

## Cybercrimes affecting the electronic management of the electoral process

الجرائم السيبرانية الماسة بالإدارة الإلكترونية للعملية الانتخابية

**Zibar Chadli**

Governance Perspectives for Sustainable  
Local Development  
Department of Law  
Institute of laws & economics  
University Center of Barika, Algeria.

chadli.zibar@cu-barika.dz

**Guettaf Mohamed**

Governance Perspectives for Sustainable  
Local Development  
Department of Law  
Institute of laws & economics  
University Center of Barika, Algeria.

mohamed.guettaf@cu-barika.dz

Date of submission:19/02/2024 Date of final acceptance22/09/2024 Date of publication :september 2024

### Abstract :

The world is currently witnessing tremendous technological advancements in all aspects. This had an impact on public administration, leading to the emergence of the concept of e-administration, mean the use of information and communication technology in administrative work and the provision of public services. Among the most important administrative tasks is the electoral process, which has been influenced by automation through the introduction of the electronic platform for the Independent Electoral Authority. However, this also exposed it to the risks of automated data processing systems. Therefore, how did the legislator regulate it and criminalised the affecting actions

**Keywords :** Electronic Administration: The Electronic Platform for Elections - Crimes of Automated Processing Systems.

ملخص:

يشهد العالم حاليا تطورات تكنولوجية رهيبية في كل الجوانب الثقافية و الإجتماعية و السياسية هذا الأمر ألقى بظلاله على الإدارة العمومية ، مما أنتج لنا مصطلح الإدارة الإلكترونية و هي إستعمال تكنولوجيا الإعلام و الإتصال في العمل الإداري و تقديم الخدمات العمومية ، و من بين أهم الأعمال الإدارية نجد العملية الانتخابية التي تأثرة بعملية الأتمتة من خلال إستحداث المنصة الإلكترونية للسلطة المستقلة للانتخابات ، هذا الأمر وضعها في مرمى النار بالنسبة للجرائم الماسة بأنظمة المعالجة الآلية للمعطيات فكيف اطر المشرع الإدارة الإلكترونية للانتخابات و كيف جرم الأفعال الماسة بها.

الكلمات المفتاحية: -الإدارة الإلكترونية – المنصة الإلكترونية للانتخابات- جرائم أنظمة المعالجة الآلية

## Introduction:

Electronic administration of the electoral process is one of the most significant technological advancements that has influenced the democratic process in the modern era. Thanks to the tremendous and accelerating technological progress, people can now register and participate easily without the need to visit local authorities. Electronic administration works to facilitate the electoral process, making it more efficient and transparent.

Electronic administration of the electoral process relies on the use of modern technology such as the Internet, smart devices, and advanced software. Instead of following traditional procedures at a specific location and time, individuals can now register, request a voter ID, or make changes in any legal aspect related to elections from anywhere and at any time through the internet or a dedicated election application. These innovative technologies also provide advanced security measures, such as encryption and two-factor authentication, to ensure the confidentiality and reliability of the processes.

One of the key benefits of electronic administration of the electoral process is the increased participation of people in elections. Besides the convenience it offers in terms of time and effort, the electronic system enhances participation by providing comprehensive information about candidates and their electoral programs. Voters can access and review this information before voting, making it easier for them to make informed and thoughtful decisions.

Electronic administration of the electoral process reduces the opportunity for cheating and manipulation of results. However, on the other hand, cybercrimes in the electoral field have seen a significant increase in recent years. Technology and the internet are exploited to influence election results and manipulate the democratic process. These crimes pose one of the most serious threats to electoral systems worldwide, violating citizens' right to choose their representatives and undermining the credibility of the electoral process in general.

Cybercrimes in the electoral field encompass a wide range of illegal activities, including data leaks, hacking, electronic attacks, result forgery, and the spread of fake news and political misinformation. Perpetrators of these crimes seek to tarnish the integrity of the electoral process and influence the public, which can be devastating. Hackers can manipulate election results and tamper with sensitive information of candidates and political campaigns.

Cybercrimes in the electoral field employ advanced and sophisticated methods, making it difficult to trace the perpetrators. Hackers rely on malicious software, phishing emails, and manipulation of electoral technology to execute their attacks. These crimes may be supported by other political entities, conducted seamlessly and swiftly to avoid detection and ensure success. Due to the direct impact of these crimes on the political reality, and given the severity of these actions, which are criminalized by law and pose a significant threat to the integrity and health of the electoral process, it is essential to address this issue by highlighting the legal controls and safeguards established by the Algerian legislator. These measures aim to ensure transparency, integrity, and the safety of the electoral process, particularly regarding electronic voting systems, as outlined in several recent legal texts. We will delve into these texts in our study, specifically focusing on the organic laws that regulate elections (Organic Law 21-01) and the seventh chapter of the Penal Code in Articles 394 et seq. Additionally, we will explore Law 09/04, dated 14 Sha'ban 1430 corresponding to 5 August 2009, which includes specific rules for preventing and combating crimes related to information and communication technologies. Furthermore, we will examine Law No. 18-07, dated 25 Ramadan 1439 corresponding to 10 June 2018, which deals with the protection of individuals in the field of processing personal data.

The problem addressed in our study is: "**The legal framework for protecting electronic administration of the electoral process from crimes related to automated data processing.**" Our chosen methodology is the descriptive approach, enabling us to delve into electronic administration and its applications in the electoral process. We will also examine the legal framework surrounding crimes related to automated data processing. Additionally, we will employ an analytical approach to understand and clarify legal and technical terminologies in this research. To address the core issue of our research, we will adhere to the following plan:

**Section One:** Electronic Administration of the Electoral Process

**Subsection One:** Concept of Electronic Administration

**Subsection Two:** Implications of Electronic Administration on the Electoral Process

**Section Two:** Cybercrimes Impacting the Electoral Process

**Subsection One:** Crimes Affecting Automated Data Processing Systems

**Subsection Two:** Crimes Affecting Personal Data and Information

## 1. Section One: Electronic Administration of the Electoral Process

Modern technology stands out as one of the most crucial tools contributing to the development of various fields that impact the daily lives of individuals and governments alike, including electoral processes. The transition from paper-based to electronic administration in electoral operations is a decisive step in updating and enhancing systems to meet the requirements of the modern era. Over the past decades, electoral processes have relied on numerous papers and traditional procedures that undermined transparency, efficiency, and the speed of tabulations. Therefore, in the first subsection, we will delve into the concept of electronic administration, and in the second subsection, we will explore the implications of electronic administration on the electoral process.

### **Subsection One: Concept of Electronic Administration:**

The modern administration currently relies entirely on technological advancements, allowing it to carry out its tasks and achieve its goals quickly, accurately, and with minimal costs through what is known as electronic administration. This concept is widespread in many Arab and international countries at present. Electronic administration relies on the use of knowledge, information, advanced software systems, and communications to execute administrative tasks. It enables the exchange of information within the organization and with external parties, contributing to decision-making, enhancing performance efficiency<sup>1</sup>, and overall effectiveness. Therefore, we will first delve into the definition and objectives of electronic administration, and then into its functions and significance

#### **First: Definition of Electronic Administration and Its Objectives**

##### **Definition:**

The definition of electronic administration is divided into three perspectives. The first focuses on the material aspect, viewing it as a set of machines, equipment, and devices. The second concentrates on the functional aspect, considering it as the performance of a set of functions. The third emphasizes the integrative aspect, encompassing organizational, material, functional, and human aspects.

Electronic administration is defined as: "The use of technology, information systems, communication means, and scientific knowledge and its applications to enhance the overall quality and efficiency of the institution. This is achieved by integrating and unifying organizational components into an interconnected system through information technology."<sup>2</sup>

It is also defined as: "The application of internet and electronic commerce techniques for the computerization of administrative procedures, their dissemination through the internet, and the development of new interactive public transactions and services."<sup>3</sup>

Looking at the procedural aspect, it is defined as the administrative process based on the distinctive capabilities of the internet and business networks. It involves planning, directing, and controlling the essential resources and capabilities of the company and others without boundaries to achieve the company's goals.<sup>4</sup>

The variation in these definitions and occasional similarities led one researcher to say: "Definitions agree that electronic administration is a new concept in administrative work, utilizing

electronic technologies and benefiting from them in administrative functions such as planning, organizing, controlling, directing, and evaluating, making them more effective, better, and of higher quality."<sup>5</sup>

**Objectives of Electronic Administration:**

Electronic administration, like all modern mechanisms in administrative activities, aims to achieve specific and particular objectives. These objectives vary depending on the user and the targeted group, as well as the field in which these mechanisms are utilized. However, in general, electronic administration aims to achieve the following:

- a. Provide convenient opportunities for delivering electronic services to service seekers.
- b. Alleviate the problems arising from service seekers dealing with inexperienced, moody, or unskilled employees.
- c. Mitigate the drawbacks of centralized authority.
- d. Reduce bureaucratic hurdles, the multiplication of signatories and officials, and administrative red tape.
- e. Utilize the agile web network without the hindrance of hierarchical networks.
- f. Enhance services by reducing delivery time and location constraints and facilitating access to information.
- g. Reduce expenses through system integration to support internal and external procedures.<sup>6</sup>

**Second: Its Functions and Significance:**

**Functions:**

Electronic administration is considered a new framework that significantly impacts institutions, their operations, strategies, and functions. This influence is not limited to the technological aspect but extends to the administrative side and the development of administrative concepts. The introduction of new concepts has brought about radical changes in the public service environment and organizational methods. Some see these functions as mere extensions and developments of traditional management concepts, while others perceive a radical change in the pattern and functions of electronic administration. This will be detailed below:

**Electronic Planning (E-Planning):**

Electronic planning is the first function among the functions of management. It serves as the foundation for other administrative functions. Planning is a continuous process that involves determining the course of action to answer questions like what needs to be done, by whom, where, when, and how. Through planning, a manager can significantly identify the organizational activities necessary to achieve goals. Planning is a mental process to align resources with needs, choose the best path for the mission among alternative paths, and put it in the form of a plan and budget to achieve specific goals in the future.<sup>78</sup>

Administrative planning is one of the most important activities in organizations, ensuring the harnessing and facilitation of administrative processes.<sup>9</sup> Planning attempts to foresee the future, build a vision illustrating the organization's future situation. In general, the main differences between electronic planning (E-Planning) and traditional planning lie in the temporal aspect, as electronic planning is continuous due to the constant flow of information, and in the dynamic nature of goals, as they are updatable and subject to continuous development, unlike traditional planning characterized by rigidity. Lastly, electronic planning does not rely on the idea of dividing administrative work between planning and execution management but rather on the concept that everyone works at the desk and can contribute to planning.<sup>10</sup>

### **Electronic Organization:**

Organization, as a general concept, refers to putting everything in its place, every person in their place, and connecting things and people to form a larger integrated unit than the sum of individual functions. When applied to electronic administration, the technological dimension significantly and fundamentally influences the organization process.<sup>11</sup> The emergence of the term "network organization" characterizes flexibility in communication and collaboration among individuals. It imparts flexibility to the basic components of traditional organization, namely organizational structure. The organizational structure changes based on the actual electronic information flow and administrative division, which, in turn, changes according to contingency theory due to the birth of new departments and the disappearance of some previous administrative units.<sup>12</sup> Decision centralization or decentralization, the chain of command, and the formal and official character, along with standardization and regularity in task execution, all undergo changes.<sup>13</sup>

### **Electronic Leadership:**

Leadership, in its general sense, is the process of influencing the activities of an individual or group to achieve a specific goal in a particular context.<sup>14</sup> Applied to electronic administration and its reliance on modern technological mechanisms, two essential inputs become evident. First is the tasks, known as the solid foundation of management, representing the power of the administrative center in terms of legitimacy and the coercive force in its procedural task aspect. The second input is employees, known as the flexible input or the relationship between leadership and subordinates in terms of acceptance and influence, leading to effectiveness through this relationship.<sup>15</sup>

### **Electronic Control:**

Control, in its traditional sense, involves comparing planning in terms of goals and standards with execution in terms of actual performance. Notably, it focuses on the past, what has already happened, in contrast to electronic control, characterized by instantaneous and real-time monitoring. Electronic control relies on instantaneous and continuous information exchange through information networks, ensuring minimal surprises and unexpected events. It also aids in engaging everyone in understanding what is happening in the organization.<sup>16</sup>

#### **1. Significance:**

Electronic management, like all new mechanisms in various fields of life, is considered a response to the requirements of the surrounding environment and adaptation to it by employing technological and technological development and rushing to exploit advanced software as well as artificial intelligence.<sup>17</sup> The application of electronic management is also of utmost importance in terms of next aspects:

#### **Contribution to Governmental Performance:**

Electronic administration significantly enhances the performance of governmental institutions by improving and simplifying government services and procedures. This facilitates and streamlines transactions and services for citizens. Additionally, it fosters communication between governmental institutions and citizens by providing data and information securely and transparently. Electronic administration enables institutions to enhance their public service delivery methods, opening new channels of communication between administrators and citizens. This, in turn, improves government performance and addresses related obstacles and complaints.

#### **Cost Reduction for Services:**

The shift from traditional organizational forms, relying on a large number of employees and complex organizational structures, to electronic forms reduces the need for extensive manpower and

eliminates the constraints of specific geographic locations or large physical structures. This reflects on cost reduction, minimizing both time and expenses.<sup>18</sup>

**Enhancement of Service Quality:**

Electronic administration allows organizations to be present closely with customers, providing insights into customer preferences and demands. This information aids organizations in improving the quality of their products and services, enhancing competitiveness.

**Mitigation of Paper-Based Risks:**

Under electronic administration, organizations can use computers for information storage, production monitoring, record-keeping, and bookkeeping, eliminating the drawbacks of paper-based transactions. This eliminates the effort, time wastage, increased costs, and vulnerability to damage, loss, or misplacement associated with paper-based transactions.<sup>19</sup>

**1. Section 2: Reflections of Electronic Administration on the Electoral Process**

Enabling electronic management in Algeria, especially concerning public services, serves as a significant driver for advancing electronic governance. This is within the framework of what is called "Algeria Electronic" for the year 2013, where one of its main objectives was to accelerate the use of information and communication technology in public administration. Subsequently, the National Digital Transformation Strategy for the year 2022 followed after the COVID-19 pandemic. Here, we will discuss the most important electronic public services in the field of electronic governance.

Firstly, we will address electronic public services that complement electronic administration for the electoral process. Secondly, we will delve into electronic services for the electoral process provided on the Independent Authority for Election Monitoring website.

**First: Aspects of Electronic Public Service in Algeria:**

The state is considered one of the most important concepts that emerged in the modern system, being the legal entity endowed with authority and privilege. However, it is also subject to controls and duties towards its citizens. Among the most important duties is the provision of public services, which are a set of activities provided by the state or the official entity in a country for the benefit of the public without discrimination.<sup>20</sup> These services are based on achieving the common good for all citizens, and the state is responsible for any shortcomings in providing them. Due to technological developments worldwide, the process of providing public services, like all state tasks, has been affected. Thus, the concept of electronic administration or, more precisely, electronic government has emerged, which Algeria, like other countries, adopted by providing electronic public services, as we will discuss below.

**A - The National Automated Civil Status Registry:**

Civil status encompasses the organized rules governing an individual's life from birth to death. It is observed that these rules are subject to the logic of the evolving human experience. Initially, information was preserved in family memory and orally transmitted, evolving later to written records and documentation. For example, in Algeria, the prevalent method was oral until the issuance of the French Law 23/03/1882, establishing civil status for Algerian citizens. It mandated the recording of civil status in family registers and its organization and registration in civil status records. This continued until the issuance of Order 66/307, specifying conditions for establishing civil status in areas not yet established. With the enactment of Order 20/70 on 19/02//1970, effective from 07/06/1972, and pursuant to Decree 72/108, which definitively annulled the French civil law,<sup>21</sup> all civil status contracts were to be recorded in three registers in each municipality: Birth Contracts

Register, Marriage Contracts Register, and Death Contracts Register.<sup>22</sup> These paper records were the first official reference for civil status.

However, with the adoption of e-government through the "Algeria Electronic" program launched by the Ministry of Post, Information Technology, and Communication in 2008 until 2013, aiming to accelerate the use of information and communication technology in public administration, the path was paved for the issuance of Law 14-08 amending the civil status law. Article 25 of this law states that the Ministry of the Interior and Local Authorities establishes a national automated civil status registry linked to municipalities, diplomatic missions, consular offices, and other relevant public institutions, especially the central services of the Ministry of Justice.<sup>23</sup> Additionally, the registry centralizes all contracts mentioned in Article 06 of the aforementioned law through a digital means.

Although the law doesn't provide a precise definition of the national automated civil status registry, we can refer to Law 09-04, defining an information system as a separate or interconnected system processing data mechanically to execute a specific program.<sup>24</sup> Furthermore, Law 18-07, in Article 03, defines personal data as any information related to an identified or identifiable person, especially through identification number or elements pertaining to their physical, physiological, genetic, biometric, psychological, economic, cultural, or social identity.<sup>25</sup>

In summary, the national automated civil status registry is a digital, centralized system processing data and personal information related to the civil status of citizens, used by public administration for recording, modifying, and correcting electronic civil status documents, and eventually, for the remote extraction of these documents – a crucial mechanism for citizens to interact with e-government services, satisfying their document and administrative needs. This is emphasized in Executive Decree 15-315, aiming to specify the procedures for issuing electronic civil status documents from the national automated civil status registry,<sup>26</sup> accessible through the website <https://www.interieur.gov.dz/index.php/ar/>. This platform facilitates various operations, including remote extraction of birth certificates, marriage contracts, and death certificates.

### **B - Remote Electronic Services Gateway:**

This mechanism represents the technological and temporal evolution in adopting e-government policies. The Algerian government has established a unified electronic gateway for extracting documents and completing administrative transactions with public administration departments. This website offers more than fifty (50) administrative transaction files for citizens with various departments, starting from the central level with the Ministry of the Interior and Local Authorities. The gateway allows the extraction and submission of requests to the ministry in thirteen (13) different fields.

At the local level, the gateway provides twenty-one (21) services in various areas, including mixed marriage licenses, organizing public events, extending visas and residence permits for legally residing foreign nationals. Concerning district services, it includes requests for public rental housing and supported upgrading housing. At the municipal level, available services include extracting documents related to civil status, family status card, residence certificate, family book, accommodation certificate, and other licenses issued by municipal services. Citizens can also track their requests and files through the platform.

In addition to the biometric documents window, which enables citizens to request and obtain biometric documents represented by the biometric identification card (which is stipulated in Article 6 of Presidential Decree 17/143, "The national identification card shall be of an electronic biometric type and contain two chips, including the The first includes administrative information and information related to its owner, and the second section includes an application in order to verify its

owner,”<sup>27</sup> as well as a biometric passport according to Article 02 of Law 14-03, which states: “Every citizen who travels abroad must be a holder of one of the following travel documents.” : - Passport ..... The passport mentioned in the first paragraph above is of an electronic and/or machine-readable biometric type ..... ”<sup>28</sup> in addition to the biometric driving license stipulated in Article 02 From Law No. 17-05, “Driver’s license: An administrative license that qualifies its holder to drive a motor vehicle in lanes open to traffic. The driver’s license is a support that allows the information contained in this file to be recorded electronically.”<sup>29</sup>

### **C - Government Data Center:**

According to the theoretical framework, the Government Data Center is a centralized yet decentralized integrated system for collecting and storing information. It connects government institutions, the private sector, and information centers across various sectors within a national network. Through this network, the center provides the latest and most comprehensive economic, social, and technological data and information to various sectors,<sup>30</sup> stakeholders, and decision-makers in both the public and private sectors. This facilitates the preparation, implementation, monitoring, evaluation, and development of plans, programs, and policies across various domains.

In practical terms, the Government Data Center is a massive facility comprising numerous large servers, essential and backup power supplies, high-speed internet connectivity, and is housed in a dedicated building equipped with temperature control, fire suppression systems, organized electrical systems, and high-security specifications. These centers require high-level security protection, and it is crucial to ensure a continuous power supply since some devices and servers may lose data if power is interrupted even for a few seconds. Therefore, they are equipped with both primary and backup power supplies, such as batteries, to ensure uninterrupted operation.<sup>31</sup>

The significance of the Government Data Center lies in its ability to store vast amounts of data and automate processing operations efficiently. It guarantees a high level of protection and information security due to the sensitivity and privacy of both governmental and citizens' personal data. The center plays a crucial role in managing and safeguarding this information while adhering to strict security and confidentiality measures.

### **D - Electronic Authentication Authorities:**

Enabling the issuance of documents and public services online is a key feature and benefit of e-governance and electronic administration. However, for these documents to be credible and trusted, especially when multiple parties are involved—such as the government or service provider, citizens, and third-party service providers—electronic authentication becomes crucial. Electronic authentication is defined as a means of verifying the identity of the signatory and ensuring their unequivocal commitment to the signed content.<sup>32</sup> The Algerian legislator defines electronic signature in Article 2, paragraph 1, of Law 15-04 as "electronic data, logically attached or associated with other electronic data, used as a means of authentication."

Regarding electronic authentication authorities, also known as electronic authentication service providers, they are individuals or entities that issue certificates authenticating electronic signatures or provide related services.<sup>33</sup> In Algerian law, Article 2, paragraph 11, of Law 15-04 defines a "trusted third party" as a legal entity that grants described electronic authentication certificates and may provide other services related to electronic authentication for the benefit of government entities.

Referring to Executive Decrees 16-134 and 16-135, two public authorities are designated for electronic authentication in Algeria: The National Authority for Electronic Authentication<sup>34</sup> and the Governmental Authority for Electronic Authentication.<sup>35</sup> These authorities play a neutral role in ensuring the credibility of electronic documents and serve as witnesses to the authentication



process. Their establishment emphasizes the importance of a trustworthy third party in the electronic authentication ecosystem, contributing to the overall reliability and security of electronic transactions and services

**Secondly: The available electronic services on the Independent Authority for Monitoring Elections Portal:**

Elections are among the most important political aspects in the modern era, with effects that reflect on democracy and legitimacy in countries and political systems. They are considered one of the most important mechanisms for the peaceful and legitimate transfer of power in modern systems.

The French researcher Christophe Broqui defines elections as a set of rules that regulate the process of casting votes and transforming them into seats.<sup>36</sup> The electoral process in Algeria reflects the trend towards using electronic administration in this context, through the creation of an electronic platform for elections under the supervision of the Independent Electoral Authority.

**Here is a detailed explanation of the electronic electoral services available on this platform:**

**A - First-time registration in the electoral lists:**

The right to vote is considered a personal right that must be established for every individual in the state.<sup>37</sup> Algerian law, in Article 54 of Law 21-01, stipulates that registration in the electoral lists is a duty for every citizen who meets the legal conditions.<sup>38</sup> Article 51 states that only those registered in the electoral lists of their municipal residence have the right to vote according to Article 51 of civil law.<sup>39</sup> This is in addition to the conditions stipulated in Article 50 of the same law, and according to the text of Article 53 of Law 21-01, we find that it stipulates the authority responsible for creating and maintaining the national card for the electoral body, which is the independent authority for elections, which through its electronic platform provides the registration service. Email via the following email address: <https://services.ina-elections.dz/register>. The process includes filling out an electronic form with personal information, uploading a document to prove identity, and a residence proof document. The Independent Electoral Authority confirms the information and verifies it by matching it with the National Automated Civil Status Register.

**B - Where to Vote:**

This is known as the electoral constituency, which is the legal residence of a person concerning their legal activities and relationships with others. It is considered a permanent presence, even if temporarily absent.<sup>40</sup> The electoral constituency is where a citizen participates in elections or the actual voting location. Referring to Article 51 of Law 21-01, which states that only those registered in the electoral list of their constituency have the right to vote,<sup>41</sup> and the constituency is defined by Article 36 of the Civil Status Law as the primary place where the individual resides. The Independent National Electoral Authority has introduced a search for the voting center through the following link: <https://services.ina-elections.dz/orientation/>. By entering the required information, the applicant is notified of the assigned voting center.

**C - Change of Residence:**

After discussing the voting location, which is related to the original place of residence, a person may change their residence. Does the individual continue their electoral activity at the old address, or do they change the address? Article 60 of Law 21-01 states, 'In the event of a change in the constituency of the registered voter, he must request, during the three subsequent months to this change, to have his name removed from this list and registered in the electoral list of his new residence municipality.'<sup>42</sup> This article indicates the obligation to notify the authorities at the old address to remove the name from the list and then notify the authorities at the new address to be included in the new list. However, the electronic platform seems to automate this process, as citizens can access the following link and enter the required information and documents for the

process to be carried out automatically without resorting to administrative authorities at the old or new residence:

**D - Request for a Copy of the Voter Card:**

The voter card is considered an official document, and according to Article 2 of Law 21-01, 'The voter card is a personal card issued by the Independent National Electoral Authority to the person after registering in the electoral list to enable him to exercise his voting right in electoral and referendum processes.'<sup>43</sup> The issuance of the voter card is one of the duties of the Independent Electoral Authority<sup>44</sup>, as stated in Article 72 of Law 21-01. This document contains the complete information of the person in terms of identity, address, and polling place. In addition, after every election carried out by the person, this card is authenticated and stamped with a stamp bearing the date of the electoral process in addition to the "Vote" stamp. The process of requesting this card was complete. At the level of municipalities and diplomatic representations, however, within the framework of digitization and the use of electronic management of the electoral process, the process of requesting a voter card is completed by accessing the address: <https://services.ina-elections.dz/residence/>. After entering the required information and email, the person notes their mobile phone number to receive the confirmation code for the process through an automated text message and completes the request process.

**2. The Second Section: Electronic Crimes Affecting the Electoral Process**

The electoral process, like all administrative activities, has been influenced by technological advancements, adopting electronic administration, internet networks, and automated data processing programs. It also interacts with the National Automated Civil Status Register and the database of the Ministry of Justice for information exchange and the transmission of documents related to the electoral process, from calling the electorate to announcing the final election results. Referring to the definition of the information system according to Article 2 of Law 09-04, 'An information system is any independent system or a group of interconnected or related systems, one or more of which processes data automatically according to a specific program.'<sup>45</sup> This definition applies perfectly to the digital platform for elections.

Since the virtual reality on the internet is a fertile ground for cybercrimes affecting information systems and electronic data processing systems, electronic voting processes are not exempt from these crimes. We will delve into two aspects: crimes affecting the data processing system itself, where the system is the locus of the crime, and crimes affecting the data, where the data processing system is the means, and electronic data is the locus of the crime.

**Crimes Affecting Data Processing Systems**

The electronic administration of the electoral process relies on processing the information and personal data of citizens, stored in the National Automated Civil Status Register and the information stored in the Government Data Center, through various operations such as registration, comparison, modification, and linking. This processing is carried out by information systems under the administration's control, equipped with the necessary technical and legal protection to ensure the confidentiality and protection of operations from potential sabotage and attacks. We will address the crimes against automated data processing systems, focusing on unauthorized access and/or remaining through cheating and sabotage, leading to the disruption and disablement of the data processing system.

## **A. Unauthorized Access and/or Remaining through Cheating in an Automated Data Processing System:**

Unauthorized access, commonly known as 'hacking,' is a global criminal phenomenon with severe implications, especially in the digital information technology era. It differs from other crimes because it can be a formal crime, but its consequences can transform into material crimes.<sup>46</sup> The essence of hacking revolves around the intellectual property of the automated processing program and the data it contains. The crime can be formal, focusing on the protection of intellectual property, or material, protecting the integrity of the data. In the context of electoral processes, unauthorized access and cheating are criminalized under Algerian law by Article 394 bis of the Penal Code, which states, 'Anyone who enters or remains through cheating in all or part of an automated data processing system or attempts to do so shall be punished with imprisonment for three (3) months to one (1) year and a fine of 50,000 DZD to 100,000 DZD.'<sup>47</sup> The legislator specifies the actions that compromise the security of an automated data processing system, beginning with unauthorized access through cheating. Analyzing the text, the legislator requires the cheating act to precede the entry, emphasizing fraudulent operations and the use of tools and software that allow bypassing the protection system. The elements are:

### **1. The presumed cornerstone of system submission to technical protection:**

Technical protection is presumed, as the Algerian legislator did not make its existence a condition for criminal acts. However, system founders or users of the automated data processing system, as part of logical steps in system creation, implement mechanisms to protect against sabotage and attacks. Technical protection is defined as follows:

#### **Cybersecurity Definition:**

NCA (National Cybersecurity Agency) defines cybersecurity as the 'desired state for an information system, enabling it to resist events from cyberspace that could compromise the availability, integrity, or confidentiality of stored, processed, or transmitted data, as well as the related services these systems offer or make accessible.'<sup>48</sup>

**According to this definition, technical protection encompasses all mechanisms and measures taken to provide protection for the system, whether regarding the services and automated processes it offers or the information and data it contains, enabling it to withstand attacks and hacking attempts.**

### **2. Concept of Fraudulent Access:**

Referring to Article 394 bis of the Penal Code,<sup>49</sup> which addresses access through cheating, 'access' here refers to establishing a connection with a computer system or an automated data processing system in any way, whether to the entire system or part of it.<sup>50</sup> Access through cheating includes all actions that allow unauthorized entry into an information system, encircling or controlling the data and information it comprises.<sup>51</sup> Unauthorized access here occurs through cheating, using imaginative methods to bypass protection and identification systems. The entry may not only be into the content of the processing system or its services and functions but may extend to deeper matters, such as internal software controlling the system's operations.

#### **The Material Element of the Crime of Fraudulent Access:**

To commit the crime of fraudulent access, the perpetrator must engage in specific behaviors and use physical means, such as a FLASHDISCK (HackyPi), which acts as a physical tool once connected to the computer hosting the automated data processing system. It steals and stores all information, including powerful and fast processing units capable of surpassing protection programs. Other logical tools include intelligent software like Jhon the Ripper, a powerful program

to bypass passwords, and SQLmap, an application for finding security vulnerabilities and making changes to data processing systems. The perpetrator can also experiment with random password attempts to find the correct one or send an email to the victim's device. Once the victim opens the email, a hidden program infiltrates the system, copying all entered passwords and sending them to the original owner of the infiltrating program. Therefore, any behavior employing these means on an automated processing system is considered fraudulent access.

**1. Moral Aspect:**

It refers to the criminal intent in the crime. Referring to Article 394, the legislator specifies "entry through fraud." The use of the term "through fraud" indicates that the crime is intentional, and there is no room for coincidence or error. The actor must be aware that they are engaging in unauthorized entry into a data processing system, and their intent must be contemporary with the criminal activity.

**2. Remaining Through Fraud (Maintient Frauduleux):**

This is the second crime mentioned in Article 394, where it states, "...or remains through fraud in all or part of the automated data processing system." This is an independent behavior from entry since the legislator distinguishes between the two. The reason for criminalizing remaining through fraud is a precautionary measure compared to the criminalization of entry. The crime of remaining cannot be attributed to the one who entered. Entry is a temporary crime, while remaining is inherently continuous. We will delve into the concept of remaining and the material behavior of the crime of remaining through fraud.

**3. Concept of Remaining Through Fraud:**

Remaining is being present within the automated data processing system without permission or authorization from the system's manager or owner. This crime occurs when the perpetrator enters by mistake or chance but decides to remain inside the system and not disconnect. Noteworthy in these concepts is the actual presence of the perpetrator within the system and control over its contents. Additionally, remaining in the system requires no authorization from the system's manager, meaning the person does not have permission. The second condition is remaining against the will of the system operator and not exiting the system.

**4. Material Aspect of the Crime of Remaining Through Fraud:**

There are two forms of material behavior. The first is when a person finds themselves inside the data processing system by mistake but decides to remain and not exit. In this case, most automated data processing systems issue warnings to users not to be present in the system, and the significance here is from the time of notification and the person's knowledge that staying illegally within the system is warned against. The second form involves the perpetrator's knowledge that they do not have permission, i.e., the username and password, to remain and perform operations on this system until they continue to stay within the system, exceeding the authorized permissions.

**5. Moral Aspect:**

It is the criminal intent in the crime. Referring to Article 394, the legislator specifies "entry through fraud." This crime is considered intentional, and the perpetrator is aware and conscious of their actions. Most automated data processing systems have the necessary technical and security measures to protect them from attacks and changes, safeguarding the information they contain. If someone accidentally or incidentally enters, the system notifies the system manager, who, in turn, warns and notifies the person trying to remain that they are in an unauthorized situation. This makes the assumption of error or inadvertence highly unlikely in the crime of remaining.

## **6. Intensifying Circumstances in Crimes of Tampering with Automated Data Processing Systems:**

Referring to Article 394 in its last paragraph, which states, "If the mentioned actions result in the sabotage of the system's operation, the penalty is from six (06) months to two (2) years and a fine from 50,000 DZD to 150,000 DZD." The term "sabotage" in this case refers to actions on the automated data processing system that would render it unusable or inoperative. The crime of sabotage is one of the material crimes that require achieving a criminal result, whether the behavior is material, such as damaging or destroying the device, or logical/programmatic, such as introducing a virus or deleting system files, leading to system sabotage and disruption.

### **Section II: Crimes against Data and Personal Information**

The electronic management of the electoral process is carried out by collecting information from citizens, correlating it, matching it, and monitoring it with the national automated civil status registry and the database of the Ministry of Justice. This is done to properly prepare the electoral lists and avoid errors and manipulations. Therefore, data and information play a crucial role in the process. Hence, it is imperative to protect this data from any manipulations or attacks. This information and data are considered personal, protected by the law, and enjoy confidentiality. After addressing the automated data processing system as the locus of the crime of tampering with data processing systems, we will now address the crimes in which the automated processing system is the means by which the crime is committed. The locus of the crime is the data and information processed by the system, as stipulated in Articles 394(1) to 394(2) of the amended and supplemented Algerian Penal Code. In these crimes, information is attacked. First, we will address data manipulation crimes, and second, the unauthorized handling of this data.

#### **First: Crime of Unauthorized Data Manipulation in an Automated Data Processing System:**

According to Article 394(1), "Anyone who enters data into the automated processing system by cheating, or removes or modifies data contained therein, shall be punished with imprisonment for a period of six (6) months to three (3) years and a fine of 500,000 DZD to 2,000,000 DZD." Manipulation refers to presenting something other than its truth. As for data and information, it involves entering unauthorized data into the system, modifying existing data, or deleting it with malicious intent. These criminal behaviors and actions are manifested as follows:

#### **Physical Element of Data Manipulation Crime:**

The physical element refers to criminal behaviors and actions. Data manipulation is an activity crime, meaning that a specific material result is not necessary for the elements of the crime to be fulfilled. The criminal behavior includes:

Introducing data by cheating, which involves adding new data to the record, whether it is empty or contains data, and can also include introducing foreign programs such as viruses, which fall under the category of data.

Deletion, which involves erasing part of the recorded data within the system, destroying that record, or transferring or storing part of the data in a memory area inaccessible to others.

Modification, which includes alteration, addition, editing, sorting, and classification, as well as partial erasure to complete the modification and editing requirements.

**Moral Element:**

The crime of data manipulation is intentional and deliberate. To hold the perpetrator accountable, criminal intent must be present. The perpetrator must be aware that their actions involve criminal behavior in entering, deleting, or modifying data through cheating, and that they are aware that their actions will result in changes to the data.

**Second: Crime of Unauthorized Handling of Unlawful Data:**

According to Article 394(2), "Anyone who intentionally and by cheating does the following shall be punished with imprisonment for a period of two (2) months to three (3) years and a fine of 1,000,000 DZD to 5,000,000 DZD: 1- Designing, researching, collecting, providing, publishing, or trading in stored or processed data or correspondence through an information system that could be used to commit the crimes stipulated in this section. 2- Possessing, disclosing, publishing, or using for any purpose the data obtained from one of the crimes stipulated in this section." The legislator has classified two types of crimes regarding data handling: data contained within the system and data outside the system.

**Physical Element:**

This refers to the criminal activity or behavior. In the case of data handling, there are two forms:

The first form involves data that can be used to commit one of the crimes stipulated in the seventh section of the Penal Code. These behaviors include:

Design, which is the process carried out by IT specialists and is usually the first step in the chain of automated operations, such as programming malicious software.

Research, which involves searching for ways to program and design data for programming distinctions.

Collection, which is the process of gathering programming information that could facilitate the commission of crimes from the seventh section.

Provision, which involves providing unauthorized data that contributes to the commission of crimes from the seventh section, such as providing information and data about security vulnerabilities for processing systems.

Publication, which is the process of broadcasting crime-related information and enabling others to access it, thereby expanding the circle of people who can commit crimes from the seventh section.

Trading, which involves trading in data and devices used to commit crimes from the seventh section.

The second form involves data obtained from a crime affecting automated data processing systems. As for criminal activity, it includes:

Possession, which involves the actual authority of a person over the data.

Disclosure, where the perpetrator provides this information to others, regardless of the method or means of obtaining the information.

Publication, where the perpetrator aims to disseminate the data to as many people as possible to cause the greatest possible harm through this data, regardless of the means used.

Use, since both possession and disclosure are criminal behaviors, usage is the most dangerous in terms of obtaining personal benefits.

**Moral Element:**

The crime of handling unlawful information is intentional and deliberate. The Algerian legislator states in Article 394(2) that "anyone who intentionally..." This means that the perpetrator acted with criminal intent, and the crime must be intended for the person to be criminally accountable. However, considering the two forms of the crime, we find that in the first form, general criminal intent is not sufficient; specific criminal intent and the person's intention to achieve the criminal result must be present, even though the Algerian legislator did not address the issue of achieving the criminal result.

**Conclusion :**

Electronic administration is considered one of the most important modern developments that have entered the world of public services due to the many advantages that come with it, the most important of which is bringing the administration closer to the citizen, as well as ensuring the continuity of services 24 hours a day, 7 days a week, in addition to reducing bureaucracy and paperwork that burdens people. The burden of public administration, especially in the field of electoral processes, which is characterized by complexity and a large number of paper and administrative procedures. Therefore, the introduction of electronic management of the electoral process contributes to overcoming obstacles for citizens and imposing more flexibility, transparency and integrity in the electoral process, but as is known, All new matters, just as they carry a positive side, also carry a negative side within them, and with regard to our study, the use of electronic management of the electoral process is considered a double weapon that may result in great dangers and problems that are exploited by criminals in the field of cybercrime, which is witnessing rapid and escalating development, which constitutes a danger. On the electoral processes, as well as on the information and personal data of citizens, without forgetting the automated national registry of civil status, **as well as the data base of the Ministry of Justice, which may be in the crosshairs of hackers and cyber criminals. Among the most important results reached in this study are :**

- Electronic management is considered the logical and systematic development of administrative work in the modern era.
- Introducing electronic management to public facilities and providing public services is considered a huge step taken by Algeria, especially through the Electronic Algeria 2013 program.
- The introduction of the automated national civil status registry is considered a remarkable qualitative and technological leap for the Algerian state, which facilitates the process of issuing civil status documents in the shortest possible time, as well as reducing clerical errors.
- The creation of the government data center is, to say the least, a bold step and at the same time a giant leap towards electronic governance by providing the Algerian state's private cloud space, in which it imposes its complete sovereignty and ensuring digital connectivity between various public and private administrative institutions.
- The development of the electronic platform for the Independent Election Authority is considered the ideal marriage between electronic administration and the electoral process in its early stages, awaiting the consolidation of voting.

- The digital operations available on the electronic platform of the Independent Election Authority meet the administrative requirements for providing public services to citizens in the field of elections while preserving the security of their data and privacy in virtual space.
- The criminalization policy of the Algerian legislator, to say the least, is integrated to include all types of crimes that may pose a threat to the electronic management of the electoral process.
- As for the recommendations, they are as follows:
- Work on the complete transition to electronic administration as soon as possible in order to give complete transparency to administrative work.
- Working to increase the percentage of scientific, technical and practical qualification of administration employees concerned with electronic work.
- Focus on security policies in the field of information security in the cloud space.
- Working to automate the remainder of the electoral process, including electronic voting, as it adds transparency and credibility to the elections in general.
- Working to exploit the National Identification Number (NIN) and the biometric identification card in the electoral process without resorting to the voter card, similar to the experience of the National Assembly elections, which has proven its effectiveness.
- With regard to criminalization, the legislator must address the procedural aspect regarding electronic election crimes, due to their field operational complexities.

---

<sup>1</sup> Dr. Nouri Al-Mahdi Al-Koni, *The Scientific Introduction to Electronic Management - Challenges of Banking Organizations' Services -*, first edition, 2020, National Book House Benghazi, Libya, p. 21.

<sup>2</sup> Dr.. Abdullah bin Mayouf Al-Jaeed, *The impact of applying electronic management in achieving comprehensive quality*, Riyadh, Bidoon Publishing House, 2014, p. 59.

<sup>3</sup> Said Assar, *electronic administration: statistics and perspectives*, researchgate, January 2007, p. 18  
“The application of Internet technologies and electronic commerce for information and the mise in the line of administrative procedures and the development of new public services interactifs and transactions; “.

<sup>4</sup> Dr.. Najm Aboud Najm, *Strategic Electronic Management and Knowledge - Jobs - Fields*, Al-Yazouri Scientific Publishing and Distribution House, Amman 2007, p. 120.

<sup>5</sup> Dr.. Abdullah bin Mayouf Al-Jaeed, *The impact of applying electronic management on achieving comprehensive quality*, previous reference, p. 59.

<sup>6</sup> Dr.. Abdullah bin Mayouf Al-Jaeed, *The impact of applying electronic management on achieving comprehensive quality*, previous reference, p. 61.

<sup>7</sup>  
<sup>8</sup> Dr. Osama Abdel Halim Al-Joriya, *Chapters in Organization and Planning*, accessed on 10/26/2023 (electronic copy), website link: Download the book *Chapters in Organization and Planning - pdf*: <https://www.noor-book.com>, p. 15.

<sup>9</sup> Abdullah bin Mayouf Al-Jaeed, *The impact of applying electronic management on achieving comprehensive quality*, previous reference, p. 146.

<sup>10</sup> Dr. Nouri Al-Mahdi Al-Koni, *The Scientific Introduction to Electronic Management - Challenges of Banking Organizations' Services -*, previous reference, p. 31.

<sup>11</sup> Prof. Dr. Abdel Aziz Al-Najjar, *Smart Management, Planning/Organization/Personnel Management/Decision Making*, Modern Arab Office, Alexandria-Egypt, 2007, p. 138.

<sup>12</sup> Abdullah bin Mayouf Al-Jaeed, *The impact of applying electronic management on achieving comprehensive quality*, previous reference, p. 147.



<sup>13</sup> Dr.. Najm Abboud Najm, Strategic Electronic Management and Knowledge - Jobs - Fields, previous reference, p. 234.

<sup>14</sup> Dr. Osama Abdel Halim Al-Joriya, Chapters in Organization and Planning, accessed on 10/26/2023 (electronic copy), website link: Download the book Chapters in Organization and Planning - pdf: <https://www.noor-book.com>, p. 72.

<sup>15</sup> Dr.. Najm Abboud Najm, Strategic Electronic Management and Knowledge - Jobs - Fields, previous reference, p. 247.

<sup>16</sup> Prof. Dr. Hussein Mustafa Hilali, Electronic Administration, first edition, Dar Al-Sahab for Publishing and Distribution, Cairo - Egypt, 2010, p. 69.

<sup>17</sup> Previous citation., p. 77.

<sup>18</sup> Dr.. Abdullah bin Mayouf Al-Jaeed, The impact of applying electronic management in achieving comprehensive quality, Riyadh, Bidun Publishing House, 2014, p. 63.

<sup>19</sup> Previous citation., p. 59.

<sup>20</sup> Dr. Attab Kulthum, Digitization of the unified electronic window for biometric documents as a mechanism to improve public service in Algeria - Ouargla municipality as a model, Journal of Judicial Jurisprudence, Volume 13, Issue 02, Mohamed Kheidar University, Biskra, 2021, p. 07.

<sup>21</sup> See the website <https://apc-khalouia.wixsite.com/khalouia2920/--c1tjt>, access date: October 20, 2023 at 17:45.

<sup>22</sup> See Article 06 of Order No. 07-20 dated 13 Dhu al-Hijjah 1389 corresponding to February 19, 1970, relating to civil status, Issue No. 21 dated February 27, 1970.

<sup>23</sup> See Article 25 of Law No. 14-08 of August 9, 2014, amending and supplementing Order No. 70-20 of February 19, 1970 relating to civil status, Issue No. 49 of August 20, 2014.

<sup>24</sup> See Article 02 of Law No. 09-04 dated Shaaban 14, 1430 corresponding to August 5, 2009, which includes the special rules for preventing and combating crimes related to information and communication technologies, Part No. 47, dated August 16, 2009.

<sup>25</sup> See Article 03 of Law No. 18-07 of 25 Ramadan 1439 corresponding to June 10, 2018, relating to the protection of natural persons in the field of processing data of a personal nature, Official Gazette No. 34 of 2018.

<sup>26</sup> See Article 01 of Executive Decree No. 15-315 dated Safar 28, 1437 corresponding to December 10, 2015, regarding issuing copies of civil status documents electronically, Issue No. 68, dated December 27, 2015.

<sup>27</sup> See Article 6 of Presidential Decree No. 17-143 dated April 18, 2017 specifying the procedures for preparing, delivering, and renewing the national identification card, issue No. 25 dated April 19, 2017.

<sup>28</sup> See Article 2 of Law No. 03-14 dated 24 Rabi' al-Thani 1435 corresponding to February 24, 2014, relating to travel bonds and documents, Part No. 16 dated March 23, 2014.

<sup>29</sup> See Article 02 of Law 17/05 of February 22, 2017 relating to road traffic, its safety and security, No. 12 of February 22, 2017.

<sup>30</sup> Dr.. Yahyawi Muhammad, proposal to establish a national information center to support decision-making in Algeria, Journal of North African Economics, Volume 14 - Issue 19, 2008, p. 241.

<sup>31</sup> See the website: -data-center -data-center / <https://www.android-dz.com/ar> Access date: October 20, 2023 at 17:30.

<sup>32</sup> Mounir Muhammad Al-Janabihi - Mamdouh Muhammad Al-Janabihi, Electronic Companies, first edition, Dar Al-Fikr Al-Jami'i, Alexandria, Egypt, 2007, p. 135.

<sup>33</sup> Dr. Tharwat Abdel Hamid, the electronic signature (what it is - its risks, and how to confront them - the extent of its authority in proof), New University House, Alexandria, Egypt, 2007, p. 163.

<sup>34</sup> See Article 16 of Law No. 15-04 dated 11 Rabi' al-Thani 1436 corresponding to February 1, 2015. It specifies the general rules related to electronic signature and authentication, Article No. 06 dated February 10, 2015.

<sup>35</sup> Article 26 of Law 15-04, op. cit.

<sup>36</sup> A. Gamal Mohsen, The electoral process and the role of modern technologies in it - a comparative study -, New University House, Alexandria, Egypt, 2021, p. 24.

<sup>37</sup> Dr. Saleh Hussein Ali Abdullah, The Right to Vote - A Comparative Study -, Modern University Office, first edition, Alexandria, Egypt, 2013, p. 16.

<sup>38</sup> See Article 51 of Law 21-01 of 26 Rajab 1442, corresponding to March 10, 2021, which includes the organic law related to the election system, issue 17, dated March 10, 2021.

<sup>39</sup> See Article 51 of the same law.

<sup>40</sup> Dr. Saleh Hussein Ali Abdullah, The Right to Vote - A Comparative Study -, op. cit., p. 30.

<sup>41</sup> See Article 36 of Order No. 75-58 of Ramadan 20, 1395 corresponding to September 26, 1975, containing the Civil Code amended and supplemented by Law No. 05-10 of June 20, 2005, Part No. 44.

<sup>42</sup> See Article 60 of Law 21-01, op. cit.

<sup>43</sup> See Article 2, Paragraph 4 of the same law.

<sup>44</sup> See Article 7 of the same law.

<sup>45</sup> See Article 02 of Law No. 09-04 of Shaaban 14, 1430, corresponding to August 5, 2009. It includes special rules for preventing and combating crimes related to information and communication technologies. Issue No. 47, dated August 16, 2009.

<sup>46</sup> A. Booker Rashida, Crimes of Assault on Automated Processing Systems in Comparative Algerian Legislation, first edition, Al-Halabi Legal Publications, Lebanon, 2012, p. 160

<sup>47</sup> See Article 394 bis of Law No. 04-15 of November 10, 2004, amending and supplementing Order No. 156-66 of Safar 18, 1386, corresponding to June 8, 1966, which includes the Penal Code, No. 71 of November 10, 2004.

<sup>48</sup> Didier Gazagne, LIVRE BLANC 2018 CYBERSECURITE, CYBERDEFENSE & CYBERCRIMINALITE, Lexing Alain Bensoussan Avocat, P12.

<sup>49</sup> See Article 394 bis of Law 04-15, previous reference.

<sup>50</sup> Dr.. Ghannam Muhammad Ghannam, The Role of the Penal Code in Combating Computer and Internet Crimes, Dar Al-Fikr and Law, Egypt, 2010, p. 128.

<sup>51</sup> A. Nahla Abdel Qader Al-Momani, Information Crimes, second edition, Dar Al-Thaqafa for Publishing and Distribution, Amman, 2010, p. 162.

**1- Bibliography:**

**A- Books:**

1. Abdel Aziz Al-Najjar, Smart Management, Planning/Organization/Personnel Management/Decision Making, Modern Arab Office, Alexandria-Egypt, 2007
2. Abdullah bin Mayouf Al-Jaeed, The impact of applying electronic management in achieving comprehensive quality, Riyadh, Bidoon Publishing House, 2014,
3. Booker Rashida, Crimes of Assault on Automated Processing Systems in Comparative Algerian Legislation, first edition, Al-Halabi Legal Publications, Lebanon, 2012
4. Didier Gazagne, LIVRE BLANC 2018 CYBERSECURITE, CYBERDEFENSE & CYBERCRIMINALITE, Lexing Alain Bensoussan Avocat.
5. Gamal Mohsen, The electoral process and the role of modern technologies in it - a comparative study -, New University House, Alexandria, Egypt, 2021.
6. Ghannam Muhammad Ghannam, The Role of the Penal Code in Combating Computer and Internet Crimes, Dar Al-Fikr and Law, Egypt, 2010.
7. Hussein Mustafa Hilali, Electronic Administration, first edition, Dar Al-Sahab for Publishing and Distribution, Cairo - Egypt, 2010.
8. Mounir Muhammad Al-Janabihi - Mamdouh Muhammad Al-Janabihi, Electronic Companies, first edition, Dar Al-Fikr Al-Jami'i, Alexandria, Egypt, 2007.
9. Nahla Abdel Qader Al-Momani, Information Crimes, second edition, Dar Al-Thaqafa for Publishing and Distribution, Amman, 2010.
10. Nahla Abdel Qader Al-Momani, Information Crimes, second edition, Dar Al-Thaqafa for Publishing and Distribution, Amman, 2010.
11. Najm Aboud Najm, Strategic Electronic Management and Knowledge - Jobs - Fields, Al-Yazouri Scientific Publishing and Distribution House, Amman 2007.
12. Nouri Al-Mahdi Al-Koni, The Scientific Introduction to Electronic Management - Challenges of Banking Organizations' Services -, first edition, 2020, National Book House Benghazi, Libya.
13. Saleh Hussein Ali Abdullah, The Right to Vote - A Comparative Study -, Modern University Office, first edition, Alexandria, Egypt, 2013.
14. Tharwat Abdel Hamid, the electronic signature (what it is - its risks, and how to confront them - the extent of its authority in proof), New University House, Alexandria, Egypt, 2007.

**C - Newspaper articles:**

1. Attab Kulthum, Digitization of the unified electronic window for biometric documents as a mechanism to improve public service in Algeria - Ouargla municipality as a model, Journal of Judicial Jurisprudence, Volume 13, Issue 02, Mohamed Kheidar University, Biskra, 2021.
2. Said Assar, electronic administration: statistics and perspectives, researchgate, January 2007.
3. Yahyawi Muhammad, proposal to establish a national information center to support decision-making in Algeria, Journal of North African Economics, Volume 14 - Issue 19, 2008.

**D - Seminar papers:**

-Full name of the author, full title of the communication, title of the seminar, place and date, country; Year.

**E - Websites:**

1. Osama Abdel Halim Al-Joriya, Chapters in Organization and Planning, accessed on 10/26/2023 (electronic copy), website link: Download the book Chapters in Organization and Planning - pdf: <https://www.noor-book.com>.
2. <https://apc-khalouia.wixsite.com/khalouia2920/--c1tjt>, access date: October 20, 2023 at 17:45.
3. website: -data-center -data-center / <https://www.android-dz.com/ar> Access date: October 20, 2023 at 17:30.

**Law and Decision :**

1. Law No. 03-14 dated 24 Rabi' al-Thani 1435 corresponding to February 24, 2014, relating to travel bonds and documents, Part No. 16 dated March 23, 2014.
2. Law No. 04-15 of November 10, 2004, amending and supplementing Order No. 156-66 of Safar 18, 1386, corresponding to June 8, 1966, which includes the Penal Code, No. 71 of November 10, 2004.
3. Order No. 75-58 of Ramadan 20, 1395 corresponding to September 26, 1975, containing the Civil Code amended and supplemented by Law No. 05-10 of June 20, 2005, Part No. 44.
4. Order No. 07-20 dated 13 Dhu al-Hijjah 1389 corresponding to February 19, 1970, relating to civil status, Issue No. 21 dated February 27, 1970.
5. Law No. 09-04 dated Shaaban 14, 1430 corresponding to August 5, 2009, which includes the special rules for preventing and combating crimes related to information and communication technologies, Part No. 47, dated August 16, 2009.
6. Law No. 14-08 of August 9, 2014, amending and supplementing Order No. 70-20 of February 19, 1970 relating to civil status, Issue No. 49 of August 20, 2014.
7. Law No. 15-04 dated 11 Rabi' al-Thani 1436 corresponding to February 1, 2015. It specifies the general rules related to electronic signature and authentication, Article No. 06 dated February 10, 2015.
8. Law 17/05 of February 22, 2017 relating to road traffic, its safety and security, No. 12 of February 22, 2017.
9. Law No. 18-07 of 25 Ramadan 1439 corresponding to June 10, 2018, relating to the protection of natural persons in the field of processing data of a personal nature, Official Gazette No. 34 of 2018.
10. Law 21-01 of 26 Rajab 1442, corresponding to March 10, 2021, which includes the organic law related to the election system, issue 17, dated March 10, 2021.
11. Presidential Decree No. 17-143 dated April 18, 2017 specifying the procedures for preparing, delivering, and renewing the national identification card, issue No. 25 dated April 19, 2017.
12. Executive Decree No. 15-315 dated Safar 28, 1437 corresponding to December 10, 2015, regarding issuing copies of civil status documents electronically, Issue No. 68, dated December 27, 2015.