



*The role of a smart electronic agent in the conclusion  
of smart contracts incorporated into Block Chin*

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**Abstract**

*The modern technological revolution in the digital economy led to the emergence of the most modern block chain, which, through high technology, facilitated the process of concluding smarter and faster electronic contracts that changed the concept of traditional contracts and new digital contracts. "Smart contracts" emerged as self-executing contracts with high-resolution and encryption technology. Thus, we study the intelligent agent's relationship to entering into smart contracts through the Block Chin by focusing on the method of contracting and performing these highly accurate digital contracts.*

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## 1. Introduction

The technological revolution in the digital economy has led to the emergence of the block chain, the most modern block chain, with enormous technical capabilities beyond its adoption in digital currencies. This technology is the most critical innovation after the advent of the Internet, providing a unique and safe method for conducting tags and the preservation or transfer of data in general. Smart contracts, a product of the technological revolution, have revolutionized the landscape of commercial and financial transactions.

They have replaced traditional contracts with electronic and smart contracting, a digital transformation that is reshaping the concept of contracts. The smart contract is: "A self-executing contract with the terms of the Convention written directly between the buyer and the seller in a line of software instructions. The Code and the conventions contained therein exist through the distributed and decentralized Block Chain network. Where the Code controls execution and transactions are traceable and irreversible, smart contracts permit reliable transactions and agreements between different and unidentified parties without

the need for a central authority, legal system or external enforcement control mechanism."

Block Chain technology has created a significant breakthrough in the field of contract conclusion, where what is known as smart contracts has become a new challenge to the traditional system of contracts. Suppose a conventional contract is concluded between two people. In that case, it is different from intelligent commercial agreements, which are done electronically without interference by any human element. This has led to the emergence of the so-called intelligent agent technique in the conclusion of smart contracts carried out by Block Chain technology.

A smart contract is an information program that aims to implement the contract autonomously without third-party interference. The Block Chain technique allows people without a credit relationship to conduct themselves safely without the need for credit. Modern technology has resulted in artificial intelligence and block chain technology. This intelligent agent replaces the human agent, which has caused a stir in the legal community. An intelligent agent is a computer program through which specific tasks and

objectives can be carried out on behalf of other users and without control by others so that it has the flexibility and ability to communicate with others, whether human or intelligent agents, without interference or supervision.

An intelligent agent intervenes in the process of concluding smart contracts in two stages:

In the pre-contracting phase, the intelligent agent looks for new clients. The completion stage of a contract in a transaction or transaction is where it seeks to complete a business transaction according to intelligent and highly accurate techniques. The role of a competent agent differs between what represents the seller and the buyer. Thus, we study the subject in the following ways: -What are the smart contracts that are embedded in the Block Chain and what are the limits of the smart electronic agent's' intervention?

## 2: The concept of Smart contracts embedded in Block Chain.

Contract law is the most advanced area for dealing with modern techniques, including smart contracts, which may raise some legal problems when applied in practice because of their automatic implementation mechanism. The research was therefore aimed at

presenting the concept of a smart contract and its formation, identifying its characteristics and legal nature, with an indication of the problem it might pose (Abd al-Razziq and Hahbe Sayed Ahmed Mohammed .2021.p83).

### 2.1. Definition of smart contracts

#### 2.1.1. Meaning of smart contracts:

Smart contracts, an operating software based on block chain, revolutionized how we establish and implement digital contracts. They eliminate the need for traditional mediums, offering unique features such as:

- **Digital documentation:** registration of contracts and transactions, thus eliminating the need for traditional paper documents.
- **Automatic implementation:** When appropriate conditions occur, the predefined conditions of the contract are automatically implemented, thereby reducing the need for human intervention.
- **Transparency and safety:** contracts are stored and executed on the Block Chain network, ensuring transparency and safety and preventing forgery.

One of the most significant advantages of smart contracts is their cost-effectiveness. Unlike traditional

contracts, smart contracts can be executed at a fraction of the cost, thanks to reduced fees and intermediaries.

- **Programming capacity:** Smart contracts can be programmed to implement various terms and orders, making them adaptable and tailor-made to specific needs.

Russia was the first country to attempt to define a smart contract in 2017, as defined by the **Presidential Decree** as: "a computer code dedicated to working in the custody of the distributed professor for automatic execution and execution of transactions or other legal proceedings,

Malta also approved the Digital Innovation Authority Bill 2018, which defined the smart contract as "a form of innovative technological arrangement consisting of a computer protocol and an agreement concluded wholly or partly in electronic form and which is automatically enforceable through computer codes, although there are parts requiring intervention and human control that are also capable of implementation through regular or dual legal means( Abd al-Razziq and Hahbe Sayed Ahmad Muhammad.2021.p86)

Smart contracts, primarily based on block chain technology, are unique in

their ability to communicate and exchange data with other users. State regulations do not bind them but serve as a tool for automatic implementation by the contracting parties. A smart contract is a program that contains the agreement's data and automatically implements it.

### 2.1.2. Characteristics of smart contracts:

The first characteristic of a smart contract is decentralized distribution. Smart contracts operate on a decentralized Block Chain network, meaning that there is no central authority that controls them or their operations. This eliminates the need for confidence in a third party.

Critical is automatic or rapid implementation: since smart contracts operate automatically, they enable transactions to be carried out more quickly than traditional processes that may require manual interventions and extra time. They automatically adapt computers because algorithms replace enforcement, and the value of self-implementation is claimed to lie in eliminating any human appreciation, whether by the contracting parties or arbitrators. In theory, no one, including the contracting parties, can interfere with the code change or the smart contract's operation. It is the content of the

performance; therefore, the automatic implementation is linked to preventing breach of contract and reducing the likelihood of disputes. Self-implementation thus obviates the need for judicial assistance to implement this contract. The term self-implementation also indicates that computer programs change their situation independently by pre-defined rules.

It is wrong to say that the Block Chain guarantees performance at the technical level. It only ensures that the smart contract code will be carried out safely through the network distributed to computers since it cannot guarantee that the code represents the fundamental obligation correctly or does not contain a miscoding and, therefore, does not guarantee performance. The term self-implementation is somewhat vague because contracts are enforceable, and in the legal context, the contract is executed with the economic interests of its parties ( Abd al-Razziq and Hahbe Sayed Ahmad Muhammad.2021.p87)

**Broad diversity:** Smart contracts can be used in a variety of areas, including real estate, finance, insurance, supply and so on, making them a powerful and flexible tool in many industries.

**The scope for innovation:** smart contracts

open the door to innovation and continued development in the world of contracts and commercial transactions, where new and advanced applications can be developed to meet market needs. In short, smart contracts represent a tremendous development in the way contracts are created and implemented, which provides new and innovative opportunities for individuals and companies to streamline and improve their contractual processes.

## **2.2. Legislative texts on smart contracts:**

So far, many countries have no specific laws for smart contracts. However, this situation is slowly changing, as many countries begin to consider how to apply traditional contract-based laws to smart contracts.

Many laws based on traditional contracts include concepts such as emphasis on free and willing consent, contract validity, provision of complete and clear information, delivery and payment, etc. However, new challenges can arise when applying these concepts to smart contracts, such as validating digital signatures and establishing liability in case of software errors.

Legislators are expected to develop new legislation or amend existing laws to better regulate intelligent contracts. For the time being, the law relies on the general principles that exist in the legal system of each State when dealing with smart contracts.

### 2.3. The legal nature of the smart contract:

Studying the subject requires answering the question: Is a smart contract a legal contract in accordance with civil law?

Some scholars know that a smart contract is performed automatically without artificial intelligence intervention; that is, it is essential to note that smart contracts are not just digital contracts, nor do they contain artificial intelligence, but automatic contracts. By analyzing the term smart contract, we find that the term smart refers to the ability of the contract to interact with other applications, i.e., to communicate and exchange data with them. The term contract seems unclear because it relates to a term that cannot be understood in the legal sense, i.e., as a source of legal obligations, but that means that smart contracts can operate independently, which is why some program developers prefer to use the term "agent" instead of "contract or arrangement." «The term contract gives rise to multiple meanings that may refer to the agreement between the parties and thus describe the parties' obligation to the contract or to the content of the agreement, which sets out the rights and obligations of the parties towards each other or to the actual document in which the terms of the contract were extended. (Abd al-Razziq and Hahbe Sayed Ahmad Muhammad.2021.p84) .

A smart contract is an agreement of two or more persons intended for automatic execution at the time of the meeting of the performance requirements specified by the parties to the original contract code that allows the intelligent parties to register and certify their contractual obligations in a reliable and final manner, but also by automating the implementation of these two characteristics that are inherent in the concept of the smart contract in essence. In contrast, the legal contract sets out the agreement terms between several parties. The intelligent contract goes further and freezes these clauses in the Block Chain with the assurance of the transfer of assets, however far they may be, when it is ascertained that all network users fulfill the contractual terms.

Given the technical and accurate modernity of smart contracts, it is difficult to drop legal concepts associated with the digital, economic, and social environment. (Neriman Massoud Burgeda.2019.p106)

Intelligent contracts are only software with high-speed and high-performance technology, including party contractual agreements. The smart contract is complex algorithm software programmed to conclude contractual agreements for the parties.

Some French jurisprudence does not regard a smart contract as a contract in the legal sense of the term a contract, rather than an electronic contract because it has complex methods and is of a nature specific to the Blockchain technique, which is merely a computer code and a digital guard intended to serve the contract. In other words, an intelligent contract is simply a future program and a holder of the contractual contract between the contracting parties that monitors and implements traditional actual contracts mechanically and automatically implements them.

In this sense, it is different from the meaning of the contracts under Article 1101 of the French Civil Code, which contains a voluntary agreement or more aimed at creating, modifying, transferring, or terminating contractual obligations. Article 1127/1 of the French Civil Code sets out the criteria for electronic contracts: anyone offered professionally by means of electronic means must supply funds or contractual services applicable in a manner that allows for their preservation and printing. The respondent remains committed to it as long as access to electronic means is possible by an act of the French Civil Code.

- Different stages to be followed for a contract by electronic means

- Technological means that a positive person, before concluding a contract, must identify possible errors when data are entered and corrected.

- Language proposed for the contract.

- If necessary, what are the methods of preservation of the contract by the offer or and the conditions for access to the contract at the time of preservation?

- Electronic access to the professional and commercial rules to which the offer intends to submit;

Thus, a digital contract is interpreted electronically without difficulty as contracts incite a contract within the meaning of civil law( Abd al-Razziq and Hahbe Sayed Ahmad Muhammad.2021.p89). Hence, the electronic contract differs from what is called a smart contract.

### 3. Smart agent intervenes in the conclusion of smart contracts incorporated into Block Chain.

#### 3.1 .The concept of an electronic agent:

##### 3.1. 1-Definition of electronic agent:

It is a concept that refers to a person or entity appointed to carry out activities or make decisions on behalf of another person using digital technology. The

objective of the e-agent is to provide a mechanism for interacting with digital services and completing transactions over the Internet without needing a personal presence.

The e-agent model uses cloud computing techniques and decentralized technology to enable individuals or entities to delegate their powers or assign someone else to online operations. An electronic agent can be operational software based on artificial intelligence or a digital platform that facilitates interaction between users and services.

The uses of an e-agent vary considerably, including completing financial transactions, conducting administrative processes, signing official documents, interacting with e-government, and so on. The agent's technique contributes to accelerating documentation and approval processes and improving user experience in the digital environment.

Electronic agent:

##### a. Documentation and confirmation:

An electronic agent can play an essential role in authentication and confirmation, as it can verify the identity of users and the authenticity of the information they provide.

b. Mediation and negotiation: The e-agent can act as an intermediary between parties in online procurement and

sales and facilitate negotiation and decision-making processes.

**c. Guidance and Guidance:** The e-agent can guide users regarding the use of digital services and direct them towards the proper procedures and next steps.

**d. Control and management:** E-agents can effectively monitor activities and manage operations over the Internet.

**e. Safety and privacy:** The electronic agent must be a source of confidence and possess a high level of security and privacy when handling sensitive and personal information for users.

**f. Practical applications:** E-Agent applications vary widely, such as online financial services, procurement and sales facilitation, personal account management, etc. Digital technology and e-agents represent an essential development in the modern era, contributing to improved process efficiency and providing superior user experiences in the digital world.

### 3.1.2- Legal definition of an electronic agent:

The American legislator defined the smart agent through the Uniform Electronic Transactions Act of 1999, according to article 02/F6: "an electronic means used to complete a procedure, or to respond in whole or in part to an electronic record

without review or intervention by the user." (Ahmad Mustafa Daboussi.2020.p401).

The American legislature defines this as an electronic agent instead of using a smart agent. Article 01 of Federal Act No. 01 of 2006 on transactions and electronic commerce stipulates that an electronic intermediary entrusted with the provision of: "An electronic programme or system of information technology which automatically operates in dependently without the supervision of any natural person at the time the work is performed or responded to:

It appears that the word "electronic agent" carries almost the same content as the American text, but that the term "smart agent" is better, more precise and more comprehensive than the "electronic agent" using the "Block Chain" technique, which is based on artificial intelligence(Ahmad Mustafa Daboussi.2020.p402).

### 3.2.. How a smart agent enters into smart contracts:

#### 3.2.1. Stages of the conclusion of the smart contract by the electronic agent:

An intelligent agent for smart contracts includes several technical and legal steps. Here are some general steps to make an intelligent agent for smart contracts:



**a. Specify the parties and the conditions:**

The parties concerned must specify the terms and conditions required for the smart contract, including the procedures and conditions for interaction with the contract.

**b. Conversion of terms into smart code:**

Agreed terms are converted into implementable smart code by a professional software developer. The programming languages of intelligent contracts, such as Solidarity, are used to build code.

**c. Dissemination of the smart contract:**

The smart contract is published on the block chain, allowing the parties to access and interact with it. Bright conditions are implemented automatically when specific circumstances occur.

**d. Interaction by the parties:**

The parties involved interact with the smart contract and implement the specific actions. All interactions on the bloc chin are recorded for transparency and integrity assurance.

**e. Legal verification:**

A smart contract is verified and conformed to domestic or international laws and regulations, taking into account safety aspects and the rights of the parties.

**f. Implementation of conditions and settlement:**

The conditions specified in the smart contract are implemented automatically, and the agreed terms settle transactions.

**g. Updates and maintenance:**

Smart contract can be updated or modified if conditions change or technical improvements are required

**3.2. 2. Role of the electronic agent for the conclusion of smart contracts:**

An electronic or competent agent plays two critical roles in making intelligent contracts by contributing to their automatic performance by taking care of the buyer and, again, the seller to complete the commercial transaction in place of the smart contract.

**a. Electronic agent as buyer's deputy:**

An intelligent agent as a buyer's deputy plays an essential role in identifying and searching for the buyer's needs, where virtual shops, as well as production companies, ask buyers who visit their sites to give detailed data on their identity and their personality by identifying their needs or tastes. Examples of such data include identifying consumer products and the professional consumer's social status. This information is then upgraded to the buyer's identification file form after each transaction by recording and analyzing their successive claims.( Ahmad Mustafa Daboussi.2020.p409).

**b. Electronic agent as seller ' s deputy:**

The supplier ' s smart agent assists the seller in all consumer data, consumer and purchasing preferences and preferred services, which enables the seller to know all consumer information and data and thus becomes easier to target for new goods and services than to use any other marketing method. This data can also be used every time the supplier deals with the buyer or others, which provides them with the required goods and services at a high speed and accuracy better than the traditional search engines, One example of this type of agent (Broad Vision) is the developer of an institute of technology, which is making major strides in the sale process(Ahmad Mustafa Daboussi. 2020.p411).

So we conclude that an electronic agent or an intelligent agent is an aid tool in making smart contracts. But what may most be legal forms is the extent to which an electronic agent enjoys legal personality, as some have seen the doctrine as a moral legal person, since the granting of legal personality enhances confidence in the work of an electronic agent in terms of obligations and responsibilities, but the nature of the legal person differs from the technical and digital nature of an electronic

agent, making it a virtual person without the legal status to be legally bound.

**Conclusion:**

We have come to a series of conclusions: the absence of a uniform definition of a smart contract that has the characteristic of automatic implementation of the terms agreed upon by the parties through computer programs and its distinctive specificity over the contract in the ordinary sense, there is a redefinition of the term tutelage as a software instrument to receive contracts, with the result that a smart contract cannot be modified in case of emergency or canceled in case of force majeure.

Moreover, it was difficult to determine the contracting parties' capacity and the difficulty of interpreting the intelligent contract by writing it in a programming language that judges and lawyers could not understand, prompting the courts to use experts to interpret it. We, therefore, recommended the need for uniform legislation to regulate the smart contract, the establishment of training centers for judges to enable them to understand the language in which this contract is written to explain it in the event of a dispute between its parties, as well as the modification of the Block Chain platform to make the smart contract as

flexible and changeable as traditional contracts.

We have also concluded that the legal personality of an intelligent agent or an electronic agent makes it complex to determine the obligations and responsibilities that are required based on law, thus reducing confidence in his dealings even though there is a presumption of health, safety, and trust within the Block Chain technique, which must be legally regulated and considered as the new technique of high quality and precision by the artificial intelligence device to enhance confidence in it and its dealings thin, intelligent contracts, which we believe to be a guarantee for the automatic implementation of obligations if it is to be incorporated into the legal basis and to regulate its legal nature different from electronic contracts and traditional contracts.

#### **Recommendations:**

The need to include legal texts on block chain technology in artificial intelligence-based electronic transactions.

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