written documentation predominate. However, digitalisation has introduced new forms of contracting that challenge this model. Digital contracts, defined as agreements concluded and executed through electronic means, and smart contracts, which are self-executing programmes based on blockchain, have generated a paradigm shift in general contract theory.

In this context, Article 1461 of the Ecuadorian Civil Code, which establishes the essential requirements for the existence of a contract (consent, lawful object and



cause), must be reinterpreted to include the particularities of digital contracts. For example, algorithmic consent, which manifests itself through automated interactions between systems, raises doubts about its compatibility with the autonomy of will, a guiding principle of civil law. According to Cáceres-Malagón (2023), consent generated by algorithms cannot always be equated with human consent, as it lacks the conscious intentionality that characterises the latter. This creates legal uncertainty and calls for a specific regulation defining the limits and scope of consent in the digital sphere.

On the other hand, smart contracts represent a disruptive innovation in the contractual field, as they allow the automatic execution of the agreed obligations without the intervention of the parties once the predefined conditions are met. In the Ecuadorian context, their implementation faces several challenges. First, the lack of specific regulation limits their applicability. Although smart contracts are recognised as an innovative tool, the Ecuadorian legal system lacks specific provisions regulating their validity, execution and legal effects. This generates uncertainty about their use in sectors such as e-commerce and tax collection (Novoa et al., 2020). According to Cuvi-Santacruz et al. (2023), the absence of a clear regulatory framework limits the potential of smart contracts to modernise contractual relations in Ecuador.

Another important challenge is the determination of jurisdiction and the competent forum in international contracts. In a decentralised environment such as the blockchain, where the parties may be located in different countries, the lack of clarity in these aspects may generate legal conflicts and make it difficult to resolve disputes (Martínez-Boada, 2024). Moreover, the automatic execution of smart contracts raises questions about the possibility of modifying or terminating the contract once performance has begun, which is in tension with the principle of party autonomy, which allows parties to renegotiate or terminate their contractual obligations. According to Borja-Tipán & D'ambrocio-Camacho (2023), the figure of informal agency could be relevant to address these issues, but requires further normative development.



One of the most controversial aspects of digital contracts is the formation of consent, which in traditional civil law is manifested through offer and acceptance. In the digital domain, consent can be expressed through clicks, electronic signatures or automated interactions between systems. However, these forms of manifestation of consent raise a number of problems.

Firstly, the validity of algorithmic consent raises doubts, in digital contracts, consent can be generated automatically by algorithms acting on behalf of the parties. This raises questions as to whether such consent complies with the requirements of party autonomy and legal capacity (Cáceres-Malagón, 2023). According to Pinochet-Olave (2004), the formation of consent in digital environments must ensure that the parties fully understand the terms of the contract, avoiding situations of error or abuse.

Secondly, consumer protection in digital contracts is a crucial issue. In B2C (business-to-consumer) contracts, the formation of the consent must ensure that the consumer fully understands the terms of the contract. This is particularly relevant in e-commerce, where contract terms are often presented in standardised and difficult to understand formats. According to Martínez-Boada (2024), the lack of transparency in these contracts can violate consumers' rights and generate legal disputes.

Legal certainty is a fundamental principle of civil law that guarantees the predictability and stability of legal relations. In the context of digital contracts, this principle is threatened by the lack of specific regulation and the technical complexity of the technologies involved, smart contracts, when executed automatically, may generate unforeseen or undesired results, which raises questions about the possibility of challenging their execution.

In this sense, the Ecuadorian legal system must guarantee legal certainty in digital contracts by creating a regulatory framework that regulates aspects such as the validity and effectiveness of digital contracts, the protection of the rights of the parties and the interoperability of technologies. According to Cuvi-Santacruz et al.



(2023), the regulation of these aspects is essential to guarantee the integration of digital contracts into the Ecuadorian legal system.

To meet the challenges of digitalisation, the Ecuadorian Civil Code needs to be reformed to include specific provisions on digital contracts and smart contracts. Some proposals include the incorporation of digitisation principles, regulation of algorithmic consent, consumer protection in e-commerce and training in emerging technologies. According to Rivas-Alvarado et al. (2024), these measures are essential to ensure legal certainty and effectiveness of digital contracts in Ecuador.

CONCLUSION

The digitisation of contracts and the incorporation of technologies such as blockchain, artificial intelligence and smart contracts have transformed the contractual sphere, posing opportunities and challenges for Ecuadorian civil law. This process requires the reinterpretation of traditional principles, such as party autonomy and legal certainty, to adapt them to the new digital dynamics. However, the lack of specific regulation generates uncertainty in aspects such as algorithmic consent, consumer protection, jurisdiction in international contracts and the automatic execution of obligations.

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CONFLICT OF INTEREST

There is no conflict of interest with persons or institutions involved in research.

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CONTRIBUTION OF THE AUTHORS

María Estefanía Baldeon-Navarrete: She was responsible for designing and conceptualising the study. She also wrote the introduction and analysed the results obtained. She also participated in reviewing the content and organising the bibliographical references.



Johanna Emperatriz Coronel-Piloso: Carried out the search and analysis of the scientific literature, focusing on topics such as digital contracts and smart contracts. She contributed to the drafting of the methodology and the creation of the results table.

Magyuri Zambrano-Burgos: She was in charge of analysing the legal and regulatory aspects of Ecuadorian civil law in the face of digitalisation. She drafted the sections related to ethical and legal challenges, as well as regulatory proposals.

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