

The Evidentiary Value of Electronic Signatures in Commercial and Civil Arbitration

Ashraf Fatehi Al-Rai^{1*}, Dina Imad Joumblatt², Ghenaa Musaed Mohammed Almatr³

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Abstract

Objectives: This study aims to examine the legal validity of electronic signatures in civil and commercial arbitration under Jordanian law, and compare it with Egyptian and French legislation, focusing on their admissibility as an alternative to traditional signatures in legal evidence.

Methodology: The study employs a descriptive approach to analyze the concept and characteristics of electronic signatures, an analytical method to review legal texts and judicial applications, and an inductive approach to construct precise legal definitions.

Findings: The study concludes that Jordanian legislation does not sufficiently regulate the evidentiary value of electronic signatures, particularly in arbitration, and lacks clear legal and technical standards, unlike more developed comparative systems.

Conclusion: The study recommends amending Jordanian laws to include clear provisions governing electronic signatures in legal evidence, based on international standards and comparative legal models.

1. Introduction

It is universally acknowledged that the world today is witnessing remarkable technological advancements across various sectors. The widespread proliferation of the internet has permeated many civil and commercial domains, to the extent that business transactions and contracts are now increasingly conducted through modern digital means, such as cloud computing, artificial intelligence systems, and diverse digital platforms.

Consequently, the completion of legal procedures for these transactions necessitates the use of advanced systems and methods aligned with global technological developments. This gave rise to a new concept known as the electronic signature, which in turn raised several legal questions regarding its evidentiary value in both commercial and civil arbitration, especially since it serves as a substitute for traditional handwritten signatures, altering the very nature of the evidentiary process.

^{1*} Ashraf Fatehi Al-Rai: Public law Department, College of law, Abu Dhabi University, United Arab Emirates.

ORCID No: <https://orcid.org/0009-0009-8480-9686>. Email: ashrafraie@gmail.com; ashraf.a-adjunct@adu.ac.ae

² Dina Imad Joumblatt: Public law Department, College of law, Abu Dhabi University, United Arab Emirates.

³ Ghenaa Musaed Mohammed Almatr: Researcher and lecturer at several universities

Despite the evident importance and necessity of electronic signatures considering the technological evolution of civil and commercial transactions, many legal disagreements have emerged among civil and commercial law scholars concerning its admissibility. These debates stem from the complexities posed by the internet and the nature of information exchange, as the World Wide Web has transformed the globe into a "global village" due to the forces of globalization, allowing for transactions to occur across borders. These raises pressing legal questions about the evidentiary value of such signatures in arbitration and litigation, especially when examined under Jordanian law, and in comparison, with other legal systems, particularly Egyptian law.

The significance of electronic signatures today lies in their role in building trust among parties, particularly in e-commerce, which has witnessed substantial growth in many countries. Thanks to their speed, accuracy, and efficiency in concluding contracts, while saving time, effort, and cost, electronic signatures have become indispensable. This has prompted numerous states to amend their legal frameworks in this area, including France and Egypt, developments that will be examined within the context of Jordanian commercial law.

1.1 Research Problem

Legal discussions surrounding the evidentiary value of electronic signatures in arbitration and litigation go beyond traditional concepts of legal proof. While traditional signatures were long governed by well-known legal standards, the evolution of life and technological progress have transformed how electronic contracts are concluded. Additionally, Arabic legal literature suffers from a scarcity of research and references addressing this topic considering the enormous development of the internet, especially with the rise of social media platforms and digital interfaces that have significantly influenced both Arab and global societies. The core issue also lies in how to establish legal proof in contracts involving such methods, a topic that will be explored in detail.

1.2 Research Questions

This paper raises several key questions considering global advancements in digital technologies and social platforms, including:

1.2.1 What is the definition of an electronic signature?

1.2.2 What is the evidentiary value of an electronic signature in civil and commercial arbitration and litigation?

1.2.3 Can the internet be considered a means of proof in arbitration, or is it a constitutive element of arbitration itself?

1.2.4 How can legal proof be established in arbitration for such types of civil and commercial contracts?

1.3 Significance of Study

The evidentiary value of electronic signatures is directly linked to practical and technological progress in the fields of internet usage, information systems, cloud computing, and social platforms. Civil and commercial contracts are no longer concluded in the traditional manner. Today, offers and acceptances may be communicated through instant messages via smartphones and apps like WhatsApp, Messenger, email, or even social media platforms such as Instagram, LinkedIn, and Facebook, among others, which are continually evolving.

1.4 Objectives

This research paper aims to answer the above questions and explore the significance and legal implications of electronic signatures within Jordanian law and comparative legal systems. It will also assess legal developments and critically evaluate the relevant legal texts regarding the evidentiary value of electronic signatures in arbitration and litigation within the Jordanian legal system and others.

1.5 Methodology

This paper employs a descriptive method to outline the concept of electronic signatures and relevant judicial rulings. It also applies to an analytical method to examine and systematically categorize legal provisions, shedding light on the legal aspects of electronic signature admissibility. Additionally, an inductive method will be used to construct clear legal definitions for the terminology used in this research.

2. The Concept of Electronic Signature

Digital platforms and websites emerged with the launch of the Internet in 1969, when the U.S. Department of Defense formed a specialized team to interconnect computers for peaceful information exchange. By 1986, connections were established between military supercomputing centers, and the network's uses expanded into various commercial, industrial, and media fields. This development gave rise to the concept of electronic signatures.⁴

Despite jurisprudential and judicial attempts to define the nature of the electronic signature, the rapid and continuous technological developments have made it difficult to precisely determine its definition. Moreover, many commercial and civil legislations have yet to formally recognize electronic signatures. Some legal scholars have regarded it as a means of proof subject to the same standards as traditional signatures, while others have considered it a distinctive mark associated with a specific individual. Still others have described it as a set of digital data in a specific format, developed following the emergence of the Internet.⁵

Article 2(a) of the UNCITRAL Model Law on Electronic Signatures defines the electronic signature as “a set of data in electronic form, affixed to or logically associated with a data message, which may be used to identify the signatory in relation to the data message and to indicate the signatory's approval of the information contained therein.”

In this section, we will examine in detail the definition of the electronic signature in the first subsection, followed by an analysis of its characteristics in the second.

2.1 Definition of Electronic Signature

There are multiple definitions of the electronic signature, primarily because one of its most important features is to indicate the identity of its owner. Through it, the signer can express their will regarding the obligations they have signed. Consequently, countries have the freedom to define the method and type of electronic signature in a

⁴ Abd al-Da'im, S. (2014). The nature of new media and its means – a theoretical study. *Journal of Public Relations Research in the Middle East*, Egyptian Society for Public Relations, Cairo, Arab Republic of Egypt, p. 152.

⁵ Al-Abaseeri, F. (2003). *Subscription contracts in electronic databases: An applied study on internet contracts*. Dar Al-Nahda Al-Arabiya, Cairo, Egypt.

way that suits their laws and internal regulations. Moreover, significant developments in the fields of electronic commerce and transactions have necessitated a clear, comprehensive, and specific definition of the electronic signature.⁶

In Jordan, following the country's accession to the World Trade Organization and the signing of many international agreements related to global and free trade, it became necessary to remove many obstacles hindering commercial operations that require speed, accuracy, and security in the electronic field. This was achieved by legislating a specific law on electronic signatures for electronic transactions, which included in Article 2 a precise definition. However, legal scholars have differed regarding the definition of the electronic signature, which we will explore further.

The Egyptian legislator defined the electronic signature in Article 1 of the law regulating electronic signatures as:

“An electronic signature is what is placed on an electronic document, taking the form of letters, numbers, symbols, signs, or others, and it has a distinctive character that allows identifying the signer and distinguishing them from others”.

The researcher believes that the definition of the electronic signature contained in Jordanian legislation is more comprehensive than that of the Egyptian legislation. The Jordanian legislator stated that the signature consists of data without limiting the form or nature of this data, which corresponds with technological developments that may occur in the future and could affect trade and the exchange of goods over the Internet.

Both the Jordanian and Egyptian legislations agree that the electronic signature enables identifying the person who signed and distinguishes them from others. Both legislations also recognize the ongoing developments in the acceptance of electronic signatures and electronic documents and granting them evidentiary weight equivalent to traditional signatures and documents, which we will address in the second section of this study.⁷

The process of proving the validity of electronic signatures itself raises challenges, as electronic signatures can be easily manipulated and forged through various criminal networks abroad, which creates further difficulties. The United Nations Commission on International Trade Law (UNCITRAL) has provided a clear and specific definition of electronic signature.

Looking at other legislations, the Tunisian, Moroccan, and French laws include provisions on electronic signatures. Although some, like the Tunisian legislator, did not explicitly define it, the French legislator defined the electronic signature in paragraph 2/1316 of the Evidence Law for modern communication and electronic signatures as:

“Using a reliable method to identify its owner and ensure its linkage to the intended legal act”, which, from the researcher’s perspective, is a clearer, more precise, and more specific definition.

It can be said that electronic signatures may take various forms, such as signing with an electronic pen, via email,

⁶ Hegwazi, A. F. B. (2006). E-government and its legal system. Dar Al-Fikr Al-Jami'i, Alexandria, Egypt.

⁷ Al-Nawaisah, A. (2017). Cybercrime: An explanation of the substantive provisions in the Cybercrime Law (1st ed.). Dar Wael for Publishing and Distribution, Amman, Jordan.

using artificial intelligence systems, through text messages, and currently through smart applications that have come to occupy a significant place in our contemporary world.

The UNCITRAL set a group of legal rules related to electronic commerce, codified in the 1996 Model Law on Electronic Commerce. In its 34th session, UNCITRAL issued the Model Law on Electronic Signatures aiming to avoid conflicts between laws in the field of electronic commerce, also confirming the evidentiary weight of electronic signatures.

Electronic commerce and transactions conducted via the Internet emerged naturally with the development of mobile phones, making it possible to complete all commercial transactions through smart applications, which have become a parallel concept to traditional sales outlets. These applications are more advanced and easier to use due to their simplicity.

In any case, the electronic signature can be defined as: “A distinctive electronic mark for its owner that can be used as a means of proof”.

2.2 Characteristics of Electronic Signature

The electronic signature possesses a set of characteristics and features that distinguish it from the traditional signature. However, before pointing to these characteristics, it is necessary to differentiate between the electronic signature and the traditional signature in terms of function and form, then discuss the features unique to the electronic signature.

The traditional signature is a drawing, mark, or sign made by a person to distinguish themselves from others; it reflects their personality and expresses their will to attribute the signed document to themselves. It is considered an extension of the person who signed it and their responsibility for its content. It usually includes the person’s name or family name. The traditional signature fulfills the main function and purpose, which is linking the signature to the signatory’s knowledge, freedom, and personal presence at the time of signing.

As for the electronic signature, which consists of data in electronic form—these may be letters, symbols, signs, numbers, or sounds, it performs the same role as the traditional signature by identifying the owner of the electronic signature and confirming their approval of the content of the electronic document. The researcher views the electronic signature as “a means for expressing the will of the signer by modern electronic means to keep pace with the technological revolution worldwide, as well as with e-commerce and the resulting electronic contracts and documentation.” The essential common ground between the traditional and electronic signature is the linkage of the signer’s identity to the signature, issued freely, voluntarily, and with commitment to the content.⁸

Regarding form, the electronic signature relies on an electronic medium equipped with high electromagnetic, electrical, or optical capabilities through modern electronic devices, such as a computer designed for exchanging and storing information. In contrast, the traditional signature uses paper media written manually by the signer. Despite the differences in form and function between traditional and electronic signatures, both serve the same function and are characterized by trust and security, and both are internationally accepted.⁹

⁸ Al-Hinihi, M. M., & Al-Hinihi, M. M. (2004). *Electronic signature and its evidentiary value*. Dar Al-Fikr Al-Jami'i, Alexandria, Egypt.

⁹ Gharbi, K. (2014–2015). *Electronic signature* (Master’s thesis). Kasdi Merbah University, Ouargla, Algeria.

Among the most prominent features of electronic signature are:

It must be linked to a single person who can be identified, and the signing process must occur through electronic means directly controlled by the signer, clarifying the connection between this person and the content and purpose of the signature. Thus, the electronic signature is characterized by exclusivity; no two people can have the same electronic signature.

The electronic signature saves time and effort and ensures the speedy completion of transactions, as it does not require the signer's personal presence. It can be done remotely from anywhere. Due to the technological revolution and the widespread Internet network, it is now possible to conduct commercial and civil transactions, buying and selling, from anywhere in the world. Consequently, the form of offer and acceptance in traditional sales transactions has changed compared to the past.

The electronic signature provides security and confidentiality, as no one can access it except in cases of hacking or privacy breaches, which are criminalized by the Jordanian Cybercrime Law. Although such actions are not widespread in Arab societies, it is important to highlight them as a digital risk that could be exploited by activists in this field or hackers.¹⁰

Article 5 of the 1999 European Directive on Electronic Signatures, which regulates the legal effects of electronic signatures, states:

“Member states shall ensure that electronic signatures based on qualified certificates and created by a secure signature creation device meet the legal requirements for signatures relating to data in electronic form in the same manner as handwritten signatures and are accepted as evidence in legal proceedings.”

The electronic signature can be expressed in various forms, images, letters, and numbers, unlike the traditional signature limited to handwritten signing, fingerprint, or seal. The electronic signature does not disappear over time as the traditional signature might because it is stored on an electronic medium, which allows it to be referenced at any time.¹¹

Paragraph 3 of Article 6 of the UNCITRAL Model Law on Electronic Signatures stipulates the conditions that must be met for electronic signatures, namely:

The means used to create the signature must be linked to the signer only.

The means used to create the signature must be under the exclusive control of the signer at the time of signing.

Any subsequent changes to the electronic signature after signing must be detectable.¹²

¹⁰ Al-Rai, A. (2022). Criminal protection of the sanctity of private life through media means in Jordanian legislation – A comparative study (Doctoral dissertation). World Islamic Sciences University, Amman, Jordan, p. 114 ff.

¹¹ Majdoub, A. (2015). Electronic signature. Journal of Law and Human Sciences, Issue 23, Ziane Achour University of Djelfa, June, Algeria.

¹² Braidat, M. A. (2006). Electronic signature: A study in the Jordanian Temporary Electronic Transactions Law No. 85 of 2001. Jerash Journal for Research and Studies, 10(2), Jerash University.

After outlining the characteristics of the electronic signature, it is necessary to note that there are conditions that must be fulfilled for the electronic signature to have evidentiary validity; otherwise, it will not be acceptable as evidence. This will be discussed in the second section of this study, where the first subsection will cover the conditions for granting evidentiary value to the electronic signature, and the second subsection will address the probative strength and applications of the electronic signature.

3. Evidentiary Validity of the Electronic Signature in Evidence and Arbitration

The concept of the evidentiary validity of the electronic signature raised many issues at the beginning of its emergence. These issues stemmed from the questions posed by legal scholars regarding whether the electronic signature can be attributed to a specific person and whether the signed document can be considered as attributed to them, like the traditional signature. The traditional signature is a handwritten mark of the signer that allows distinguishing them from others, whereas the electronic signature does not contain this handwritten mark that forms the distinctive sign.¹³

Some scholars argued that this validity is achieved simply by fulfilling the purpose of the signature, which is to identify the person; this is considered essential in the technical and electronic world, especially in the fields of automated financial exchange and open networks such as the Internet, and even within intranet systems that do not require identity authentication. This means that sometimes the use of the electronic signature, if it achieves this purpose in all fields, serves the same function as the traditional signature, thereby preventing identity fraud and deterring anyone attempting to breach the Internet using a forged electronic signature.¹⁴

To explore the details of the evidentiary validity of the electronic signature, it is necessary first to address the conditions required for the electronic signature to have evidentiary weight, which will be discussed in the first subsection of this section. Then, the second subsection will discuss the probative strength of the electronic signature, its practical applications, and the effects arising from it.

3.1 Conditions for Granting Legal Force to Electronic Signatures

For the electronic signature to have evidentiary validity and be acceptable, most modern electronic commerce laws worldwide have stipulated specific conditions that must be met. This will be discussed in detail according to what is stated in Article 6 of UNCITRAL Model Law as follows:

Identity of the Signatory:

The identity of the signatory must be clear, apparent, and identifiable from the electronic signature, just as with a traditional signature, to grant it evidentiary validity. If the electronic signature does not fulfill this purpose, as is the case with the traditional signature—it cannot be considered valid or given evidentiary weight. The very purpose of the signature is to express the identity of the person who signed.

Resistance to the Passage of Time:

One of the most important conditions for the electronic signature is that it should not be affected by the passage of time and must be retrievable at any time. This is what distinguishes the electronic signature from the traditional

¹³ Al-Ghannami, N. B. N. (2019). Electronic signature and its evidentiary value with application to the Saudi legal system. Journal of Sharia and Law, Law Department, Taif University, Kingdom of Saudi Arabia.

¹⁴ Alwan, R. M. (2000). Expression of will via the internet. Research presented to the Jordanian Bar Association, Amman, Jordan.

signature. The reason is that the electronic signature uses technological tools that do not deteriorate over time, unlike traditional handwritten signatures.

Acknowledgment of What Was Signed:

If the signature constitutes an electronic acknowledgment of the contents signed, it can be accepted and considered a valid signature, similar to the traditional signature. Moreover, it must be linked to the identity of the person to whom the signature is attributed; otherwise, it is invalid. Through this acknowledgment, electronic evidence can be derived.

Article 6 of the UNCITRAL Model Law states that the electronic signature enjoys full evidentiary validity if the conditions set forth in that article are met, namely: that the electronic signature is linked to its signer, uniquely identifies the signer, is under the exclusive control of the signer, and that any alteration in the signature after signing is detectable. This is considered a clear and explicit expression of the signatory's will, resulting in the formation of legal transactions.¹⁵

Close Connection Between the Electronic Signature and the Electronic Document:

The electronic signature and the electronic document must be closely linked so that they form a single unit.¹⁶

However, the question arises: Are the conditions required for traditional signatures the same as those for electronic signatures, or do the modern world require specific conditions to grant evidentiary validity to electronic signatures?

To answer these questions, the legal validity of the electronic signature is only achieved by fulfilling a specific set of conditions, as stipulated by Jordan's Electronic Transactions Law. These include that the electronic signature must be distinctive and specifically linked to the identity of the signatory, tightly associated with them, and responsible for the content signed. It must be retrievable at any time through its unique form, whether a public key, private key, or biometric signature, that distinguishes the signer from others.¹⁷

The private key enables the signer to control the electronic record or any electronic data without the possibility of any alteration or modification related to the electronic record. The electronic record can be accessed at any time and can be converted into readable information. Just as the handwritten signature is created by the person's handwriting or fingerprint, the electronic signature is created through a computer device or smart card used by the person whenever they wish to sign, with full control over the electronic medium. In case of loss or theft, it must be reported through legal channels.

Moreover, the signature must be authenticated and certified by an electronic certification authority.

¹⁵ Aawisheh, S., Al-Hassan, T., & Mansour, A. (2024). The status of digital evidence in administrative litigation. *Al-Balqa Journal for Research & Studies*, 27(3), 42–55.

¹⁶ Aqli, F. (2012). Legal protection of the right to the sanctity of private life: A comparative study (Doctoral dissertation). Mentouri Brothers University, Constantine, Algeria.

¹⁷ Ayoub, P. A. (2009). Legal Protection of Personal Life in the Field of Informatics. Al-Halabi Legal Publications, Beirut, Lebanon.

3.2 Evidentiary Power of Electronic Signatures and Their Application in Arbitration

The electronic signature plays an important role in evidence, especially following the developments witnessed in electronic commerce. However, it must be noted here that the rules of evidence generally do not accept customary documents unless they are signed, and unsigned documents are not accepted. This stems from the basic principle in the law of evidence, which states that financial obligations exceeding a certain amount cannot be proven or disproven except in writing. This principle was adopted by the Jordanian legislator in the Evidence Law. Consequently, the judiciary's acceptance of electronic contracts requires acknowledging the evidentiary validity and reliability of the electronic signature as proof in disputes, provided it meets the previously discussed conditions and provisions; otherwise, it will not be accepted.

The researcher believes that the Hashemite Kingdom of Jordan has made significant strides in this field through launching electronic commerce and government projects and issuing the Jordanian Electronic Transactions Law, which coincided with the United States' Free Trade Agreement signing, Jordan's accession to the World Trade Organization, and signing the Jordan-European Partnership Agreement.¹⁸

Today, with the technological advancement worldwide, the increase in digital platforms, websites, social media, and artificial intelligence systems, executing commercial and civil contracts is "unimaginable" by traditional means alone. Instead, it increasingly occurs through information systems, which enhances the evidentiary value and strength of electronic signatures in these transactions. The world now lives in an interconnected network. However, one of the main challenges that may arise concerns proving the linkage of the electronic signature to its owner.

Looking back at Egyptian legislation, Article 14 of the Egyptian Electronic Signature Law states:

"The electronic signature within the scope of commercial, civil, and administrative transactions shall have the same evidentiary value as signatures under the provisions of the Evidence Law in civil and commercial matters, provided that the conditions stipulated in this law and the technical regulations specified in its executive regulations are observed".

Thus, the Egyptian legislator equated the evidentiary value of the electronic signature with that of the traditional signature, similarly to the Jordanian legislator.

The researcher sees that the evidentiary validity of the electronic signature should be ensured by safeguarding it from any modification, whether by deletion, addition, or alteration in any form. It should be linked to the traditional signature to contribute to the reliability of legal transactions, commercial and civil contracts, and their accuracy and integrity—whether already concluded or to be concluded in the future—without tampering or forgery. Therefore, the electronic signature cannot be trusted without a third party who can verify the identity of the signer. Unlike the traditional signature, the evidentiary validity of the electronic signature is not absolute.

In any case, the researcher agrees that strict and stringent controls must be imposed on the electronic signature under legal liability, given the rapid technological development that humans may not be able to keep pace with, which increases the risk of manipulation in commercial documents and arising contracts. This occurs in the virtual electronic world, which humans can no longer bypass or abandon since most transactions have become electronic

¹⁸ Al-Atoum, M. (2020). Arbitrary Dismissal in Jordanian Labor Law. *Balqa for Research and Studies*, 9(1), 182–185.

and require a lot of personal information and data about their holders. These users perform their transactions, embodying the concepts of the Digital Revolution brought about by the Global Communication revolution and the global consumers' and marketers' revolution via the Internet, through which the electronic signature can be accessed.

4. Results and Recommendations

This study addressed the concept of the electronic signature in light of the technological revolution witnessed worldwide today and its evidentiary value in proof and arbitration, especially as most commercial transactions are now conducted through the virtual world. The study reached a set of results and recommendations:

4.1 Results

4.1.1 The study concluded that the electronic signature could fulfill the functions of the handwritten signature, but this is conditional upon the availability of the necessary requirements. Without these, its evidentiary validity in commercial and civil transactions cannot be relied upon, despite the current lack of full trust due to its unstable foundations. However, legislative recognition grants it the same evidentiary strength.

4.1.2 The study concluded that the Jordanian legislator uses examples to define the electronic signature, a framework also adopted by the Egyptian legislator, unlike the French legislator who left the definition terms open-ended.

4.2 Recommendations

4.2.1 The study recommends establishing a mechanism to secure the electronic signature from any possibility of modification or alteration, whether by deletion, addition, or any form of change, in order to enhance trust in the legal operations and commercial and civil contracts, ensuring their accuracy and integrity both for contracts already concluded and those to be concluded in the future, free from tampering or distortion.

4.2.2 The study recommends amending the definition of the electronic signature to align with that of the French legislator, whose definition is considered better suited to keeping pace with the rapid development and advancement in the technical world.