



THE NECESSITY OF ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON ELECTRONIC TRANSACTIONS

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ARTICLE INFO

Article History:

Received 25.06.2024
Accepted 22.08.2024
Published 30.09.2024

Keywords:

Electronic Transactions,
Scientific Revolution,
Electronic Contract,
Artificial Intelligence

ABSTRACT

The technological revolution, fueled by the sweeping changes of the information age, has profoundly impacted all spheres of life. This transformation has revolutionized the realms of inventions and communications, setting the stage for the rise of Artificial Intelligence (AI). AI has evolved into a formidable force that rivals human intellect, increasingly becoming a focal point of research aimed at integrating it across all aspects of daily life. Its capacity to address individual needs and provide tailored solutions has made it an indispensable tool in today's digital world.

This rapid scientific progression and the burgeoning interest in AI have established it as a critical necessity, offering significant benefits in various fields. These advancements have transformed traditional, human-controlled mechanisms into intelligent systems that emulate human reasoning and decision-making processes. This shift is particularly evident in the realm of electronic transactions, where AI has played a pivotal role in advancing these technologies and has been instrumental in the development of smart electronic contracts.

INTRODUCTION

The information revolution has pervasively influenced various domains of life, altering perceptions of invention and sparking significant innovations such as smart websites, computers, intelligent devices, and cars, all influenced by scientific and cognitive advancements.

These innovations have significantly propelled the development of Artificial Intelligence (AI), where inventors are now focused on enhancing their programming skills and addressing various developmental issues to enable computers or devices to function at the level of human intellect.

Devices are now capable of interacting like sentient beings through sophisticated software, addressing individual needs in contemporary times and significantly expanding the scope of inventive development and output in smart forms. This information revolution has broadened the role of computers and related software to more advanced levels and capabilities.

This progress raises pivotal questions about the necessity of integrating AI into social life and its services and reflections therein. This study aims to delve into the reasons behind the inevitability of AI and its impacts, particularly its rapid proliferation, by exploring two main ideas: firstly, the necessity of artificial intelligence in electronic transactions, and secondly, the impact of artificial intelligence on electronic transactions.

1. THE NECESSITY OF ARTIFICIAL INTELLIGENCE IN ELECTRONIC TRANSACTIONS

The ongoing necessities of life, especially informational, drive the need to provide and develop ways to fulfil them, thus necessitating the exploration of reasons underpinning the inevitability of AI in electronic transactions.

1.1. SCIENTIFIC DEVELOPMENT

The advancement of science in digital and information domains has made AI a global requirement, as every scientist strives to develop an in-

vention managed by humans into a smart invention or create an intelligence capable of functioning fully with its artificial mind.¹ This development is grounded in digitization and the information field.

1.1.1. Programming

Considering the behavior and characteristics of AI, which mimic human mental capabilities inherent in computer programs, research topics and objectives in programming have shifted towards stimulating human capabilities. This enables AI to independently perform tasks typically executed by the human brain, such as image recognition and voice recognition, through neural networks.²

Programming aims to develop information technology from various aspects, including software, electronic sites, and applications. For instance, intelligent search engines like Google Translate have facilitated translation. Although initially lacking in quality and considered literal, it has been improved to provide a logical understanding of paragraphs, sentences, or texts without stumbling or altering the text's concept or even contradicting words in the same context.

This site allows for uploading a file or pasted text, resulting in a translation as precise as that of a human translator. Additionally, many smart sites now generate quality content without resorting to the slow design processes of traditional programs like PowerPoint and Photoshop, which offer subpar performance during this information revolution.

In the field of design and images, intelligent programs provide limited services such as designing a logo or an image, available freely on platforms like logo.com with AI, offering more options than traditional programs.³

1.1.2 Programming Features

Programming involves several essential characteristics:

- **Precision:** The code must be accurate and error-free to achieve the desired or targeted results from the research or development efforts.

1 Hassani, I., & Mansour, D. (2023). Uses of Artificial Intelligence in Light of Civil Liability Rules. *Journal of Law and Environmental Sciences*, 2(3), pp. 10-11.

2 *Ibid.*

3 *Ibid.*

- **Mastery and Understanding:** It is crucial for programmers to thoroughly understand the project requirements before starting the programming process. Otherwise, their research may be incomplete or deviate from the prescribed requirements.
- **Maintainability:** The code or instruction should be easily maintainable and modifiable to keep up with the project's needs.
- **Documentation:** The code should be well-documented and stored in a file for ease of understanding and use by other programmers.⁴
- **Testing:** Regular testing of the code is necessary to ensure it functions correctly and meets the project's requirements.

1.1.3 Informatics

Informatics necessitates advanced equipment and a robust internet flow for the development of programming and the creation of artificial intelligence for specific online tasks. A minimum of fourth-generation (4G) coverage is essential, with the scientific and informational race pushing beyond to embrace the fifth generation as a fundamental base for internet coverage and communication means.

It is inconceivable to undertake programming operations or digital development with substandard internet quality and flow. Such high standards are crucial for developers or programmers to be poised to implement and apply their innovative ideas akin to those in advanced countries. For instance, the Arab Gulf states utilize high internet flow and are renowned for attracting professionals in this field.

Additionally, devices capable of performing these operations require highly advanced equipment and technologies, such as RAM and processors, which evolve or are upgraded frequently due to new programming requirements that demand specific qualifications.⁵

Informatics and programming are undeniably pivotal in the development of inventions and the integration of artificial intelligence, aside from other reasons related to more specialized scientific

fields rather than social and legal ones. Several features of programming include:

- **Storage and Retrieval:** Informatics encompasses the capability to efficiently store and retrieve information at the disposal of its owner for use on demand.
- **Internet:** The informational network plays a crucial part in informatics, enabling access to a vast array of information and services.
- **Data Analysis:** Utilizing methods and tools for data analysis to extract valuable knowledge from big data is instrumental in developing learning systems and making smart decisions based on recorded and analyzed data and even linking between them.⁶

1.2 DIGITIZATION AND THE SHORTCOMINGS OF CLASSICAL INVENTION

Scientific progress has significantly contributed to the inevitability of artificial intelligence for several reasons, two of which have been previously mentioned. This section will discuss two more reasons that contribute to this inevitability, stemming from the changing individual requirements and needs.⁷

1.2.1. Digitization

Digitization is the process of converting data from a traditional paper form into a digital format using numbers, typically through a computer. It is employed in various programs and applications for personal, scientific, and administrative purposes. This feature will be discussed with a focus on digitization in the higher education sector in Algeria, which has been developed and specialized in various methods and topics.⁸

Higher education, a stage in the educational ladder following secondary education, is provided by universities, institutes, or higher schools to impart all types of information in a specific field chosen by the student.

Information and communication technology has significantly saved effort and time for its users,

4 Rafaf, L., & Maouche, F. (2023). The Specificity of Civil Liability for Damages of Artificial Intelligence Systems in Algerian Law. *Tabna Journal for Academic Scientific Studies*, 6(1), pp. 21-22.

5 *Ibid.*

6 Boubaha, S. (2022). Artificial Intelligence: Applications and Implications. *Journal of Money and Business Economics*, 6(4), pp. 11-12.

7 *Ibid.*

8 *Ibid.*

thanks to its technical features that facilitate easy and flexible storage, processing, retrieval, and also transmission of information. This has prompted most institutions to adopt it, leading to the digitization of scientific education.

Educational Scientific Digitization is defined as the utilization of information and communication technologies in the teaching and learning process. These technologies are employed for storing, processing, retrieving, and transferring information from one place to another, thereby enhancing and modernizing education through tools such as computers and their software, the internet, electronic books, databases, and various electronic means, including email.⁹

It also encompasses technologies that facilitate the aggregation, storage, processing, and transmission of information based on the principle of electronic encoding or coding, whether the data is digital, textual, imagistic, or auditory. This integration of information and communication technologies permeates all facets of the educational process, from lectures and interventions to study days, fundamentally transforming the educational landscape.

1.2.2 The Shortcomings of Classical Invention

The scientific revolution has precipitated significant lifestyle changes, ranging from the simplest to the most complex, spurred by rapid scientific development and the proliferation of inventions. This evolution has transitioned the world from traditional paradigms to embracing significantly broader dimensions, particularly with the advent of the internet.¹⁰

Despite these advancements and the plethora of inventions, traditional inventions have proven inadequate in terms of individual management. This inadequacy has spurred the development of intelligent inventions designed to perform tasks traditionally executed by rational humans.

Recent research in informatics has thus increasingly focused on Artificial Intelligence (AI), leading initially to the creation of smart inventions

that are eagerly adopted due to their autonomous operational nature, programmed to function independently without human intervention. This is exemplified by tools like Google Translate, which autonomously translates text across multiple languages without human oversight.

Although it has dominated scientific research and translation fields for some time, its shortcomings have been recognized, prompting the development of highly sophisticated translation applications or programs.

These tools, such as Yandex Translate, adhere to scientific specialization and control terminology used meticulously, considering the context of specialization such as law or medicine, and ensure vocabulary does not deviate from the intended meaning of texts or documents.

Additionally, specialized websites in fields like graphic and logo design, such as logo.com, provide users with multiple high-quality logo suggestions within the same theme, resembling professional designs. In language education, applications like Duolingo offer robust educational methodologies where users undergo level assessment tests and are taught progressively until they advance to higher levels.

Moreover, online training courses, conducted remotely with electronic agreements, provide certification at various levels based on speciality and academic qualifications.¹¹

2. THE IMPACTS OF ARTIFICIAL INTELLIGENCE ON ELECTRONIC TRANSACTIONS

The features and necessities of artificial intelligence have positioned it at the forefront of the current industrial revolution, profoundly impacting electronic transactions as it spans various fields in social life. This discussion will define electronic contracts and electronic communications, exploring whether AI aligns within these categories.

9 *Ibid*, pp. 11-14.

10 Hassani, I., & Mansour, D. (2023). Uses of Artificial Intelligence in Light of Civil Liability Rules. *Journal of Law and Environmental Sciences*, 2(3), pp. 10-17.

11 *Ibid*.

2.1 The Concept of the Electronic Contract and its Relationship with Artificial Intelligence

To thoroughly understand and elucidate these concepts, they must be explored in a systematic manner to enable a detailed analysis and description.

2.1.1 Definition of the Electronic Contract

The Algerian legislator has taken a keen interest in the electronic contract, enacting the Electronic Commerce Law to regulate it. Before delving into the current legislative definition, it is instructive to reference a prior definition:

2.1.2 Definition of the Electronic Contract by the Algerian Legislator:

Article 06 of Law 18-05, as informed by the legal framework of Law No. 04-02 dated June 23, 2004 (5 Jumada Al-Awwal 1425), which outlines the rules applicable to commercial practices, defines the electronic contract as “a contract concluded remotely, without the physical and simultaneous presence of its parties, exclusively using electronic communication technology”.¹²

This definition by the Algerian legislator aligns with other legislations, demonstrating clarity despite its enactment after pioneering Arab legislations in this field. It is important to note that while the electronic contract is defined, electronic transactions are legally encompassed within several interrelated legislations, including the Law on Electronic Communications 18-04 and the Law on Electronic Signing and Authentication No. 15-04, alongside the aforementioned Electronic Commerce Law. Thus, understanding the legislative definition involves navigating through multiple laws due to their interconnectedness on the same subject.¹³

2.1.3 Definition of Electronic Communications

In discussing the definition of the electronic contract, the term “electronic communications” emerged, which serves as the medium for electronic contracting. Therefore, it is crucial to define this term, although no specific law solely addresses it. The Algerian legislator outlined electronic communications in Law 18-04, which sets the general rules related to this domain.¹⁴

The definition posits that any process executed through electronic means qualifies as electronic communication. The legislator has delineated various aspects of correspondence, including the transmission of anything meaningful via electronic methods. This expansive definition reflects the legislator’s intent to encompass all forms of electronic correspondence under the legal umbrella of “electronic communications”.

Currently, electronic communications pervade all transactions whether civil, commercial, or administrative, as countries have digitized their sectors aligned with principles of public service operation and in response to scientific advancements amid the ongoing scientific revolution.¹⁵

Prior to the formal regulation by law, various laws and decrees had addressed electronic communications, particularly in the post and telecommunications sectors. However, the enactment of Law 18-04 has provided more explicit regulation than before. Its stipulations were subject to the general rules of proof found in civil law under articles 323 repeated and 323 repeated¹, which specify the conditions and rules of electronic proof.¹⁶

These do not serve as the standard of proof in electronic transactions, but the advent of electronic signatures and certifications has introduced specific controls and conditions due to the evolution and complexity of electronic transactions. This necessitated regulatory adjustments to protect the electronic consumer, amending consumer protection and anti-fraud laws to ensure legal safeguards.

12 Hizam, F. (2023). The Specificity of the Electronic Supplier’s Liability under Law 18-05 on Electronic Commerce. *Journal of Legal Studies*, 7(1), p. 3.

13 Abdellaoui, K. (2022). Lectures in the Module of Electronic Transactions Law. Ain Temouchent University – Faculty of Law, First Year Master in Private Law, p. 4.

14 Law 18-04 dated 24 Sha’ban 1439 corresponding to May 10, 2018, defines the general rules related to mail and telecommunications, Official Gazette No. 28, issued on May 16, 2018.

15 *Ibid.*

16 Decree 75-58 dated September 26, 1975, containing the Algerian Civil Code, amended and supplemented. Barti Publishing, 2016-2017 edition, p. 73.

The use of the term “all” by the legislator is particularly significant as it implies inclusivity and provides examples on a non-exhaustive basis. The absence of restrictive phrases such as “only” or “these forms only” broadens the scope of what is included.

Additionally, the use of “or” suggests a choice among various alternatives, reflecting the diversity and evolution of communication methods. Traditionally, email was a primary tool for electronic expression and communication, but now, several other forms have emerged, notably social media platforms.

For instance, Skype was once a leader in communication platforms until the advent of smartphones equipped with diverse operating systems that support app downloads changed the landscape. The Windows system was initially prevalent in computers and smartphones, but it was soon overtaken by the Android system, which has revolutionized the market and remains the most widely used system in mobile devices today, facilitating app downloads from the Google Play store.

Apple’s proprietary system competes closely with Android, contributing to a digital and technological revolution that has seen electronic communications evolve to become intelligent and capable of operating independently.¹⁷

2.2 The Relationship of Artificial Intelligence to the Electronic Contract

It is crucial to preserve the legal positions of the parties involved, particularly the electronic consumer, who receives significant legal protection. The other party in the contractual relationship might be a program or a smart application equipped with programmed intelligence to operate autonomously. This aspect will be explored in more detail later in the discussion.

2.2.1 The Impact of Artificial Intelligence on Electronic Transactions

The scientific development and the interaction between artificial intelligence and electronic contracts underscore several intersecting points. To comprehend these intersections, it is essential to define artificial intelligence and elucidate its implications, then explore its effects.

2.2.2 Definition of Artificial Intelligence

Artificial Intelligence (AI) is a discipline within computer science dedicated to the creation of computer systems and programs that display intelligent behaviors. These systems are designed to reason and perform effectively on the problems under study. They possess capabilities such as understanding various languages and recognizing patterns, among other attributes that enable them to function with a level of intelligence comparable to human intelligence.¹⁸

AI is also characterized as the theory and development of computer systems able to perform tasks traditionally requiring human intelligence, including visual perception, speech recognition, and decision-making.¹⁹

Characteristics of AI systems include:

- **Problem-solving:** AI systems do not require manual initiation by a programmer; they autonomously start and resolve the problems or data they encounter.
- **The ability to think and perceive:** Once developed and programmed, AI can offer insightful solutions based on its algorithms, enabling it to comprehend its actions and the outcomes it produces.
- **The ability to acquire and apply knowledge:** AI systems are continuously enhanced with updates that maintain the digital and scientific standards of the programs, introducing new iterations such as the ChatGPT program, which has evolved through several versions to its latest, significantly more intelligent version.

17 Ashir, G., & Allal, G. (2022). The Legal System of the Electronic Contract in Algerian Legislation. *Journal of Legal and Political Thought*, 6(2), pp. 6-7.

18 *Ibid.*

19 Hizam, F. (2023). The Specificity of the Electronic Supplier’s Liability under Law 18-05 on Electronic Commerce. *Journal of Legal Studies*, 7(1), p. 7.

- **Using old expertise in new contexts:** While programming relies on pre-established data, updates and new information can be integrated, allowing the program to amalgamate old and new data effectively.²⁰

2.2.3 The Intersection of Artificial Intelligence and the Electronic Contract

Artificial Intelligence (AI) has played a transformative role in the evolution of electronic contracts, leading to the development of smart contracts, which are predominantly used in specific sectors. This discussion will focus specifically on the smart contract.

2.2.4 Concept of the Smart Contract

Smart contracts are self-executing contracts that typically operate without the need for a mediator. They are implemented through electronic devices like smartphones, tablets, and computers via the internet.²¹

The concept of smart contracts is relatively recent, and initially, both their definition and legal regulation were not straightforward. They have been defined as “contracts between two or more parties that are programmatically encoded and whose clauses automatically execute when specified conditions or events occur”.

Smart contracts are self-executing agreements that are established and programmed within a decentralized distribution network, the blockchain, to manage the relationship between the seller and the buyer without any specific authority’s intervention or oversight through AI.

Notably, smart contracts are categorized under electronic contracts as AI has tailored changes in electronic transactions,²² specifically confining them to areas such as digital currencies and cryptocurrencies during trading, as well as the digital exchange and transfer of funds without the physical presence of individuals in these transactions.

AI has also propelled advancements in elec-

tronic contracts through the upgrading of programs and applications. There are now AI-powered programs capable of performing tasks traditionally done by humans, such as language teaching and accounting. These programs interact with users as a professional would with an electronic consumer, precisely addressing and fulfilling the individual’s requests, and often astonishing them if the AI’s performance level is exceptionally high.²³

CONCLUSION

The findings underscore that AI is a social and legal inevitability encompassing all areas and sectors, including electronic contracts and other electronic transactions. It has significantly contributed to the emergence of smart contracts through AI.

However, despite these advancements, electronic contracts still command a broader legal framework compared to smart contracts, which largely remain under the purview of programmers. The social landscape reveals substantial interest in electronic contracts and the influence of AI on them.

Results:

- Artificial intelligence is an inevitable necessity in electronic transactions.
- The development and expansion of electronic transactions are being propelled by artificial intelligence.
- There is a growing desire among individuals for access to all means in a smart, autonomous manner.

Recommendations:

- Mastery of artificial intelligence controls and their activation within societal contexts.
- Keeping pace with scientific advancements in the domain of electronic transactions and their legal regulations.

20 Laroui, Z. (2017). The Electronic Contract and the Contractual Liability Arising from It. *Journal of Legal and Political Research*, 8(1), p. 13.

21 Feddad, S. A. (2020). Smart Contracts. *Al-Salam Journal for Islamic Economy*, 1(1), p. 5.

22 *Ibid*, p. 7.

23 Laroui, Z. (2017). The Electronic Contract and the Contractual Liability Arising from It. *Journal of Legal and Political Research*, 8(1), p. 14.

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