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Legal Protection of Rights in Smart Contracts and Its Alignment with Contemporary Legislation

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Abstract:

Smart contracts are technological innovations that have revolutionized the field of legal and economic transactions by enabling the automatic execution of terms and conditions through blockchain technology, without the need for intermediaries. With the increasing use of this technology, many legal challenges have emerged related to the protection of legal rights of the contracting parties, as well as the compatibility with contemporary legal regulations. Therefore, this topic was chosen due to the importance of understanding how smart contracts impact the traditional legal system and how to bridge the legal gaps that may arise in the absence of a unified legislative framework governing these contracts. The goal is to analyze the protection of legal rights in smart contracts and explore legislative solutions that contribute to ensuring their alignment with contemporary laws.

key words:

Smart contracts, blockchain, legal protection, contemporary legislation, legal technology.

introduction:

Smart contracts are considered one of the most prominent technological developments in the last two decades, relying on blockchain technology to automatically execute legal transactions without the need for intermediaries. These contracts have brought about a significant transformation in how business transactions and legal agreements are conducted, as the pre-defined terms and conditions are executed in a secure and transparent manner. Despite their numerous advantages, smart contracts continue to raise important legal questions regarding their compatibility with traditional legislative systems and the protection of the rights of the contracting parties.

The importance of this study lies in shedding light on the legal challenges facing smart contracts, particularly in relation to protecting the rights of the contracting parties, as there are many questions about how to ensure individuals' rights in the context of this new technological system. With the increasing use of smart contracts across various sectors, a thorough examination of these legal issues is required to analyze their impact on individual and collective rights.

This research aims to explore how legal rights can be protected in smart contracts and their compatibility with contemporary legislation. It also seeks to provide a critical analysis of the current legal framework related to smart contracts and how it can be amended or developed to keep pace with the new legal challenges arising from this advanced technology. Additionally, the research will review potential legal solutions to ensure the protection of the rights of the contracting parties in this type of contract.

The main issue addressed by this research is the question of whether contemporary legal regulations are capable of keeping pace with smart contracts and ensuring the protection of the legal rights of the contracting parties. How can existing laws be adapted to align with the characteristics of smart contracts, which are defined by their

automatic execution and high transparency? This raises many questions about legal responsibility in the event of any violation or failure in the execution of the contract.

The sub-issues faced by this topic are numerous and include the following: How is legal responsibility determined in smart contracts? What legal guarantees are in place to protect the rights of the contracting parties? Can smart contracts fill the legal gaps resulting from the absence of specific legislation governing them? How can national and international laws be applied in a manner that aligns with the decentralized nature of smart contracts?

This research will adopt an analytical methodology aimed at studying the legal texts related to smart contracts, in addition to reviewing the legal practices in countries that have embraced these contracts. The research will also rely on a comparative analysis of current legislations compared to traditional legal systems to highlight the points of divergence and convergence between them. Furthermore, the inductive approach will be used to examine potential future developments in this field.

Through this research, we aim to provide practical and realistic legal solutions that contribute to the development of the legal framework for smart contracts, ensuring the protection of the rights of contracting parties, and enhancing the effectiveness of using this technology in legal business transactions within the contemporary legislative environment.

Section I:
The concept of smart contracts and their mechanism of operation

The concept of smart contracts is a modern topic that is gaining increasing attention in the fields of technology, economics, and law. This concept is represented by digital protocols capable of automatically executing agreements based on predefined conditions, without the need for intermediaries or human intervention. Smart

contracts rely on blockchain technology, which provides a secure and transparent infrastructure for writing and recording these contracts, ensuring their execution according to the specified terms without manipulation or delay. We will explore the concept of smart contracts, including their mechanism of operation and key characteristics.

FIRST REQUIREMENT:

Definition and Characteristics of Smart Contracts

In this context, we will explore the concept of smart contracts and provide a comprehensive definition, focusing on the key characteristics that distinguish them from traditional contracts. We will discuss the essential features of this modern technology based on blockchain and how it contributes to enhancing security and efficiency in executing commercial agreements.

Firstly: **Definition of Smart Contracts**

Contract law is one of the most rapidly evolving fields in response to modern technologies and advancements. It continuously develops to address the emergence of new technologies worldwide. This development is based on the analysis of the evolution of contracting methods and the principle of freedom of contract. It can be said that each society has its own prevailing form of contracting. In a society driven by technology and information, human involvement in defining and executing contract terms is reduced. New types of contracts and agreements can be concluded without human intervention, often through electronic agents. Smart contracts represent a suitable example of this, as they mark a significant development in contracting procedures.

Smart contracts are a type of digital protocol that operates automatically based on specific conditions that were predefined, without the need for human intervention or external intermediaries. These contracts are executed through blockchain technologies, where

the contract is recorded in an immutable database, ensuring transparency and security[1].

A smart contract is defined as a set of rules or code that specifies certain conditions that must be met for the agreement to be executed. Once these conditions are met, the contract is automatically executed without any manual intervention, speeding up processes and reducing the likelihood of errors or manipulation[2].

The concept of smart contracts first appeared in 1994, when it was proposed by researcher Nick Szabo. At that time, the goal of smart contracts was to facilitate digital transactions in environments that lacked trust between parties. Since the emergence of blockchain technology, these contracts have gained significant importance, especially in contexts that rely on digital currencies such as Ethereum[3].

Smart contracts are characterized by the ability to complete transactions without the need for intermediaries. In traditional systems, transactions require the involvement of a third party, such as a lawyer or a bank, to ensure the execution of agreements. However, in smart contracts, the blockchain network acts as the intermediary, which helps reduce costs and improve efficiency[4].

In 1994, American cryptography expert Nick Szabo defined smart contracts as a set of computerized transaction protocols that execute the terms of agreements[5]. Two years later, he updated this definition,

[1] Christidis, K., & Devetsikiotis, M. "Blockchains and Smart Contracts for the Internet of Things." IEEE Access, 4, 2292-2303, 2016, DOI: https://doi.org/10.1109/ACCESS.2016.2566339.
[2] Buterin, V. "A Next-Generation Smart Contract and Decentralized Application Platform." Ethereum White Paper, 2014. https://ethereum.org/en/whitepaper .
[3] Szmigiera, M., & Przybylski, J. "Applications of Blockchain in Financial Technology." Blockchain Applications in Finance and Business. Springer, Cham, 2021.
[4] Tapscott, D., & Tapscott, A. Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies is Changing the World. Penguin. 2017.
[5] Nick Szabo, Smart Contracts, 1994, Available at:

describing them as a collection of promises and commitments specified in a digital format, which include protocols that execute these promises. These protocols are typically executed on networks of parties through which these promises are made[1].

In 2014, a branch of jurisprudence defined smart contracts as the self-execution of a traditional contract written in natural language for humans and specifically formulated in a language that can be translated by a computer. Here, this definition considers smart contracts merely as a tool for executing another traditional natural contract that has been translated into programming language[2].

A smart contract is a computer program on an open, public, decentralized network, or it can be described as a specific protocol or code aimed at contributing to or verifying negotiations between the parties of the contract and executing and performing the agreed-upon actions once the conditions are met. In other words, it does not allow for any reversal after the agreement and the contract have been made. Through this network, the transaction can be tracked without the need for an intermediary or a contract notary, as the network itself acts as an untrusted third party.

To explain the concept of smart contracts, when a person wishes to buy or sell a property through a traditional contract, it requires time and effort to gather the necessary documents for the property, deliver them to the relevant authorities, and agree on the details, terms, and price with the other party. However, this process can expose them to fraud and scams. As a result, some people turn to real estate agencies to ensure the transaction is completed, adding extra costs. Here, the role of smart contracts comes into play to address these issues, ensuring speed, security, and lower costs. In a smart contract, the

https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts.html

[1] Nick Szabo, Smart Contracts: Building Blocks for Digital Markets. 1996.

[2] Bourque, Samuel and Tsui, Sara. A Lawyer's Introduction to Smart Contracts. 2014.

seller presents the contract on a blockchain network, and users validate and approve it. The buyer accepts the contract, and the platform's role is to lock the funds from the buyer's digital wallet through the smart contract. After transferring the ownership to the buyer, the price is sent to the seller. This process occurs within a distributed system that is witnessed by all users on the network, and the transaction is recorded in the blockchain ledger. There is no need for an intermediary, such as a real estate agency, or additional costs, nor the fear of fraud, as ownership and payment are transferred easily, securely, and simultaneously.

An example of the real-world application of smart contracts is in the insurance sector. Smart contracts can automatically execute the terms of an insurance policy when certain events occur, such as a car accident. In this case, once the occurrence of the accident is verified, the smart contract can automatically trigger the payment of compensation to the affected party without the need for human intervention[1].

One of the key advantages provided by smart contracts is security. All data related to the contract is stored on the blockchain, making it difficult to alter or manipulate. Furthermore, the parties involved can verify the validity of the contract at any time, enhancing transparency and reducing the likelihood of disputes.

Smart contracts are also a valuable tool in decentralized finance (DeFi) applications. In these systems, smart contracts are used to automatically execute lending and borrowing processes, helping to avoid reliance on traditional financial institutions. This enables individuals to conduct financial transactions more quickly, affordably, and securely. Smart contracts also represent a significant evolution in the way commercial and financial agreements are executed. Through blockchain technologies, these contracts improve efficiency and

[1] Christidis, K., & Devetsikiotis, op. cit.

reduce the need for intermediaries, making transactions safer and more transparent. With the increasing use of this technology in areas such as finance, insurance, and decentralized finance, it is expected to have a profound impact on the way transactions are carried out in the future.

Secondly: Characteristics of Smart Contracts

The smart contract has a set of characteristics, which can be summarized as follows :

1. **Decentralization**:

Smart contracts operate on decentralized networks (such as the Ethereum blockchain), meaning there is no need for a central authority or intermediary to execute the contract. The contract can be executed directly between parties, reducing costs and enhancing trust among participants.

2. **Security**:

Because smart contracts are stored on a blockchain, altering or tampering with them after deployment is extremely difficult. This provides high security for the data and ensures protection against fraud or manipulation.

3. **Automatic Execution**:

The conditions of a smart contract are executed automatically when the programmed conditions in the code are met. For example, if the contract stipulates payment upon delivery of goods, once the product is confirmed to be delivered, the payment is made automatically. This reduces the need for human intervention and increases operational efficiency[1].

4. **Transparency**:

All parties involved can access the details of the smart contract and view its terms, increasing transparency and fostering trust among

[1] Savelyev, Alexander. Contract Law 2.0: Smartt Contracts As the Beginning of the End of Classic Contract Law. SSRN Electronic Journal. Elsevier BV. 2016.

participants. As smart contracts are programmed and executed on a public blockchain, participants can monitor the process in real-time.

5. **Programmability**:

Smart contracts can be customized to execute any set of conditions and commands that can be represented through code. This flexibility makes smart contracts adaptable to a wide range of applications, from decentralized finance (DeFi) to various industries.

6. **Lower Cost**:

Since smart contracts eliminate the need for intermediaries and reduce the time required for contract execution, they are often cheaper compared to traditional contracts, which involve third-party entities like lawyers or banks.

7. **Immutability**:

Once a smart contract is executed and deployed on the blockchain, it becomes immutable. This ensures that all parties adhere to the contract's terms without any subsequent changes or interference.

8. **Electronic Environment or Nature**:

Smart contracts are distinguished by being created in a decentralized electronic environment, meaning they can only exist in digital form. They are automated contracts that are executed through a computer device using programming languages that operate within the blockchain technology framework.

Furthermore, the agreement between the parties in a smart contract is programmed and converted into instructions using digital programming languages to be placed on the blockchain and executed. This execution may take place digitally within the blockchain itself or may be linked to external data, depending on the subject matter of the contract.

It is noticeable that the similarity between smart contracts and electronic contracts is quite distant in reality. This is because,

currently, smart contracts are not contracts in the legal sense of the term, nor can they be considered electronic contracts. They differ significantly in their execution methods and present very complex characteristics[1].

SECOND REQUIREMENT:

Mechanism of operation of smart contracts

The mechanism of smart contracts relies on the automatic execution of commands when certain conditions are met, without the need for third-party intervention. Each smart contract contains a set of initial conditions that must be fulfilled for the contract to be executed, such as the following:

1- Defining the parties:

The contract includes the involved parties, such as the buyer and seller in a purchase or financial transaction.

2- Defining the conditions:

The terms and conditions that must be met for the contract to be executed are set. For example, there may be a condition that a specific amount of money must be paid before ownership is transferred.

3- Automatic execution:

Once the conditions are met, the specified actions in the contract are executed. In financial transactions, this may include transferring funds from one account to another. In digital asset contracts, this may involve transferring digital assets to the buyer.

The execution of the contract is carried out through computer intermediaries connected to Oracle technology, which is a program used by individuals to collect external data and register it on the platform concerning specific incidents, applying the conditional

[1] Bayle, Melle Aurélie. Analyse Prospective des Smart Contracts En Droit Francais. Master, (Faculté De Droit Et De Science Politique, Universite De Montpellier). 2016.

approach that governs the smart contract. This allows the participants to be informed, using blockchain technology, about what is happening in the real world and integrates this information into the platform, enabling the smart contract to execute automatically[1].

The smart contract's function is self-execution based on the conditional approach agreed upon by the contract's parties, as it is built on electronic software that incorporates complex algorithms, far removed from legal matters. Its intelligence allows it to fulfill contractual obligations autonomously, in addition to recording transactions in a distributed database. In this case, smart contracts can be described as decentralized[2].

Once the conditional approach is fulfilled and the price is paid in digital currency, the contract is automatically executed. All of this occurs through blockchain technology, where each stage is encrypted and documented, and it works to update the accounts linked to the ledger, with the professor being the final stage in the sequence[3].

Section II :

Protection of legal rights in smart contracts

Smart contracts are technological innovations that have brought about a significant transformation in how agreements are made and executed between contracting parties. Despite the advantages these contracts offer in terms of efficiency and speed, they raise many legal issues related to the protection of the contracting parties' rights. In this

[1] Hossam El-Din Mahmoud Mohamed Mohamed Hassan, "Smart Contracts Executed Through Blockchain Technology," Specialized Legal Journal for Legal Studies and Research, Volume 16, Issue 1, Cairo University, May 2023, P 62.
[2] Mansour Daoud, "The Smart Contract and Its Role in Establishing Trust in Contractual Relationships," Journal of Legal and Economic Research, Volume 4, Issue 2, Institute of Law and Political Science, University Center of Aflou, 2021, P 73.
[3] Hana Mohamed Hilal Al-Hanti, "The Nature of Smart Contracts," International Islamic Fiqh Academy Conference, Organization of Islamic Cooperation, Dubai, 24th session, United Arab Emirates, 2019, p.35 .

context, a fundamental question arises regarding the availability of legal protection for the parties and how smart contracts align with traditional regulations that govern ordinary contracts. These contracts also raise legal concerns related to the ability to modify the contract, challenge its terms, and ensure equality between parties in dealing with this technology. This research will examine these legal challenges and provide an analysis of the legal rights that may be affected when using smart contracts, with a focus on blockchain-related legislation in some advanced countries.

FIRST REQUIREMENT:

Issues of legal protection

Smart contracts are one of the most prominent innovations in the field of legislation and legal regulation, representing a fusion of technology and law in organizing and executing agreements between contracting parties. Despite their significant advantages in accelerating processes and reducing costs, they raise numerous legal issues regarding the protection of the contracting parties. These issues primarily relate to the gap between smart contracts and traditional legislation, particularly concerning legal enforceability, contract formulation, and determining the parties' liability in the event of a dispute. In this research, we will address these legal challenges, providing examples and legal texts aimed at exploring the legal protection aspects of smart contracts.

Firstly: **The extent of legal protection available to contracting parties in smart contracts**

Smart contracts represent a technological advancement in the field of contracts, relying on blockchain technology to automatically execute and document agreements between contracting parties without the need for traditional intermediaries. Despite the benefits that this technology offers in terms of speed and transparency, it raises complex legal questions regarding the extent of legal protection available to the contracting parties.

One of the most prominent legal challenges faced by smart contracts is ensuring that adequate protection exists for the contracting parties in the event of a dispute or non-compliance. Since smart contracts typically do not involve a traditional "signature" or tangible documents like conventional contracts, this raises questions about how laws related to contract validity and party obligations are applied within the traditional legal system[1].

One of the key points to consider is the protection of parties in the event of a dispute regarding the execution of a smart contract. Blockchain technologies, on which these contracts rely, allow for the documentation of every action or change occurring within the contract, contributing to the provision of a "digital proof" that may be used in legal proceedings. However, the issue remains in determining the appropriate judicial authority to enforce the laws, particularly when parties are located in different countries[2].

For instance, in the case of a dispute between two parties, one located in the European Union and the other in the United States, how should the enforcement of judgments be handled in light of these smart contracts, which do not recognize traditional geographical boundaries?

Secondly: Analysis of the legal gap between smart contracts and traditional legislation

The legal gap between smart contracts and traditional legislation manifests in several aspects, most notably:

- **Legal Enforceability**: Traditional contracts are enforced through courts, which ensure the application of agreements between the parties. In contrast, smart contracts rely on self-executing code, which may lack any judicial oversight or

[1] Werbach, Kevin, and Nicolas Cornell. "Contracts Ex Machina." Duke Law Journal, vol. 67, no. 2, 2017, pp. 313–382. https://scholarship.law.duke.edu/dlj/vol67/iss2/2.
[2] Werbach, Kevin, and Nicolas Cornell, Ibid.

government supervision.

In terms of legal enforceability, the smart contract faces the issue of the absence of legal provisions that offer comprehensive protection in the event of a dispute. In traditional contracts, there is a firm legal obligation to enforce the agreement through the judiciary if one party fails to fulfill its obligations. However, in smart contracts, enforcement depends on the smart contracts themselves, which can execute without any human intervention, making it challenging to determine the execution of the agreement if a technical malfunction or programming error occurs[1].

Legal Example:

In the United States, smart contract-related issues have been addressed by the Securities and Exchange Commission (SEC), which has implemented regulations requiring transparency in smart contracts and the need for legal safeguards in case of disputes.

- **Gap in Legal Drafting**: In traditional contracts, responsibilities and risks are precisely outlined in legal texts by specialized lawyers. In smart contracts, these formulations are replaced by code that may be ambiguous or difficult for non-experts to understand[2].

Smart contracts lack the formal legal frameworks that govern traditional contracts, where legal texts are replaced by programming languages that may not be sufficiently interpretable by courts or non-expert parties.

Legal Example:

In cases involving smart contracts in the United Kingdom, courts face challenges in interpreting and giving legal validity to the terms

[1] Securities and Exchange Commission. Framework for "Investment Contract" Analysis of Digital Assets. 2018, U.S. Securities and Exchange Commission, https://www.sec.gov/finhub.

[2] Jaccard, G. Smart Contracts and the Role of Law. SSRN. .2018 https://doi.org/10.2139/ssrn.3099885.

included in a smart contract. It is worth noting that the UK Supreme Court has emphasized the need for judicial oversight of smart contracts to address legal issues related to enforcing the agreement between parties.

- **Party Liability**: In traditional contracts, liability is determined based on the legal provisions set forth in national or international regulations. However, smart contracts may create difficulties in determining liability in the event of a programming error or contract execution failure, as it may be challenging to identify the responsible party[1].

In traditional contracts, liability is determined based on clear legal obligations in the event of a breach or failure to fulfill the terms of the contract. In contrast, in smart contracts, failure to complete the programming or a system malfunction may result in the contract's failure to execute. In such cases, it is difficult to determine the responsible party, especially in complex contracts involving multiple parties.

SECOND REQUIREMENT:

Legal rights in smart contracts

Smart contracts are among the most significant technological innovations that have emerged in the field of law and technology. These contracts enable the execution of transactions and the exchange of rights in an automated manner, based on predefined conditions embedded within the software. This type of contract relies on blockchain technology, which provides a high level of security and credibility. However, despite these advantages, the use of smart contracts raises several legal issues concerning the rights of the

[1] Akinsola, O. K., & Liang, W. Legal Risks and Challenges of Implementing Smart Contracts in Corporate Governance. ResearchGate. .2025 https://www.researchgate.net/publication/388405262_Legal_Risks_and_Challenges_of_Implementing_Smart_Contracts_in_Corporate_GovernanceResearchGate.

involved parties. These include the rights to modify the contract, challenge it, and ensure equality in treatment.

Firstly: **The fundamental rights that may be affected when using smart contracts include**

This section will address the fundamental rights that may be affected when using smart contracts, such as the right to modify the contract, the right to challenge the contract, and the right to equality of treatment. It will explore how blockchain technology impacts these rights due to the fixed and automated nature of smart contracts, as well as the legal challenges arising from the widespread use of this technology.

- **The right to amend the contract**

The right to amend the contract is one of the most significant legal rights that may be affected when using smart contracts. Traditional laws typically allow the contracting parties to amend or modify the terms of a contract based on their mutual desires or in the event of unforeseen circumstances. However, in smart contracts, this ability to amend is highly limited due to the fixed and programmed nature of the blockchain, where terms are recorded in the code in an immutable manner[1].

Nevertheless, this challenge can be addressed by incorporating flexible clauses into the smart contract's code, allowing certain terms to be modified if necessary. However, this would require prior agreement among the involved parties and may necessitate technical changes to the network on which the contract operates.

- **The right to challenge the contract**

The right to challenge the contract represents a fundamental principle in traditional legal systems. Parties can challenge a contract if it

[1] Catalini, Christian, and Joshua S. Gans. Some Simple Economics of the Blockchain. MIT Sloan Research Paper, 2016.

contains unfair terms or if it was entered into under unlawful circumstances, such as threats or fraud. However, in smart contracts, challenging the contract may be difficult because all transactions are permanently recorded on the blockchain, making it extremely challenging to alter or modify the record after execution[1].

In specific cases, self-arbitration mechanisms can be incorporated within the smart contract, where such mechanisms are considered a means of resolving disputes without the need to challenge the contract in court. However, the question remains about the ability of these mechanisms to adapt to situations that require legal flexibility.

- **Equality of treatment**

Equality of treatment may raise some issues in smart contracts between the contracting parties. In the traditional system, there is an expectation of protection for vulnerable parties or those in an unequal position, such as consumer protection in commercial transactions. However, in smart contracts, due to the algorithmic and artificial intelligence-based nature, it may be challenging to ensure the same level of equality, especially if the contracting parties have a higher level of technical expertise than others[2].

Secondly: Legal provisions related to blockchain technologies in some countries

This section will explore the legal provisions related to blockchain technologies in various countries, focusing on how these technologies are regulated within different legal frameworks. It will review the legislation concerning smart contracts and digital currencies in countries such as the United States, the United Kingdom, and the European Union.

[1] Tapscott, Don, and Alex Tapscott. Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies Is Changing the World. Penguin, 2016.
[2] Zohar, Or. Blockchain and the Law: The Interplay of Law and Technology in the Modern Age. Cambridge University Press, 2018.

- **United States**

In the United States, several steps have been taken to integrate blockchain technology into the legal system. For example, some states, such as Wisconsin and California, have passed legislation allowing the use of blockchain for storing legal data. One of the key legal aspects related to smart contracts in the United States is the recognition of smart contracts as legal tools in certain cases, such as contracts entered into online in commercial transactions[1].

The U.S. Securities and Exchange Commission (SEC) considers blockchain and smart contracts within the framework of securities laws when they relate to the financial value of digital currencies, such as Bitcoin.

- **United Kingdom**

In the United Kingdom, the government continues to study how to integrate blockchain technology into various legal sectors, including smart contracts. In 2018, the UK Government Office published a report on how blockchain could be used in the legal sector, focusing on ensuring the legal security of digital transactions[2]. Additionally, the UK is keen on ensuring that smart contracts comply with existing laws related to data protection and consumer rights.

- **European Union Countries**

At the EU level, there is growing interest in the use of blockchain technology across various legal fields, including smart contracts. In 2018, the European Commission released a report outlining how EU laws could be adapted to blockchain technology, with a focus on facilitating the use of smart contracts in financial and commercial

[1] Gans, Joshua S. The Blockchain Economy: A New Era of Distributed Innovation. MIT Press, 2019.

[2] Shackelford, Scott J. Blockchain and the Law: A New Era of Transparency and Trust. Oxford University Press, 2018.

sectors while ensuring compliance with privacy and data protection laws.

In European countries, smart contracts are primarily viewed in the context of consumer rights and equality of treatment, where there is still a need to develop a legal framework that allows for the protection of vulnerable parties in digital transactions.

Smart contracts and the associated technologies present a significant challenge to traditional legal systems. Although they offer many advantages, such as security, transparency, and speed, they raise numerous legal issues related to the fundamental rights of the involved parties. Modern legislation must adapt to these challenges to ensure the provision of appropriate legal protection for all parties involved in transactions using smart contracts.

Conclusion:

In conclusion, this study reveals that smart contracts represent a significant transformation in the field of legal transactions, offering an automated and secure execution of the terms agreed upon by the contracting parties. However, legal obstacles remain, as these contracts face significant challenges in protecting the legal rights of the contracting parties due to the absence of clear and comprehensive legislation that keeps pace with rapid technological developments. The incompatibility of current legal systems with the characteristics of smart contracts necessitates a reexamination of both national and international legislation to provide an appropriate legal framework that ensures comprehensive protection for all parties involved.

Through this study, it became clear that there is an urgent need to develop legislation specifically related to smart contracts, to clearly define responsibilities, ensure effective enforcement mechanisms, and strengthen judicial procedures related to this type of contract. Furthermore, collaboration between lawmakers and information technology specialists is crucial to developing legal solutions that

keep up with modern digital changes, thereby helping to foster trust in the use of smart contracts and ensuring their protection within a flexible and fair legal framework.

- **Based on all what have been said, the study concluded a set of recommendations:**

- The necessity of developing specific legislation for smart contracts to ensure the protection of legal rights.
- Establishing a legal framework that clearly defines the responsibilities of the contracting parties in smart contracts.
- Adopting laws that ensure the legal execution of smart contracts through fixed procedures.
- Providing legal mechanisms to address failures or disputes that may arise from smart contracts.
- The need to activate cooperation between lawmakers and technology developers to create integrated legal frameworks.
- Encouraging legal studies related to smart contracts to enhance legal knowledge in this field.

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