

Compatibility of electronic signatures with the principle of freedom of evidence and their validity in proving electronic commercial transactions in Algerian legislation and comparative legislation

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Abstract:

As the traditional signature has proved unable to keep pace with the rapid development of commercial transactions, which have increasingly moved to electronic formats, various issues have arisen, mainly concerning the documentation of these types of transactions. This is particularly relevant for the proof of commercial transactions, which are based on the principle of freedom of evidence. Consequently, an electronic signature mechanism was introduced to address this issue.

In response, many legislators, both international and national, rushed to give significant importance to this type of signature, defining it and clarifying its evidential value, allowing it to be used as an effective legal tool for proving various electronic commercial transactions, in accordance with the principle of freedom of evidence. These legislations have unanimously recognised electronic signatures and granted them full evidential value, equating them to traditional means of proof used in this field. This clearly indicates the suitability of electronic signatures for proving electronic commercial transactions, highlighting their alignment with the principle of freedom of evidence applied to commercial transactions in general.

Keywords: Electronic signature, electronic commerce, electronic contract, electronic evidence, freedom of evidence

INTRODUCTION

In view of the developments in the field of communications and information technology and the rapid changes in the way in which various transactions in

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different sectors are carried out and proven, many transactions are increasingly being carried out electronically. This change has given rise to a number of problems, particularly with regard to the documentation of such transactions, and in particular the proof of commercial transactions, which is based on the principle of the freedom of evidence. As traditional signatures have not been able to keep pace with these developments, the introduction of electronic signature mechanisms has become necessary to fill this gap.

The study of the compatibility of electronic signatures and their validity in proving electronic commercial transactions is of great importance, especially when it comes to establishing various electronic transactions, especially in the field of e-commerce. This issue is the source of many disputes between different parties in this field. As a result, many legislators, both international and national, have rushed to give significant importance to this type of signature, defining it, regulating it and clarifying its evidential value, so that it can be used as an effective legal tool for proving various electronic commercial transactions, in accordance with the principle of freedom of evidence, while keeping pace with the rapid developments in various fields.

This raises the following questions To what extent is the electronic signature mechanism compatible with the principle of freedom of evidence and what is its validity in proving electronic commercial transactions in Algerian legislation and comparative legislation?

To address this issue, we will focus on two main axes:

First topic: The concept of electronic signatures and their relation to the principle of freedom of evidence in electronic commerce.

The traditional signature is no longer able to keep pace with the rapid developments in modern communication sciences and information technology, which have led to the emergence of a new form of writing and signing. Most transactions and acts are now carried out electronically in various fields. This situation has necessitated the search for a modern tool, adapted to these developments, which can be used to prove this type of transaction, especially in the field of electronic commerce, which relies on the principle of freedom of evidence to document various commercial transactions. As a result, the electronic signature mechanism was invented.

This raises the question of the concept of electronic signatures and the extent to which they can be relied upon to prove various electronic commercial transactions in accordance with the principle of freedom of evidence. This is briefly addressed below:

Section One: The Concept of Electronic Signatures and their Distinction from Traditional Signatures

Numerous definitions have been proposed for electronic signatures, depending on the context in which this type of signature is defined. This subject has received considerable attention from scholars and various international and national legislations, including Algerian legislation, all of which have sought to establish a comprehensive definition for this type of signature. Since electronic signatures are executed electronically, it is essential to distinguish them from traditional signatures. In order to clarify this, we will proceed as follows:

Subsection One: The Concept of Electronic Signatures

In order to better understand the concept of electronic signatures, we need to define them, highlight their main characteristics and examine their various forms, as follows:

1. Definition of electronic signatures in Algerian legislation and comparative legislation

Electronic signatures are a newly established mechanism within the legal framework, both at the international and national levels. This has led many legislators to issue various texts in order to regulate its provisions and to clarify its content².

Generally speaking, an electronic signature is defined as one of the electronic mechanisms used to authenticate various documents of an electronic nature by means of a computer³.

Many comparative legislations have defined electronic signatures; for example, the Egyptian legislator, in Article 1, paragraph 3 of Law No. 15/2004, which includes the Electronic Signature Law, defines it as “any mark placed on an

²- Fadhila Yassad. The evidentiary value of electronic signatures in Algerian legislation. *Journal of Human Sciences*, Volume 30, Issue 03, Algeria, 2019, p. 505.

³- Khaled Mamdouh Ibrahim. Electronic signature. *Central Agency for Organisation and Administration*, Volume 28, Issue 128, Egypt, 2010, p. 68.

electronic document that has a specific form, such as a letter, number or symbol, which is unique and allows the identification of the signer”⁴.

In this context, the United Nations Commission on International Trade Law (UNCITRAL) defined electronic signatures in Article 2(a) of its 2001 Model Law on Electronic Signatures. This definition was intended to encourage various countries to establish a legal framework for electronic signatures. According to this law, an electronic signature is described as a set of electronic information stored in a database that can be used to identify the signer and to clarify his acceptance of the various information contained in the database⁵.

The Algerian legislator has also defined electronic signatures, considering them to be a set of information presented in electronic form, closely linked to other electronic information, which can be used as a means of authentication. Moreover, the Algerian legislator did not stop there; in the second paragraph of the same law, it also defined the signatory as a natural person who possesses a set of information that enables him to create the electronic signature and to carry out various transactions, either for his own benefit or on behalf of someone he represents⁶.

From this text it can be concluded that the Algerian legislator has adopted the definition of the UNCITRAL Model Law with some modifications in the wording. In addition, the Algerian legislator has clarified the meaning of the signatory, stressing that it can be a natural person acting for his own benefit or a legal person represented by a natural person acting on its behalf.

From the above, it can be seen that most legislation, whether international or national, has paid considerable attention to the definition of electronic signatures. However, despite the diversity and differences in these legislations, the definitions have remained within the general framework of signatures and have relied on a broad definition of electronic signatures to ensure that they can encompass any new forms that may be considered electronic signatures or the emergence of other types of such signatures⁷.

⁴- Paragraph three of Article One of Law No. 15/04, Regulating Electronic Signatures and Establishing the Information Technology Development Authority, Egypt, 2004.

⁵- UNCITRAL Model Law on Electronic Signatures, 2001
<https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/ar/ml-elecsig-a.pdf>. Accessed on: 11/01/2023, at 20:30.

⁶- For more details, see paragraphs 1 and 2 of Article 2 of Law 15-04 of 01/02/2015, establishing the general rules on electronic signatures and certification, Official Gazette No. 06, published on 10/02/2015.

⁷- Mohamed Fawaz Al-Mutalqa. Previous reference, pp. 175-176.

Second: Characteristics of electronic signatures

Electronic signatures are distinguished from others by several key characteristics, which can be summarised as follows:

- The electronic signature consists of several elements and attributes related to the signer, presented in different forms, which define the identity of the signer and express his acceptance of the content of the electronically signed document.
- The e-signature is associated with a set of data that is controlled in terms of creation, storage, transmission or delivery by electronic means, and embodies the objectives of traditional signature tasks when it is performed correctly and can be demonstrably associated with its signer.
- The electronic signature provides security and protects the privacy of the parties involved in the transaction by guaranteeing confidentiality with regard to their relationship with the signatory, in addition to protecting institutions against all forms of forgery that may affect signatures⁸.
- The electronic signature is based on electronic means via computers or the Internet, allowing the parties to the contract to check the content of the contract, discuss its terms and finally apply the electronic signature.
- The electronic signature serves as a mechanism by which the signer expresses his agreement with the content of the legal transactions he has entered into and acknowledges them⁹.

The electronic signature is characterised by the prominent role it plays from a legal point of view, since it gives the electronic document evidential value. As a means of proof, it is essential to establish the identity of the signatory in order for it to be accepted and to have the necessary legal force to protect and prove rights¹⁰.

- The electronic signature is considered to be a documentation tool linked to electronic data, which makes it possible to monitor the validity of various data and to electronically identify both the sender and the recipient¹¹.

⁸- Ousama Ben Ghanem Al-Obeidi. The validity of electronic signatures in evidence. Arab Journal of Security Studies and Training, Volume 28, Issue 56, 2016, pp. 147-148.

⁹- Elias Nasif. Electronic Contracts in Comparative Law. Halabi Legal Publications, Lebanon, 2009, p. 247.

¹⁰- Nadia Yass Al-Bayati. Electronic Signature over the Internet and its Evidentiary Value. Jordan, Dar Al-Bidaya Publishers, 2014, p. 192.

¹¹- Abdul Fattah Bayoumi Hegazi. Electronic Signature in Comparative Legal Systems. University Thought Publications, Egypt, 2005, p. 17.

Third: Types of electronic signatures

There are different types and forms of electronic signatures, which differ and vary in order to activate and facilitate different electronic transactions, especially in the field of e-commerce. These will be discussed in more detail below:

1. Digital signature:

The digital signature is based on algorithms and mathematical equations that are technically complex. The main reason for using this type of signature is that it is one of the most important means of achieving the security required by the parties to a contract, particularly in cases involving electronic commerce or any transaction over the Internet¹².

This type of electronic signature is used to precisely control all the information related to the parties in the contractual relationship and to prevent either party or any external party from making any changes to the content of the signature or the electronic document associated with it, thus ensuring that all the legal requirements for an electronic signature are met¹³.

2. Electronic pen signature

This type of electronic signature is used by relying on software specifically designed to be compatible with an electronic pen connected to a computer. The information displayed on the pen is analysed to create the shape of the signature, which is generated by the movements of the electronic pen on the screen¹⁴.

3. Biometric signature

This type of electronic signature is based on the unique physical or biometric characteristics of each individual, such as fingerprints or DNA. With this type of signature, the individual's fingerprint is stored in the computer's memory in an encrypted format. When a subsequent action is required, no one can access it unless their physical characteristics match the stored and encrypted information in the computer¹⁵.

¹²- Mohamed Fawaz Al-Mutalqa. Previous Reference, p. 180.

¹³- Aaid Rashid. The Validity of Modern Technological Means in Proving Commercial Contracts. Doctoral thesis, Faculty of Law, Cairo University, Egypt, 1998, p. 112.

¹⁴- Mohamed Fawaz Al-Mutalqa. Previous reference, p. 179.

¹⁵- Basima Fougali. Proof of electronic contracts and their validity in the Internet age. Master's thesis, Faculty of Law and Political Science, Mohamed Lamine Debaghine University, Setif, Algeria, 2015, p. 66.

4. Signature by scanner

This type of electronic signature starts with a traditional signature on paper using a normal pen, which is then scanned and stored in the computer's memory with the signatory's personal authorisation. This signature can then be used whenever necessary by placing it on the document or instrument that requires a signature. In this way, the original signature is a traditional one, but by involving the computer in the process, it becomes an electronic signature¹⁶.

5. Internet Signature

This type of electronic signature is used in online purchasing processes where the signature is created electronically by the individual's acceptance to complete the purchase, making this acceptance an electronic signature¹⁷.

Subsection Two: How e-signatures differ from traditional signatures

Electronic signatures have several characteristics and advantages that distinguish them from traditional signatures on the basis of various criteria. In order to elaborate on this topic, we will address the following points:

Firstly, in terms of its unique functions

The electronic signature differs from the traditional signature in terms of the functions it performs. The function of the traditional signature is limited to verifying the identity of the signatory, which serves as proof of his or her actual presence or that of his or her representative during the signing process. In contrast, the functions of the electronic signature include establishing the identity of the signer, providing security, confirming the integrity of the signature against any form of forgery and linking the signature to the signer. This gives the signed document an original character and allows it to be officially recognised as an instrument of proof with the same legal nature as a traditional signature¹⁸.

Second: The form of the signature

¹⁶- Saber Mohamed Mohamed Said. The Regulation of Electronic Signatures: A Comparative Study between Islamic Jurisprudence and Positive Law. Journal of the Faculty of Sharia and Law, Volume 4, Issue 18, Faculty of Sharia and Law, Al-Azhar University, Egypt, 2006, p. 509.

¹⁷- Previous reference, p. 510.

¹⁸- Mamdouh Ali Marboukh. The Validity of Electronic Signatures in Evidence. Dar Al-Nahda Al-Arabiya, Cairo, 2009, p. 49.

Traditional signatures, which are the subject of some legislation, are limited to written signatures or fingerprints. A signature is a unique mark of the signer in written form that unambiguously establishes his identity and demonstrates his absolute certainty in accepting the content of the signed document¹⁹.

In contrast, legislators have not specified a particular form for electronic signatures, but have provided a general framework. They have set out a broad concept according to which an electronic signature consists of a combination of letters, signs, symbols, etc. They have also outlined certain essential conditions, in particular the need to unambiguously verify the identity of the signer and to ensure his or her consent to the legal content contained in the electronically signed document²⁰.

Thirdly, with regard to the medium on which the signature is recorded

The traditional signature is recorded on a physical medium, often in the form of paper documents that embody the format of the legal act that is the subject of the signature. This is commonly referred to as a paper signature and requires the physical presence of both parties to the act, facing each other in the same environment. In contrast, an electronic signature does not require the physical presence of the parties. Instead, the process of signing electronically takes place through an intangible electronic medium²¹.

Fourth: In terms of verifying the signer

The electronic signature differs from the traditional signature in the method of identifying the signer and verifying the authenticity of the signature. In the case of traditional signatures, this verification process requires several procedures to be followed, mainly involving the use of specialised experts in the field and, if necessary, even recourse to the courts. In the case of electronic signatures, on the other hand, the verification of the authenticity of this type of signature takes place automatically as soon as the electronic message is entered. This efficiency is largely due to the progress made in modern technologies relating to data

¹⁹- Mostafa Fahmy Khaled. *The Legal System of Electronic Signatures in the Light of Arab Legislation and International Agreements*. Dar Al-Jame'a Al-Jadida, Alexandria, Egypt, 2007, p. 7.

²⁰- Abdul Hamid Tharwat. *Electronic Signature*. Dar Al-Jame'a Al-Jadida, Alexandria, Egypt, 2007, p. 50.

²¹- Mohamed Hossam Lotfy. *Using Modern Means of Communication in Negotiating and Concluding Contracts*. No publisher (no place of publication), 1993, p. 13.

security and the possibility of subjecting electronic signatures to encryption functions that are resistant to any attempt at hacking²².

Subsection Two: The relationship of the electronic signature to the principle of freedom of evidence and the importance of its use in proving electronic commercial transactions

The signature is generally considered to be one of the fundamental pillars of the evidentiary process and one of the most important conditions for proving various transactions, especially commercial ones in a traditional context. However, this matter is no longer limited to traditional commerce; it has also been adapted to the requirements of commercial transactions carried out electronically, as it can serve as a means of evidence in this field, which is based on the principle of freedom of evidence to prove various commercial transactions. In order to elaborate on this issue, we will address the following points:

Branch One: The importance of the use of the electronic signature in proving electronic commercial transactions.

The process of using the electronic signature in the field of electronic commerce is of great importance due to its advantages, especially in terms of confidentiality and security. It facilitates transactions between traders, especially those who wish to conclude contracts via the Internet, where physical meetings are not necessary. This ability allows them to save considerable time and effort that would otherwise be required in traditional contracting²³.

Furthermore, the importance of the use of electronic signatures in electronic commerce lies in their applicability to all documents and types of requests. This helps to raise awareness among participants in the field and promotes the use of the Internet in various transactions, which has a significant positive impact on electronic commerce. In this context, the use of this type of signature has enabled many individuals, particularly the owners of large companies, to make considerable profits without having to have a physical office for these companies²⁴.

²²- Khaled Mamdouh Ibrahim. Concluding Electronic Contracts: A Comparative Study. Dar Al-Fikr Al-Jami'i, Egypt, 2008, p. 246.

²³- Iyad Muhammad Aref Ata Sada. The Validity of Electronic Documents in Evidence: A Comparative Study. Master's Thesis in Private Law, Graduate Studies College, An-Najah National University, Nablus, Palestine, 2009, pp. 68-69.

²⁴- Previous reference, p. 69.

The second issue: the relationship between the electronic signature and the principle of freedom of evidence

Given the great importance of the use of the electronic signature in the field of electronic commerce, and given that the proof of commercial transactions is based on the principle of the freedom of evidence, the question arises as to whether the electronic signature can be considered as a means of proof in this context, thus allowing its use in electronic commerce in accordance with this principle. Before answering this question, it is necessary to define the principle of freedom of evidence and to identify the main justifications for its use in commercial transactions.

First: Definition of the principle of freedom of evidence and identification of its justifications in proving commercial transactions

Before clarifying the relationship between the electronic signature and the principle of freedom of evidence in commercial matters, it is necessary to briefly define this principle and to outline the main justifications that have led to its adoption in commercial law:

1. Definition of the principle of the freedom of evidence in commercial matters:The principle of the freedom of evidence in commercial matters refers to the complete freedom granted to traders to prove their various commercial acts and transactions by any means, whether traditional or electronic, provided that these means are not contrary to public order and are not excluded by specific legislation. The primary objective is to free the process of proving commercial transactions from the conditions and complexities imposed by the legislator in the field of proving civil transactions. On this basis, the principle of freedom of evidence in commercial matters constitutes one of the fundamental pillars on which commercial law is built²⁵.

2. Identification of the justifications for the application of the principle of freedom of evidence in proving commercial transactions

The application of the principle of freedom of evidence in commercial transactions is justified by the fact that this type of transaction relies primarily on the speed of execution on the one hand, and on trust and credit on the other. This necessity has led to the need for more flexible methods that improve and

²⁵- Mithaq Talib Abdul Hamadi & Noha Khaled Issa. Limits of the Principle of Freedom of Evidence in Commercial Matters. Journal of Educational and Social Sciences, Volume 6, Issue 5, Faculty of Law, University of Babil, Iraq, 2019, p. 265.

facilitate commercial transactions, distancing them from the complexity required in civil transactions. The aim is to strengthen the element of credit and to speed up the processes of concluding and executing commercial transactions at the pace that these transactions require. Consequently, the element of proof in commercial matters is characterised by a unique feature that allows the parties involved complete freedom to prove their transactions in this field by any means approved or mutually agreed²⁶.

Second: Defining the relationship between the electronic signature and the principle of freedom of evidence in the field of electronic commercial transactions

With the emergence of the electronic signature as an innovative electronic tool that can play a significant role in the field of evidence, and given that commercial transactions can be proven by any means in accordance with the principle of freedom of evidence, the question arises as to whether the electronic signature can be considered as one of the tools that can be relied upon to prove electronic commercial transactions in accordance with this principle.

To answer this question, jurists generally agree that it is possible to prove various transactions between economic operators by means of innovative evidence, including methods not provided for in legal texts, provided that they do not contravene public policy. This is consistent with the application of the principle of freedom of evidence in commercial matters²⁷.

On this basis, the electronic signature can be used as an innovative tool for proving various electronic commercial transactions. As a result, the use of such electronic means has become permissible, leading to their widespread adoption in the field of evidence in commercial law.

In this respect, it can be said that in Algeria, the enactment of Law No. 15-04 on the general rules relating to electronic signatures and certification represents a significant turning point in the proof of electronic commercial transactions. This is part of the application of the principle of freedom of evidence in commercial matters.

²⁶- Previous reference, pp. 263-264.

²⁷- Hamid Allah Mohamed Hamid Allah. The Theory of Evidence in the New Commercial Law No. 17 of 1999. Dar Al-Nahda Al-Arabiya, Cairo, 2008, p. 35.

Chapter Two: Assessing the Validity of the Electronic Signature in Proving Electronic Commercial Transactions under Algerian Legislation and Comparative Legislation and Identifying its Conditions.

Following the establishment of the electronic signature mechanism, this type of signature has acquired an important position in the field of proving electronic commercial transactions, as these transactions are based on the principle of freedom of evidence. This has attracted a great deal of attention from various international and national legislators, leading them to emphasise this type of signature in order to recognise it in the proof of various legal acts relating to electronic commerce, thus putting it on an equal footing with traditional methods of proof.

This raises the question of the validity of the electronic signature in proving electronic commercial transactions under Algerian and comparative legislation. What are the necessary conditions for this? We will examine this question in detail in the following sections.

Subsection One: Defining the conditions under which the electronic signature acquires full evidentiary force and outlining its main functions

The electronic signature fulfils several essential functions, mainly in the field of evidence. In order to fulfil these functions, the electronic signature must comply with a number of necessary conditions. What are these conditions? And what are the main functions of the electronic signature? We will examine these questions in detail below.

Section One: Conditions for the electronic signature to acquire evidential value and their application in Algerian legislation

In this section, we will discuss the conditions that must be met in order for the electronic signature to enjoy full evidential validity, and we will also examine the position of the Algerian legislator on this issue, as follows:

First: Conditions for the electronic signature to acquire full evidential validity

The most important of these conditions are as follows:

1. First condition: The electronic signature must verify the identity of the signatory

The essence of this condition lies in the need for the electronic signature to be able to verify the details of the signer and to express his intention. This condition thus complements the requirement for the electronic signature to be linked to the signer²⁸. The importance of verifying the signer's data is paramount, as it is a fundamental element in the conclusion of various legal acts. This verification makes it possible to identify the signatory, their various roles and their legal capacity to enter into these acts. The main reason for this is the importance of the consequences that may arise from these legal acts²⁹.

The Algerian legislator has followed this approach, confirming this condition in Article 323 bis 1 of the Civil Code³⁰, where it equates the electronic signature with the traditional signature in the field of evidence, provided that the identity of the signatory can be verified.

Second condition: The signature must be linked to the identity of the signatory

For the electronic signature to fulfil its core functions, it must take the form of a distinctive mark - whether handwritten or biometric - that distinguishes the signer from others. This ensures the verification of their identity and clearly indicates their responsibility in concluding the contract and accepting its contents³¹.

Third condition: The signatory must be the sole owner of the electronic medium.

This condition requires that, for the electronic signature to be fully valid in proving commercial transactions, the signatory must have complete and exclusive control over the electronic medium containing the signature. This is to ensure that the signer performs the signing process without the involvement of any other party. In order to achieve this, the signing process must remain confidential by ensuring that it is inaccessible to any party in order to prevent

²⁸- Mohamed Ahmed Baridat. Electronic Signature: A Study of the Provisional Jordanian Electronic Transactions Law No. 85 of 2001. Jarash for Research and Studies, Volume 10, Issue 2, Jarash University, Jordan, 2006, p. 268.

²⁹- Abdul Lawi Abdul Karim. Electronic Signature. Journal of Business Disputes, Issue 19, 2016, p. 73.

³⁰- For more details, see Article 323 bis 1 of Decree No. 75-58 of 26 September 1975 amending and supplementing the Civil Code, Official Journal No. 78, published on 30 September 1975.

³¹- Hassan Abdul Basit Juma'i. Proving Legal Transactions Conducted via the Internet Dar Al-Nahda Al-Arabiya, Egypt, 2002, p. 28.

unauthorised interference, especially considering that the signature has legal consequences for the signer and others³².

From a technical point of view, the signer's exclusive control over the electronic medium used to create the electronic signature is manifested in the signer's possession of mechanisms that allow him/her to retain his/her private cryptographic key, which is contained in a secure smart card together with the associated PIN³³.

Fourth condition: Full control over the protection of electronic signature data against all forms of alteration

In order to achieve full evidential validity, the electronic signature must be closely linked to the signer's information in such a way that no changes can be made to the document without the signer's consent and approval of the various changes made. This is achieved by re-signing the document. In this way, any changes made to the document can be traced, as the integrity of the electronic signature requires the integrity of the document itself³⁴. The electronic signature serves as a guarantee for the various parties involved in electronic transactions.

As a result, all procedures related to the electronic signature must be characterised by complete confidentiality in order to prevent exploitation by other parties. The main reason for this requirement is the evidential value of the electronic signature and the potential consequences that may arise in this context, which are the responsibility of the signatory. Consequently, it can be stated that the signer of the electronic signature must be able to detect any changes that may occur at any stage in relation to the provisions of the electronic signature³⁵.

Fifth condition: The electronic signature must be fully secure

In order for the electronic signature to have sufficient probative force, it must contain all the elements of complete security. Therefore, it is necessary that the signer is in exclusive possession of all information related to the signing process, regardless of the various forms it may take, such as fingerprints, iris

³²- Abdul Fattah Bayoumi Hegazi. Previous reference, pp. 444-445.

³³- Mohamed Hussein Mansour. Traditional and electronic evidence. Dar Al-Fikr Al-Jami'i, Alexandria, 2009, p. 284.

³⁴- Mohamed Ahmed Baridat. Previous reference, p. 268.

³⁵- Saber Mohamed Mohamed Said. Previous reference, p. 531.

scans, private keys and confidential numbers used in this domain, among others³⁶.

If the necessary security element in the electronic signature is compromised, it can undermine its validity in the realm of evidence. This leads us to conclude that security is of paramount importance for the full validity of innovative electronic communication tools, especially those related to legal acts in electronic commerce conducted over the Internet. Today, the Internet is accessible to all users, which may provide opportunities for some malicious actors to infiltrate this network and carry out destructive operations on the databases it contains³⁷.

Sixth condition: Certification of the electronic signature

In order for an electronic signature to be admissible as evidence, it is also necessary for a certification process to be carried out on that signature. This process requires the signature to be endorsed by an official body designated by the relevant authorities. The authority does not have to be the same for all countries. The role of the authority is to verify the link between the electronic signature and the signer, and to monitor the validity of the signature by checking all essential elements related to its creation. Finally, the authority provides the signer with a certification document that verifies the authenticity of the signature³⁸.

The process of electronically signing any electronic document acquires full validity for the signer once it has been authenticated and the various conditions required for an electronic signature have been met. Therefore, any electronic document signed electronically in accordance with the aforementioned conditions generates legal effects for the parties involved, primarily with regard to their obligation to comply with the content of the electronically signed document³⁹.

Second: Conditions for the validity of the electronic signature in Algerian legislation

If one examines the attitude of the Algerian legislator with regard to the conditions necessary for the electronic signature to acquire full evidentiary

³⁶- Basima Fougali. Previous reference, p. 66.

³⁷- Mohamed Fawaz Al-Mutalqa. Previous reference, p. 244.

³⁸- Previous reference, p. 175-176.

³⁹- Mohamed Ahmed Baridat. Previous reference, p. 280.

validity, it is evident that a number of conditions have been established. The legislator has required that the creation of the electronic signature be based on more secure tools⁴⁰. In this context, the legislator has distinguished between two types of electronic signatures. The first type, defined by its function, is used to authenticate the identity of the signer and to verify the content of the electronic document. The second type is defined as the described electronic signature.

In order for this second type to qualify as such, the legislator has emphasised that it must fulfil several conditions. The most important of these conditions are that the electronic signature must be exclusively linked to the signatory, that the identity of the signatory can be determined by means of a secure tool, and that the electronic signature must be linked to the corresponding data in such a way that any modification affecting these data can be identified. The Algerian legislator has explicitly stated that the second type, represented by the electronic signature described, is the only signature considered equivalent to the traditional signature, whether it concerns a natural person or a legal entity⁴¹.

Branch Two: Functions of the Digital Signature

The electronic signature serves several important functions, primarily to identify the signer, to distinguish the signer from others, to express the signer's intent, and to verify the integrity of the associated electronic document. These functions are briefly discussed below:

First: Verifying the identity and character of the signer

Both the electronic and the traditional signature aim to fulfil a fundamental task: to identify the signer and distinguish him from others. In the case of the electronic signature, this is achieved by means of various indicators, such as symbols, letters and numbers, which reflect the identity of the signer via an intangible medium. This allows various legal acts to be performed electronically and data and interests to be exchanged between parties without the need for physical meetings⁴².

Second: Confirmation of the signer's acceptance

⁴⁰- Article 10 of Law No. 15-04 establishes the general rules on electronic signatures and certification mentioned above.

⁴¹- Articles 06, 07, 08 of Law No. 15-04 define the general rules regarding electronic signatures and certification, previously mentioned.

⁴²- Faisal Saeed Al-Ghareeb. *Electronic Signature and its Validity in Evidence*. Arab Organisation for Administrative Development, Jordan, 2012, p. 224.

The electronic signature also performs another crucial function, which is to express the signer's acceptance of the content of the document. The electronic signature embodies the essence of the document. It unambiguously indicates that the document originates from the signer and confirms that the signer has deliberately used the electronic writing with full knowledge and acceptance of its contents⁴³.

Third: Verifying the integrity of the document

The electronic signature ensures the integrity of the document while it is being used as a means of evidence. Since the content of the paper document is established, a document is only considered valid if the material on which it is recorded remains free from any alteration. In this respect, the written document differs from the electronic document; the latter exists as an electronic file, electronically signed and transferred from one electronic medium to another⁴⁴. Therefore, the electronic medium alone cannot provide the necessary security for the electronic document. It is therefore necessary to establish a logical link between the electronic signature and the electronic writing of the content of the document, in such a way as to be able to detect any changes that may be made after the signature has been accepted⁴⁵.

Fourth: Proof of the presence of the signatory

The electronic signature indicates the presence of the signer; it does not imply the physical and actual presence of the signer. The electronic signature is a mechanism specifically designed for use in remote legal transactions. For example, when withdrawing money from an electronic payment centre, the presence of the signer is clearly demonstrated when the PIN of the card is entered into the device and a response is received regarding the amount requested⁴⁶.

Subsection Two: Evaluating the Validity of the Electronic Signature in Proving Electronic Commercial Transactions According to Algerian Legislation and Comparative International and National Legislation

⁴³- Al-Ghouthi Ben Malha. Rules and Methods of Evidence and their Application in the Algerian Legal System. D.W.A.T, 1st edition, Algeria, 2001, p. 45.

⁴⁴- Abbas Al-Abboudi. Challenges of Proving with Electronic Documents and the Legal System's Requirements for Overcoming Them. Halabi Legal Publications, 1st edition, Beirut, 2010, p. 179.

⁴⁵- Amir Farag Youssef .Electronic Signature. Dar Al-Matbuat Al-Jami'iya, Alexandria, Egypt, 2008, p. 50.

⁴⁶- Faisal Saeed Al-Ghareeb. Previous Reference, pp. 226-227.

With the proliferation of electronic commercial transactions using the electronic signature as an innovative mechanism for proving these transactions and providing the necessary trust and security, it has become essential to examine the extent to which the electronic signature has legal validity in order for it to be accepted as a means of proof for these transactions. As a result, many legislators - whether international, regional or national - have sought to investigate the possibility of giving legal validity to the electronic signature as one of the tools that can be used to prove and secure these transactions, thereby increasing confidence in them. In order to examine the position of these legislations and the efforts made in this respect, we will look at the following:

Branch One: Evaluating the Validity of the Electronic Signature in Proving Electronic Commercial Transactions under Algerian Legislation

As in other jurisdictions, the Algerian legislator has addressed the issue of the validity of the electronic signature in the field of evidence, in particular as regards the proof of electronic transactions. This is reflected in several legal texts. Article 327, paragraph two, of the Civil Code emphasises the recognition of the validity of the electronic signature. In order for this recognition to be effective, the Algerian legislator has laid down a number of conditions, which are set out in Article 323 bis 1⁴⁷.

In this context, the Algerian legislator has established the principle of equality between the traditional signature and the described electronic signature⁴⁸. The latter is defined by stating that it must comply with a number of conditions which have been mentioned above⁴⁹.

In addition, the Algerian legislator has discussed the validity of the electronic signature as evidence and its application in various fields through numerous legal texts. In this context, the legislator has clarified how to prove the relationship between the data used to verify the electronic signature and the

⁴⁷- Article 327, paragraph 2 of Decree 75-58 amending and supplementing the Civil Code, cited above. For more details on the conditions for recognising the validity of electronic signatures, see Article 323 bis 1 of Decree 75-58, cited above.

⁴⁸- Article 08 of Law No. 15-04 lays down the general rules governing electronic signatures and their certification.

⁴⁹- Article 07 of Law No. 15-04 establishes the general rules on electronic signatures and certification, as mentioned above.

signatory, stressing that this verification is achieved through the issuance of a described electronic certificate issued by the Ministry of Justice⁵⁰.

In order to further strengthen the evidentiary value of the electronic signature, the Algerian legislator stated that the Ministry of Justice is responsible for certifying the electronic signature through a more secure electronic medium. This ensures the identification of the recipient and the period of validity of the signature and the data it contains⁵¹.

On the basis of the above-mentioned texts, it can be concluded that the Algerian legislator has explicitly recognised the validity of the electronic signature in the field of evidence, in particular for proving electronic commercial transactions. It has also confirmed the equivalence of the electronic signature with the traditional signature in terms of its evidential value. However, it has made the acceptance of the electronic signature in the field of evidence subject to the fulfilment of certain requirements detailed in Article 323 bis 1 of the Algerian Civil Code, which mainly concern the ability to verify electronically the identity of the signatory and to ensure secure storage.

Branch Two: Evaluating the Validity of the Electronic Signature in Proving Electronic Commercial Transactions Under International and Comparative National Legislations

Many international legislations have made significant efforts to recognise electronic signatures and give them full evidential value, particularly in proving electronic commercial transactions. One of the most notable of these laws is the Model Law on Electronic Signatures developed by the United Nations Commission on International Trade Law (UNCITRAL) and adopted by the United Nations General Assembly in 2001⁵².

This Model Law serves as a uniform legal framework to facilitate the use of electronic signatures and to encourage Member States to adopt it as a model when recognising the validity of electronic signatures as evidence. In this context, Article 3 of the UNCITRAL Model Law on Electronic Signatures emphasises that no method of creating an electronic signature should be

⁵⁰- Article 06 of Law No. 15-03, issued on 01/02/2015, relates to the modernization of justice. Official Gazette, Issue No. 06, published on February 10, 2015.

⁵¹- Article 07 of Law 15-03, as mentioned above.

⁵²- UNCITRAL Model Law on Electronic Signatures, 2001, as mentioned above.

deprived of its legal value if it is effective and suitable for the purpose for which the electronic writing which is the subject of the signature was created⁵³.

Following the issuance of the European Regulation No. 910/2014 of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market, the Regulation addressed the main legal issues surrounding electronic signatures and placed related matters in a legal framework, such as how they are created, their security and the verification of their integrity. It also recognised the validity of electronic signatures as evidence before judicial authorities and confirmed that they should not be disregarded simply because they are electronic⁵⁴.

In addition, the European Regulation defined the electronic signature as electronic data logically associated with other electronic data used by the signatory to perform the signing operation⁵⁵. This regulation also confirmed the equivalence of the electronic signature to the traditional signature⁵⁶.

As for the comparative national legislations, after the emergence of the electronic signature mechanism as a technical tool to identify the signer in various electronic transactions, these legislations have promptly sought to regulate and define it with legal provisions and rules to give it full evidentiary validity, thus equating it with the traditional signature in this field.

In this context, the Egyptian legislator, through Article 14 of the Electronic Signature Law, affirmed that this type of signature has the same validity in various commercial, civil and administrative transactions as that recognised for signatures in the Evidence Law in commercial and administrative matters, provided that the legal, technical and procedural requirements for its creation are met⁵⁷.

From this article, it can be concluded that the Egyptian legislator, in line with previous legislation in this field, has adopted the principle of equality between the electronic signature and the traditional signature in terms of their validity in

⁵³- Article 3 of the UNCITRAL Model Law on Electronic Signatures, 2001, cited above.

⁵⁴- Fatima Bahe. The Validity of Electronic Signatures Based on General Rules of Evidence and the Need for Legislative Intervention. *Journal of Legal Studies*, Volume 7, Issue 3, September 2020, p. 702.

⁵⁵- Article 3/10 of European Regulation No. 910/2014, issued on 23/07/2014, on the identification of electronic identification and trust services for electronic transactions in the internal market. European Parliament, 2014. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0910> Accessed on: 10/01/2023, at 23:30.

⁵⁶- Article 25/2 of European Regulation No. 910/2014, as mentioned above.

⁵⁷- Article 14 of Law No. 15/04, regulating electronic signatures and creating the Authority for the Development of Information Technology, as previously mentioned.

proving various transactions, including electronic commerce, as long as the necessary legal conditions for its creation are met. This clearly aligns this type of signature with the principle of freedom of evidence in commercial matters.

Similarly, the Bahraini legislator has also recognised the validity of the electronic signature as evidence under Article 6 of the Bahraini Electronic Commerce Law. It explicitly confirmed that this signature acquires full evidentiary validity subject to the fulfilment of a number of conditions to ensure its full validity in proving transactions conducted electronically, including those related to e-commerce, which clearly indicates the adoption of the principle of freedom of evidence in this field⁵⁸.

On the basis of the above-mentioned comparative national laws, it can be concluded that they all agree that the electronic signature serves as a technical legal instrument that has full validity in proving electronic transactions, especially those related to electronic commerce. They also agree on the principle of equality between the electronic signature and the traditional signature in terms of their evidentiary validity, subject to the fulfilment of a series of legal conditions laid down in these legislations in order to ensure that the signature is secure and reliable.

As a result, we can say that the electronic signature, as one of the electronic means of proof, has acquired a prominent position in the field of evidence, particularly in the proof of electronic commercial transactions, which are based on the principle of freedom of evidence. This has led to considerable interest on the part of various legislations, both international and comparative national, which have resulted in the recognition of the electronic signature and its equivalence to traditional means of evidence in this field. It has thus been granted full validity, giving it the necessary legal force in this field. As a result, the electronic signature now has the same validity as the traditional signature, which unequivocally demonstrates its full compliance with the principle of freedom of evidence, recognised in the proof of various transactions and legal acts in general (except those expressly excluded by law), especially those carried out electronically in the field of electronic commerce.

Conclusion:

In conclusion, due to the inability of the traditional signature to keep pace with the various developments in transactions and fields, the electronic signature

⁵⁸- Bahrain Electronic Commerce Law, issued on 14 September 2002, Bahrain, 2002.

mechanism has been adopted as an alternative to the traditional signature to prove various transactions carried out electronically. Both international and national legislators have hastened to regulate and develop it in line with these developments.

As a result, the electronic signature enjoys full validity in proving various transactions carried out in electronic form, equating it to the traditional signature, once a series of specified conditions regarding its validity in electronic transactions, particularly in electronic commerce, are met. Any electronic record that is electronically signed in accordance with the specified conditions produces legal effects, obliging the parties to comply with the contents of the electronically signed document. This clearly demonstrates the suitability of the electronic signature for proving electronic commerce contracts and underlines that this type of signature is well in line with the principle of freedom of evidence in commercial transactions in general.

In the light of this modest study, we have reached a number of conclusions, the most important of which are as follows:

1. The electronic signature is a suitable tool for keeping pace with the rapid development of widespread and rapidly expanding electronic transactions, particularly in the field of electronic commerce.
2. The electronic signature can take different forms and is functionally equivalent to the traditional signature.
3. The electronic signature is one of the most important tools for the electronic documentation of documents and records and has a legal validity that is recognised in the proof of various transactions carried out in electronic form, thereby obliging the signatory to comply with the content of the electronically signed document.

Based on these findings, we offer several suggestions, the most important of which are

- Efforts should be made to regulate the various texts governing the electronic signature in such a way as to provide greater protection for the various electronic commercial transactions.
- Awareness campaigns and scientific seminars should be organised for users of electronic commerce, in order to activate the adoption of the electronic signature

among traders as a mechanism with full validity in proving various legal acts and transactions related to electronic commerce, in order to keep up with the developments occurring in this field, as well as to facilitate the exchange of expertise among specialists in order to improve and strengthen its legal value as evidence.

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