

Electronic Arbitration: The Future of Settling International Commercial Disputes in the Age of Digital Transformation

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Received: 22/07/2025

Accepted: 20/10/2025

Published: .../.../2025

Abstract:

This article explores electronic arbitration as a modern mechanism for resolving international commercial disputes in the context of rapid digital transformation. It highlights how technological advancements and the growth of e-commerce have made it essential to adopt fast and efficient dispute resolution methods, with electronic arbitration offering speed, flexibility, and lower costs compared to traditional methods. The article also discusses the legal and technical challenges, such as determining applicable law, formal notifications, and data security, while reviewing key international platforms in this field. It suggests the need to update national and international legislation to keep pace with digital developments and provide the necessary legal and technical infrastructure. The article emphasizes the importance of balancing digital innovation with protection of parties' rights and concludes that electronic arbitration represents the future of commercial dispute resolution—if legal systems adapt to the realities of the digital age.

Keywords: Commercial Disputes; Arbitration; Electronic Arbitration.

1. INTRODUCTION

With the continuous development of international trade—particularly in its digital aspect—global financial and commercial flows have increased significantly. New forms of commerce have emerged, including the online sale and display of goods, as well as the marketing of various digital products. These and other forms of economic activity conducted via the internet highlight the growing need for efficient and timely resolution of disputes that may arise within this digital sphere. Such efficiency is necessary to ensure the continuity and effectiveness of commercial processes, especially considering that speed is one of the defining features of digital commerce.

As is widely recognized, one of the main advantages of traditional commercial arbitration lies in its ability to provide a faster resolution compared to regular court proceedings. However, even arbitration can sometimes encounter procedural or logistical

obstacles that hinder the desired speed expected by disputing parties.

In this context, electronic arbitration emerges as an attractive alternative for parties seeking dispute resolution. It offers all the fundamental advantages of conventional arbitration, such as the freedom to choose the applicable law, the ability to appoint arbitrators, and other procedural flexibilities. In addition to these, electronic arbitration offers a key advantage: it significantly accelerates the process by leveraging digital technologies, ultimately leading to quicker dispute resolution.

This acceleration stems from the fact that the entire arbitration process can bypass many of the traditional formalities required in conventional arbitration. For example, there is no longer a need for parties and their representatives to travel to a physical location, which in itself saves considerable time and resources.

Given this promising development, several critical questions arise:

What legal and technological challenges does electronic arbitration face as a mechanism for resolving international commercial disputes in the era of digital transformation? And how can its effectiveness be enhanced while adapting existing legal frameworks to align with these changes?

To answer this question, the following outline can be adopted:

Section One: Digital Transformation and Its Impact on Mechanisms for Settling International Commercial Disputes.

Section Two: Opportunities and Challenges of Digital Transformation in the Resolution of International Commercial Disputes.

Definition of Electronic Commercial Arbitration

Electronic commercial arbitration can be defined as a mechanism for resolving commercial disputes through electronic means—whether partially, such as receiving petitions and relevant documents online, or fully, where the entire process is conducted electronically. This may include the hearing of parties and their legal representatives, the examination of witnesses, and ultimately, the issuance of the arbitral award.

It may also be defined as follows:

*A special form of judicial system whereby the parties voluntarily agree to submit their dispute to a neutral third party (an electronic dispute resolution service provider), who appoints one or more individuals (an electronic arbitral tribunal) to settle the dispute. This is done through the use of modern communication technologies, in accordance with the nature of the dispute and the agreed procedure, in order to issue a binding arbitral award.*¹

The Importance of Electronic Arbitration

¹ - Fatma Zohra Geloiz, " The Role of Online Arbitration in Resolving E-Commerce Disputes" , Journal of Comparative Legal Studies, University of Hassiba Benbouali, Chlef, Volume: 08 Number 01, 2022 P; 305.

In traditional (classical) arbitration, contracts were typically concluded in a specific physical location agreed upon by the parties, where the terms of the contract would be discussed and finalized. Once the parties reached consensus, the contract would become binding on each of them. In such cases, the arbitral tribunal—when later called upon to resolve a dispute—would rely on various legal and procedural factors that arose from the physical nature of the contractual process. One key example of this is the place where the contract was concluded.

However, recent technological developments have led to new forms of commercial transactions. Business dealings have evolved in a way that aligns with the speed and flexibility demanded by modern commerce. As a result, contracts are now often concluded electronically, without the need for physical presence or travel.

Moreover, a new type of contract has emerged—**smart contracts**—which execute the agreement between parties automatically, based on pre-defined terms, and without the need for further human intervention.

It can be said that arbitration conducted through modern technologies shares many similarities with traditional arbitration, particularly in terms of the core principles required for the arbitration process to be valid. These include the **arbitration agreement**, the **arbitral procedure**, and the **arbitral tribunal**. However, in electronic arbitration, the methods and means through which these elements are carried out are automated or conducted digitally. For instance, the arbitral tribunal is appointed through electronic means, which also serve as the primary channel through which the arbitration process is conducted.

Nevertheless, electronic arbitration differs from traditional arbitration in several key aspects, the most important of which are:

Differences between Electronic and Traditional Arbitration

- **Applicable Law**

One significant difference in electronic arbitration concerns the issue of applicable law. In traditional arbitration, the location where the arbitral tribunal convenes is often used as a key criterion for determining the applicable law—particularly with respect to the enforcement of the arbitral award. For instance, under Algerian law, an arbitral award must comply with the legal requirements of the country in which it was rendered in order to be recognized and enforced in Algeria.

However, in electronic arbitration, the situation is more complex. While the arbitral tribunal may appear to be convening in a single virtual space, in reality, each arbitrator might be physically located in a different country. Their participation and deliberations are conducted through a digital platform specifically designed for this purpose. This decentralized nature makes it difficult—if not impossible—to define a single physical location for the arbitral tribunal. Consequently, relying on the law of the “place of arbitration” becomes problematic when it comes to enforcement.

Here, two important points must be highlighted:

1. **Judicial Discretion:** The enforcing judge may need to exercise discretion in determining the appropriate law to apply during the recognition and enforcement

process.

2. **Need for Legal Reform:** National legislation should be updated to account for these scenarios, by explicitly setting out the procedures and legal criteria to be followed in the context of electronic arbitration.

Official Notifications

Another major difference relates to the process of official notifications. In electronic arbitration, notifications are typically made through the official digital channels previously provided by the parties—such as personal or professional email addresses, or phone numbers. This raises the legal question of whether such forms of notification can be considered “official” and admissible as proof.

In traditional arbitration, it is customary—and often required—for notifications to be carried out by a judicial officer (such as a bailiff), who serves as the formal agent of communication between the tribunal and the parties.

In electronic arbitration, however, notifications can be sent directly through the available digital channels, provided that one of the following supporting measures is applied:

- The notified party confirms receipt by signing the notification and sending it back to the arbitral tribunal; or
- The electronic notification is supplemented by a physical delivery through a judicial officer to the party’s physical location.

- **Presence of the Parties**

In electronic arbitration, the submission of documents and evidence, the procedural steps, the holding of hearings, and even the issuance of the final arbitral award—all take place digitally through a dedicated arbitration platform. This digital framework significantly reduces any justification for a party’s absence based on the inability to travel to the physical location of the arbitral tribunal. This stands in contrast to traditional arbitration, where parties and their legal representatives are usually required to be physically present at the seat of arbitration.

- **Speed of Dispute Resolution**

This is arguably the most prominent advantage of electronic arbitration over traditional arbitration. The expedited procedures involved in electronic arbitration often result in much faster resolution of disputes. In many cases, the arbitral tribunal in real time, which contrasts sharply with traditional arbitration where such documents must be physically delivered — often-requiring travel or international shipping, receives documents and supporting materials.

The rapid resolution of disputes in electronic arbitration can be largely attributed to the procedural ease and immediacy of communication. Parties can exchange documents, arguments, and evidence instantaneously via email or other electronic communication tools.¹

¹-Mohamed Houdi," Procedures of Online Arbitration in International Commercial Contracts ", Journal of Legal and Political Studies, University of Thelidji Amar, Lghouat, Volume: 05 Number 01, 2019 P; 177.

The Arbitral Award

The arbitral award in electronic arbitration also differs from that in traditional arbitration. In the former, the award is issued electronically, which affects the manner in which it is written, signed, and delivered. This digital issuance introduces differences not only in format but also in procedural validity, especially with regard to electronic signatures and authentication methods.¹

2. Digital Transformation and Its Impact on Mechanisms for Settling International Commercial Disputes

The rapid advancement in digital communication technologies has led to significant changes across various aspects of professional and commercial life. Examples include digital and automated methods for transferring funds, as well as the rise of electronic platforms for selling and marketing products. These developments have inevitably extended their influence to the field of international commercial dispute resolution.

2.1 Technological Advancements and Their Impact on Legal Procedures in Dispute Resolution

For many years, arbitration operated within a well-established, traditional framework regarding contracts and the resolution of disputes. This long-standing model rarely posed any serious need for major reforms to legal texts or procedural rules. However, with the accelerated pace of technological innovation, entirely new types of contracts have emerged—most notably electronic contracts—²which are concluded in ways very different from traditional contracting methods.

Among the most significant of these innovations are smart contracts, which execute their terms automatically without the physical presence or direct intervention of the parties³. Furthermore, some contracts now incorporate complex technologies that are unfamiliar in the context of traditional agreements. These changes present a strong case for adapting to the current digital reality by integrating artificial intelligence and modern technological tools into arbitration procedures. Such tools would enhance understanding and interpretation of the contract's content, as well as the nature of the dispute more broadly.

For example, in cases involving contracts with lengthy annexes, it may take arbitrators, legal representatives, and experts a significant amount of time to review and fully

¹ - Ahmed Mahmoud Al- Mousaada, "The Legal Regime for Issuing an Electronic Arbitral Award (A Comparative Study)". *Academic Journal of Legal Research*, Majma'ah University, Saudi Arabia, Volume: 12 Number 02, 2015 P; 38.

² - It is defined in the second paragraph of Article 6 of Law No. 18-05, dated 10 May 2018, concerning electronic commerce:
"Electronic contract: The contract, in the sense of Law No. 04-02 of 5 Jumādā I 1425 AH (23 June 2004), which sets out the rules governing commercial practices, entered into remotely, without the physical and synchronous presence of the parties, relying exclusively on electronic communication technology."

— *Journal Official*, Issue No. 28, dated 30 Sha'bān 1439 AH (16 May 2018).

³ - "An electronic contract is considered one of the modern forms of agreements concluded via the Internet or the World Wide Web, and it can be signed and executed without the parties being physically present in the same location. "For further details, see:

Goesmi Wafaa and Belkharchich Louay (2022–2023). "The Electronic Contract in Algerian Legislation" Master's thesis, Faculty of Law and Political Science, University of 8 May 1945, Guelma, p. 14.

understand the materials. This delay directly undermines one of the key advantages of commercial arbitration—especially traditional arbitration—namely, speed in resolving disputes. Therefore, the use of electronic arbitration combined with AI-assisted review of briefs and documents becomes an inevitable step for any party seeking faster dispute resolution.

Accordingly, integrating modern communication and digital technologies into arbitration procedures can significantly enhance the preparation of case files by lawyers, parties, and their representatives. Since both electronic contracts and smart contracts are created and executed through digital means, they likewise require the adoption of digital procedures supported by advanced technologies and artificial intelligence in order to establish a sound and complete framework for resolving disputes.

The advantage of artificial intelligence becomes particularly clear in tasks related to speed, evidence analysis, document review, data management, and the extraction of relevant information from large datasets with high accuracy. When compared to human capabilities in these areas, AI demonstrates clear superiority. However, this does not imply that the process of deciding the dispute should be handed over entirely to algorithms or automated systems. The authority to render a final decision must remain exclusively in the hands of natural persons. AI tools are to be seen strictly as assistive technologies, not replacements for human judgment.

Therefore, the procedures in electronic arbitration differ from those in traditional arbitration in several ways. This includes how cases are registered and initiated, which in electronic arbitration is done entirely through a digital platform. Additionally, all documents and procedural steps—such as submissions, hearings, and deliberations—are conducted through the designated platform.

Moreover, the information provided to the parties in this type of arbitration differs from what is customary in traditional settings. Instead of receiving hearing dates and physical locations, parties in electronic arbitration are given login credentials to access their accounts on the arbitration platform, along with the tribunal’s schedule and case updates.

Parties are also required to submit all digital data requested by the arbitral tribunal, which will likely exceed the amount and complexity of the information typically required in traditional arbitration. This may include uploading documents and providing access to cloud storage accounts that contain digital evidence, such as videos or various files relevant to the resolution of the dispute.

2.2 Digital Platforms for International Dispute Resolution — Growth and Challenge

There are many leading international platforms in commercial arbitration that have adopted an electronic arbitration approach, but they face several challenges with the digital evolution in this field.

Subsection One: Digital Platforms for International Dispute Resolution

Electronic dispute resolution has witnessed growing popularity among various arbitral institutions. Leading organizations such as the International Chamber of Commerce (ICC), the World Intellectual Property Organization (WIPO), and others have taken the initiative to

establish and promote electronic commercial arbitration systems.

1. International Chamber of Commerce (ICC)

In 2004, the International Chamber of Commerce (ICC) issued guidelines on the use of information technology in arbitration, laying the foundation for future developments in this field. More recently, in 2022, the ICC launched a secure online case management system¹ that allows arbitrators, parties, and the institution itself to communicate and share all documents related to the dispute in a centralized digital environment.

2. WIPO Arbitration and Mediation System

The World Intellectual Property Organization (WIPO) has developed its own dedicated system enabling parties to resolve their disputes through various methods, including mediation and arbitration. In arbitration specifically, WIPO offers an expedited arbitration mechanism, known as Expedited Arbitration.

Through its Arbitration and Mediation Center, WIPO provides a process that is fast, cost-effective, and conducted under streamlined rules. Parties can file their requests electronically using pre-designed forms and may exchange all dispute-related documents through secure digital channels. The process also allows the use of audiovisual technologies throughout the arbitration proceedings.²

3. London Court of International Arbitration (LCIA)

The LCIA has developed a proprietary electronic system that enables parties to submit arbitration requests digitally, including the expedited formation of the arbitral tribunal in urgent cases. Parties may also submit supporting documents electronically, pay fees online, and securely store documents for future reference, notifications, or evidentiary use.

This system grants parties convenient access to all submissions and case materials via the internet, including detailed payment records and procedural updates.³

4. Singapore International Arbitration Centre (SIAC)

On August 26, 2024, the Singapore International Arbitration Centre (SIAC) announced the launch of the SIAC Portal, a digital case management system offering a range of online tools designed to simplify and streamline the arbitration process. This platform aims to facilitate case management for both arbitrators and parties.⁴

5. Hong Kong International Arbitration Centre (HKIAC)

The HKIAC Case Connect platform is the Centre's dedicated electronic case management tool, allowing for full digital administration of arbitration cases. It serves as a centralized repository where all relevant documents can be uploaded, including applicable

¹ - Case Connect

² - Fatiha Haouas, "Resolving Intellectual Property Disputes within the Framework of the WIPO Arbitration and Mediation Center", Published article, The Academic Journal for Legal Research, Faculty of Law, University of Algiers 01, Volume: 14, Number. 01 – 2023, p; 18.

³ - See: www.onlinefiling.lcia.org 10/07/2025, Time 12.40 AM.

⁴ -See: <https://siac.org.sg/> , 15 / 07 / 2025, Time 10.00 AM.

arbitration rules, submissions, and evidence provided by the parties. It also provides access to all communications and decisions issued by the arbitral tribunal.

Moreover, Case Connect functions as a communication platform between the parties, which can replace or supplement traditional email correspondence¹, thereby streamlining procedural communication.

It is worth noting that some electronic arbitration institutions set specific monetary thresholds for disputes to qualify for electronic arbitration. For instance, the Saudi Center for Commercial Arbitration limits such proceedings to cases where the disputed amount does not exceed 200,000 SAR² (approximately USD 53,400)³.

This model is particularly suitable for low-value disputes arising between companies or between companies and consumers—where the cost and resources required for traditional arbitration would often be disproportionate to the value of the claim. In contrast, electronic arbitration significantly reduces expenses by eliminating the need for physical attendance, travel, and related logistical arrangements, thereby making it a more cost-effective solution for such cases.

Subsection Two: Challenges Facing International Arbitration Platforms

As the number of international platforms dedicated to electronic arbitration of commercial disputes continues to grow and their integration into the digital space becomes more prominent, these platforms must address several key challenges.

- **Ensuring Information Security**

One of the most critical challenges facing modern technologies—particularly in the field of online arbitration—is cybersecurity and the protection of sensitive data. Among the most attractive features of arbitration, as opposed to national courts, is the confidentiality it offers⁴. Therefore, preserving the confidentiality of arbitration proceedings remains a fundamental principle of the arbitration process.⁵

This confidentiality originates from the will of the parties themselves, as any disclosure of business secrets or commercially sensitive information could cause serious harm to the involved parties.⁶

¹ - See: www.hkiac.org 15 /07/ 2025, at: 11.30AM.

² - See:www.sadr.org , 15/07 / 2025 , at : 14.05 PM .

³ - Currency conversion according To: www.xe.com , 16/07/2025 at :10.00AM.

⁴ -“*The attractiveness of arbitration is largely justified by the principle of confidentiality that characterizes it. Mr. Hans Bagner mentioned a scientific survey of American and European users of commercial arbitration conducted in 1992 on behalf of the London Court of International Arbitration (LCIA) by the London Business School, which found that confidentiality is the most important factor that explains the appeal of arbitration.*”

See: “*The Protection of Trade Secrets in International Commercial Arbitration*,” Theodore-Alexandre de Nika Bitho, Doctoral Thesis, School of Law, Sorbonne, University of Paris 1 Pantheon-Sorbonne, 2020, p. 97.

⁵ -Mohamed Abdel Karim Adly, "The Confidentiality of Arbitration in Disputes Arising from Contracts Concluded Between States and Foreign Individuals," Journal of Law and Political Science, Faculty of Law and Political Science, Ziane Achour University of Djelfa, Volume:03, Number:01,2010 P; 110.

⁶ -“This confidentiality stems from the will of the parties, as the disclosure of secrets and economic or professional information would be detrimental to the different parties.” See: Amal Zemam, “The International and Local Legal System for Electronic Arbitration: A Comparative Study,” published article, Ziglôbitha – Journal of Arts, Linguistics,

Given this, digital arbitration platforms must adopt strict security protocols to ensure information protection. This includes implementing measures such as multi-factor authentication, including identity verification through personal phones, biometric data (such as fingerprint or facial recognition), and restricting access to sensitive data strictly to authorized users.

Additionally, platforms should integrate robust cybersecurity systems recommended by specialized firms, ensuring that all communication and data storage channels are encrypted and secure. This is essential to prevent unauthorized access or data breaches that could compromise the integrity of the arbitration and the interests of the parties involved.

- **The Need for Arbitrators, Parties, and Their Representatives to Be Technologically Competent**

This requirement is self-evident, as arbitration conducted through digital means necessarily demands that all participants—arbitrators, parties, and their legal representatives—be proficient in using modern technologies. Moreover, these tools must be readily accessible to them, and users must have a clear understanding of how to operate them efficiently.

To support this, digital arbitration platforms are expected to provide user manuals or technical guides, ensuring that all parties involved are fully informed about the procedural steps and how to interact with the platform during the arbitration process.

- **Costs and Timeframes Associated with Arbitration Platforms**

Another key challenge relates to costs and timeframes. On one hand, there are fees charged by the digital platform for its services; on the other hand, there are arbitrators' fees. These financial aspects, along with the duration of proceedings, can significantly influence how parties choose a particular platform over another.

Such considerations naturally intensify competition among arbitration platforms, each seeking to attract users by offering services that are more efficient, reduced fees, or quicker dispute resolution. At the same time, these factors can help platforms appeal to international arbitrators, who may base their preference on the number of cases they can handle, fees received, and the platform's global reach.

Ultimately, all participants in the arbitration process—whether institutions, arbitrators, or parties—are driven by the goal of financial efficiency, either by maximizing income or by minimizing costs.

3. Opportunities and Challenges of Digital Transformation in International Commercial Dispute Resolution

From the developments outlined above in the field of trade in general, and international trade in particular, the opportunities presented by digital transformation to enter the realm of international commercial dispute resolution are clearly evident, given the

numerous advantages it offers. However, alongside these opportunities, several challenges arise that must be carefully considered in order to maximize the effectiveness of this system.

3.1 Opportunities of Digital Transformation in Enhancing the Efficiency of the International Commercial Dispute Resolution System

The integration of modern technologies into the field of international commercial dispute resolution has a significant impact in several respects, which can be summarized as follows:

- **Cost Savings**

Traditional arbitration often requires parties and their representatives to physically attend the seat of the arbitral tribunal whenever necessary. However, this changes fundamentally in arbitration conducted through modern technological means—commonly known as electronic arbitration—where the need for physical presence at the tribunal’s location is largely eliminated, except in exceptional cases determined by the tribunal, such as when smooth proceedings cannot be ensured without the parties’ physical presence.

- **Reduction and Modification of Timeframes**

one of the most notable features of arbitration conducted via modern technological tools is the considerable timesaving it offers to both the parties and the tribunal. The need for travel and the lengthy procedures that often accompany it—particularly visa requirements that a party might need to fulfill to attend the hearing venue—are no longer an obstacle. Instead, arbitration in this form takes place remotely using modern communication technologies. This allows for electronic scheduling of cases and the electronic examination of documents and various evidence, eliminating the necessity for parties to travel to meet the arbitral tribunal in person.

- **Adaptability to Exceptional and Emergency Circumstances Compared to Traditional Commercial Arbitration**

the only remaining potential obstacle in this regard is likely technical, such as the availability and reliability of the internet and the arbitration platform, which are essential for the parties and the tribunal to initiate and continue the arbitration process. Unlike traditional arbitration, digital arbitration does not face challenges related to the physical inability to travel to the seat of the tribunal due to emergency conditions in the country where the arbitration takes place or in the country of one of the parties. Such conditions might include adverse weather, travel bans, pandemics, or other similar reasons that could otherwise hinder physical attendance.

- **Enhancement of Parties’ Participation**

the submission of documents, various procedures, and the holding of hearings are all conducted digitally, effectively eliminating the common excuse of parties’ inability to attend due to travel difficulties to the tribunal’s physical location. This stands in contrast to traditional arbitration, where parties and their representatives are required to be physically present at the tribunal’s seat.

3.2 Legal and Ethical Challenges Associated with the Digital Transformation in Commercial Dispute Resolution

The digital transformation has had a profound impact on social life in general. It has brought about changes in individuals' behaviors and introduced new developments across various fields, including the legal domain, notably with the emergence of new crimes such as cybercrime.

Similarly, the recent advances in international commercial arbitration, particularly with the introduction of new dispute resolution methods, come with their own set of challenges and implications that must be addressed to ensure the desired effectiveness of this system. Among these challenges are:

- **The Need to Amend Legal Provisions Related to Commercial Arbitration**

This is of utmost importance, especially concerning the recognition of new methods of evidence, deadlines, and other novelties arising with the advent of this type of arbitration. Amending these provisions would facilitate the smooth conduct of arbitration proceedings, starting from the agreement to arbitrate through to the enforcement of the arbitral award.

Moreover, it is essential that the parties' consent explicitly specify arbitration via digital means rather than traditional arbitration. It is also necessary to have dedicated local and international platforms designed for this purpose, where both the arbitral tribunal and the parties have access to accounts with limited permissions restricted to their specific roles and rights, without the ability to alter the platform. This prevents any suspicion or risk related to document deletion or modification.

- **Shift from Traditional Arbitration to Electronic Arbitration**

As previously noted, some arbitration centers require that the disputed amount does not exceed a certain financial threshold for the case to be handled via electronic arbitration. However, this requirement may evolve, either by raising the monetary limit or abolishing it altogether, allowing the entire process to be conducted electronically or at least some procedures to be digitalized. This aligns with ongoing developments and aims to harness the advantages that electronic arbitration offers over traditional arbitration, such as faster submission of documents to the tribunal, attendance of parties and their representatives, and other procedural efficiencies.

That said, this does not necessarily imply that all procedures must be conducted exclusively in digital form. The arbitral tribunal may retain the discretion to require certain steps to be conducted in person when deemed necessary. Likewise, parties should have the right to request in-person sessions, for instance, to inspect specific machinery or evidence that cannot be adequately examined through digital means, thereby ensuring the tribunal fully understands the facts of the case.

- **Reduction of Direct Interaction between the Parties:**

There is no direct communication between the parties or their representatives and the arbitral tribunal, which inevitably diminishes opportunities for personal acquaintance and future dealings. On the other hand, some may view this as an advantage, as the tribunal's role will be limited strictly to examining the submitted documents, setting aside any

personal considerations¹.

- Difficulty in Determining the Place of Arbitration:

Since the arbitral tribunal may include members from different countries and arbitration is conducted on a digital platform, the tribunal might never meet physically in a single location. This makes it challenging to precisely determine the seat of arbitration, a question with significant legal implications. Which location is to be considered the official place of arbitration? ² Legal systems need to provide clear criteria to address this issue, as the seat of arbitration carries importance in several procedural stages, most notably during enforcement, where national laws refer to the competent court based on the arbitration seat³.

- Documentation and Data Security:

It is well known that digital storage of data and documents is not secure. Various factors such as hardware failure, data loss, or encryption through cyberattacks can threaten stored information. This calls for precautionary measures to accompany electronic arbitration. At a minimum, all documents submitted by the parties—bearing their signatures and stamps, along with those of the arbitrators—should be printed and physically archived. This helps protect the parties' rights in case of data loss or damage on the arbitration platform, ensuring that the dispute can resume from the last known stage without disruption.

- Limited Access to Technology:

Resorting to electronic arbitration inherently requires the use of advanced technologies, including high-quality imaging and communication equipment, to ensure the smoothness and continuity of the arbitration process. This necessitates keeping pace with technological advancements by all stakeholders involved in international commercial arbitration, ranging from arbitration institutions and arbitrators to states themselves.

4- Conclusion

In conclusion, based on the advantages presented above, the future of resolving international commercial disputes amidst ongoing developments in international trade

¹ - "Reduced emotional impact" is considered one of the advantages of electronic arbitration: focusing solely on written evidence removes unnecessary confrontations, preserves business relationships, and ensures a fair, unbiased process. For more details, see: Hender Varster, "Arbitration vs. Traditional Arbitration," online article, available at: www.onlinearbitration.co.za, accessed on 16/07/2025, accessed at 11:44 AM.

² - Essam Abdel Fattah Matar, "Electronic Arbitration: Its Nature, Procedures, and Mechanisms for Resolving E-Commerce, Trademark, and Intellectual Property Disputes", New University Publishing House 2009, Alexandria, p; 58.

³ - Article 1051 of Law No. 08-09 dated 18 Safar 1429 corresponding to February 25, 2008, Official Gazette of the People's Democratic Republic of Algeria. No: 21, 21/04/2008. Which contains the Code of Civil and Administrative Procedure, stipulates that the court of the place of enforcement shall be taken into account when the seat of the arbitral tribunal is located outside the national territory. This serves as a potential solution in the case of electronic arbitration: "Arbitral awards shall be enforceable in Algeria under the same conditions, by an order issued by the president of the court within whose jurisdiction the arbitral award was rendered, or by the court of the place of enforcement if the seat of the arbitral tribunal is located outside the national territory." However, the issue of determining the place of arbitration remains problematic when enforcement targets digital assets whose physical location cannot be precisely determined in the real world.

clearly leans towards the full digitalization of the arbitration process. This digital approach offers features and benefits that position it favorably compared to traditional arbitration. However, this trend remains contingent upon necessary procedural, logistical, and legal improvements to accompany this transformation, thereby ensuring the highest effectiveness of a digitally driven dispute resolution system.

Recommendations

Based on the foregoing discussion and with the aim of enhancing the efficiency of the international commercial dispute resolution system amid digital transformation, the following recommendations are proposed:

- **The Necessity to Expand Digitalization across Relevant International Commercial Arbitration Bodies:**

This expansion should encompass every administrative unit that interacts with the parties or the arbitral tribunal during the arbitration process. It should also extend to other individuals involved in enforcement procedures or who may have a role in the arbitration process, such as court clerks, judicial officers, judicial authorities, property registries, banks, and other relevant institutions and entities.

- **The Urgent Need to Update Legal Texts to Include and Regulate Electronic Arbitration to Facilitate Its Use:**

Electronic pleadings may sometimes be perceived as insufficient to guarantee the parties' right to defense, especially when compared to oral pleadings conducted face-to-face before the arbitral tribunal.

Moreover, holding arbitration hearings electronically inevitably challenges the traditional notion of territorial jurisdiction. Consequently, this commonly used criterion in enforcement—identifying the applicable law based on the physical location of the arbitration—may become impractical due to the digital nature of the process, which complicates the precise determination of the arbitration venue. This calls for reforms in several aspects related to the enforcement of arbitral awards. For example, under Algerian civil and administrative procedure law, an award must comply with the law of the country where it was rendered and must have *res judicata* effect in that country to be authenticated with an enforceable form and thus be executable.

Article 1035 of the Algerian Civil and Administrative Procedure Code provides that: "The arbitral award, whether final, partial, or provisional, shall be enforceable by order of the president of the court in the court registry upon request of the interested party for expedited enforcement."¹

¹ -It is worth noting that: "final awards are those that definitively and completely resolve the dispute. Partial awards refer to arbitral decisions that settle only part of the dispute, but in a conclusive manner. As for preliminary (or procedural) awards, these are arbitral decisions through which experts are appointed or certain preliminary investigations are ordered—steps necessary before ruling on the merits of the case."

=This distinction was noted by Prof. Dr. Haitala Maamar and PhD candidate Nejadi Ben Abdallah in their article entitled "*The Enforcement of Foreign Arbitral Awards – Conditions and Procedures*," published in the Journal of International Law and Development, faculty of law , Abd El hamid ben badis University , Mostaganem Volume: 09, Number. 01 (2021), P; 93.

However, in cases where arbitrators and parties are located in different countries and hearings take place via a digital platform, determining whether the award has res judicata effect in the country of issuance becomes challenging due to difficulties in pinpointing the exact location of the arbitration.

- **The Need to Amend the Procedures of Certain Enforcement and Notification Authorities, Especially Judicial Officers Regarding Electronic Notification:**

It is essential to incorporate provisions on electronic notification into domestic laws to ensure that judges do not consider such notifications void due to their absence from national legislation. National judges oversee the validity of procedures based on the governing law, particularly at the stage of authenticating the arbitral award with an enforceable form.

Therefore, the above points call for legal reforms that establish clear criteria compatible with these new realities.

Additionally, there are noteworthy recommendations issued by the United Nations Commission on International Trade Law (UNCITRAL) ¹ during its seventy-sixth session, where it continued to examine the impact of digital transformation on electronic commercial arbitration procedures as well as enforcement mechanisms for electronic arbitral awards. These recommendations mainly address the following:

- **Promoting the Recognition of Arbitral Awards in Electronic Form:**

Such awards should be granted the same acceptance and legal effect as traditional written arbitral awards.

- **Aggregation:**

This corresponds to the judicial practice in national courts, where various cases illustrate how courts handle electronic commerce awards.

- **The Necessity of Harmonizing UNCITRAL Instruments on Electronic Commerce with International Arbitration Instruments:**

This involves aligning legal rules relating to electronic commerce—such as UNCITRAL’s rules on electronic records and digital signatures—with international arbitration laws.

It includes the possibility of recognizing electronic information as valid once it meets specific verifiable standards.

- **Recommendation on Interpreting the New York Convention:**

Practically and procedurally, the Commission opted for a broader interpretation rather than amending the international treaty itself, which would involve procedures that are more complex.

Thus, the Commission recommended expanding the scope of the 1958 New York Convention’s interpretation to explicitly cover electronic arbitral awards.

¹ - For more on the topic, see: the website of the International Academy for Mediation and Arbitration at www.iamaeg.net, accessed in 17/07/ 2025.11.00 AM.

- **Recommendation to Amend the Model Law on Arbitration:**

This would involve introducing provisions that explicitly recognize electronic arbitral awards, including:

- Accepting electronic writing as a valid substitute for paper documents.
- Considering digital signatures valid if the signer's identity can be verified.
- Establishing uniform standards for the timing of electronic award delivery and receipt.

Finally, the Commission provided guidelines to states, courts, and arbitrators on how to handle electronic arbitral awards to keep pace with global economic and technological developments.

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