

The Legal System of Intellectual Property in the Digital Age

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Abstract. Legal protection of intellectual property is essential for safeguarding the rights of innovators and creators across various fields, including literature, arts, media, inventions, and science. This protection aims to foster innovation and creativity by granting specific legal rights to the owners of intellectual works. These rights typically include the exclusive use of the work and the authority to prevent others from copying or utilizing the work without permission. The mechanisms for protection differ from country to country, depending on the type of intellectual property involved, such as copyright and patents. Patents are an exclusive right granted for an invention, allowing the patent holder to control how or whether others may use the invention. In return for this right, the patent owner makes technical information about the invention publicly available through a published patent document. Trademarks serve as identifiers that distinguish a company's goods or services from those of competitors. Copyrights cover a broad range of media, including publishing, books, music, paintings, sculptures, films, computer software, databases, advertisements, maps, and technical drawings. Internationally, these laws are regulated through agreements such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), alongside national laws enacted by individual countries. Protecting intellectual property rights is vital for the economic and commercial interests of business owners, as it encourages investment in research and development. Moreover, these rights promote fair competition and help to limit infringements and piracy. Infringements of intellectual property rights can take many forms, including illegal exploitation via the internet. Recognizing the importance of intellectual property as a key driver of societal development, most countries have enacted legislation and implemented measures to safeguard these rights from infringement and loss. Recently, the Public Prosecution in the Kingdom of Saudi Arabia established a specialized office dedicated to protecting intellectual property and initiating criminal proceedings against violations of these rights.

1. INTRODUCTION

The term intellectual property rights (IPR) is an old term that has gained significant attention and discussion in recent years. It has become associated with all human fields, especially the field of information technology, which is associated with its role in making information available to users through storage, preservation, and retrieval. IPR issues have only become more prominent and recurring with recent developments in the digital environment and its dominance over people's daily lives. Information accessibility has been impacted by provider conditions and licensing agreements that restrict access by controlling the processes and methods of service provision, the number of users, and the scale and scope of use. This, in turn, has led to the creation of many legal problems (1).

The discussion also outlines the entities responsible for protecting IPRs internationally and regionally, as well as the technological protection methods for works in the digital environment. It also examines the digital works covered by legal protection and the conditions for granting legal protection for IPRs in the digital environment.

It then discusses some of the challenges facing IPRs in the digital environment, highlighting the distinctive characteristics of digital rights. It also addressed the relationship between universities and intellectual property, highlighting the existing advantages and disadvantages. The chapter concluded with a discussion of digital rights management and intellectual property risk management.

1.1. Importance of the Research

The importance of the research stems from the importance of intellectual property, which has been given attention by developed countries, encompassing various forms such as research, books, and academic programs at universities and institutes. Attention to intellectual property rights has become a national necessity, as it protects works from infringement, supports creativity, and aids in the development and prosperity of society in an age increasingly driven by machines, controlled by computers, and pervasive by technology. The existence of intellectual property protection is one of the fundamentals that provides a favorable environment for the growth and prosperity of human creativity. It encourages and supports creators by recognizing the value of their work and their right to receive fair financial compensation for their efforts, along with their right to protect their works from unauthorized copying.

1.2. Research Questions

- 1- What is intellectual property?
 - 2- What are the forms of intellectual property in the digital age?
 - 3- What digital works are protected in the digital environment?
 - 4- What rights are protected in the digital environment?
 - 5- What is the technological and legal protection of intellectual property in the digital environment?
- Research Problem:
Intellectual property in the digital age has attracted the attention of researchers and specialists in scientific research. The

theft of research and scientific publications is currently common, and is now occurring through the use of the Internet as a means of accessing information and data. This has forced regulatory authorities to take the necessary measures to prevent this and to employ modern methods for protecting intellectual property.

2. RESEARCH METHODOLOGY

The research relies on two approaches: the historical approach and the analytical approach. The first is to trace the development of the concept of intellectual property in the digital age and the changes that have occurred. The second is to analyze and critically present the findings, discussing and presenting them in a systematic manner. The research focuses on the types of intellectual property rights, digital works protected, the rights protected, the entities responsible for protecting intellectual property rights internationally and regionally, and the technological and legal protection thereof.

2.1. Research Plan

Section One: The General Nature of Intellectual Property in the Digital Age:

First Requirement: The Concept, Characteristics, and Types of Intellectual Property:

Requirement Second: Rights covered by legal protection:

Section Two: Forms of protection for intellectual property in the digital age:

First topic: Legal protection for intellectual property in the digital age:

Second topic: Technological protection for intellectual property in the digital age:

Conclusion: (Results - Recommendations)

Section One: The general nature of intellectual property in the digital age

Introduction and classification:

The term "intellectual property rights" is an old term that has gained significant attention and has been widely discussed in recent years. It has also become associated with all human fields, especially the field of information technology, which is associated with its role in making information available to users through storing, preserving, and retrieving information. Intellectual property rights issues only emerged repeatedly and clearly with recent developments in the digital environment and its control over people's daily lives. Access to information was affected by provider conditions and licensing agreements that restricted access by controlling the processes and methods of service provision, the number of users, and the scale and scope of use. This, in turn, led to the creation of many problems. Legal Problems. In this section, we will address the concept, characteristics, and types of intellectual property in the first section, and the rights covered by legal protection in the second section, as follows:

The First Section

The concept, characteristics, and types of intellectual property

The concept of intellectual property: Ownership, in language, means the possession of a thing and the ability to dispose of it individually. As a term used by legal scholars, it refers to the legal relationship between a person and a thing, which grants him the right to dispose of it and prevents others from doing so. It is a capacity established by Islamic law to dispose of it, except for an impediment. Its definition, according to scholars, is the uniqueness of a thing due to what surrounds it and is transferred with its transfer (1).

Intellectual property (IP) is any product of the human mind that is unique and new and has some market value. It can be an idea, a structure, an invention, a method, a formula, a computer program, or anything similar (2). Intellectual property is a relatively modern description of an old concept, which is that intellectual effort is dealt with. With it as a form of ownership by controlling it and restricting the ways in which others use this intellectual effort (3). The term intellectual property is limited to the types of ownership created by the human mind, and perhaps this is what made it not (W World Intellectual Property Organization (WIPO) The World Intellectual Property Organization (WIPO) Convention clearly defines the term "intellectual property." The countries that drafted the Convention chose to provide an exclusive list of rights related to intellectual property. These rights include:

- Literary, technical, and scientific works.
- Achievements of performing artists, photographs, and radio and television programs.
- Inventions in all fields of human endeavor.
- Scientific discoveries.
- Industrial designs and models.
- Trademarks, service marks, trade names, and trademarks.
- Protection against unfair competition.
- All other rights resulting from intellectual activity in the industrial, scientific, literary, and artistic fields (1). Hence, intellectual property is ownership of intangible objects that are the product of the mind. A person (creator or author) has the full right to attribute the product of his mind to himself, to own it, to use it, and to dispose of it exclusively, to exploit it, to receive financial benefits resulting from such exploitation, and to prevent others from Disposing of this production is prohibited except by referring to and agreeing with the owner of the idea and creativity.

History of the Development of Intellectual Property: With the advent of writing and the use of various means of recording, the Greeks sought to protect their rights by depositing their works in the National Library for people to view within the library walls only. This is now similar to legal creativity as a legal method for protecting intellectual property. In ancient Rome, plagiarism was considered a shameful act requiring the conviction of its perpetrators. The Arabs were not immune from this, as they cared about literature and poetry and sanctified the rights of the writer or poet. They condemned theft or the transfer of the ideas and poetry of others (2).

Islam preceded all legal systems in recognizing intellectual property and provided the means to protect it. It called for its attribution to its owners, as God Almighty says: "O you who have believed, do not consume one another's wealth unjustly except [it is a lie]..." (3) And the saying of the Prophet, may God bless him and grant him peace: "A person's wealth is not lawful except with his good will, and whoever cheats us is not one of us." The Sharia also stipulated the methods of transmission and performance in narrating hadiths and the conditions that must be met for that, and at the same time warned against theft in general and plagiarism in particular. Muslims were the first to adopt the system of perpetuating (depositing), and protecting the author from additions or omissions in his work, as a matter of the obligation of justice with others and accuracy in transmitting from them

(1), as the Prophet, may God bless him and grant him peace, said: "God has granted victory to a man who heard my statement, understood it, memorized it, and conveyed it..."

Ideas and innovations remained for a long period of time without legal protection until the eighteenth century, when interest in the individual and his rights began, followed by the emergence of individual rights that apply to their intellectual and mental production in particular. With the development of printing, which was an influential factor in spreading ideas and increasing demand for printed books, countries were required to protect the rights of their authors and publishers from unauthorized copying of books. This marked the beginnings of the emergence of copyright laws. England was among the first countries to seek to grant protection to authors, issuing a law called the "Anne" Act in 1709 AD, granting the author the right to authorship, a right previously reserved for publishers alone. More than two centuries later, in 1911 AD, it also issued a copyright law that included the protection of literary and artistic works, works of architecture, sculpture, and photography (2). France, on the other hand, was about eighty years behind England, as its first law was issued in 1791 AD, protecting the rights of playwrights to publish their plays throughout their lifetime, and then to their heirs after them for a period of five years. This was followed by an expansion of the scope of protection to include all types of literary and artistic works. The United States of America, however, did not appear. Copyright laws did not exist until 1836 AD with the issuance of the United States Patent Act. Protection for any invention was not granted easily, but rather after going through many strict administrative procedures. This was followed by the issuance of the Copyright Protection Act in 1891 AD, which limited protection to the works of American authors and works printed by American presses. Germany did not lag behind in the legal race, as the German Inventions Act was issued in 1873 AD (3). As for international agreements, the beginning was the Berne Convention for the Protection of Literary and Artistic Works, named after the Swiss city of Berne, where it was signed in 1886 AD. Then, on September 6, 1952, the Copyright Protection Convention was signed in Geneva, later renamed the Geneva Convention. In 1967, the most important milestone in intellectual property was achieved, with the establishment of the World Intellectual Property Organization (WIPO), a United Nations agency with 193 member states. Its mission is to establish a balanced international system. Effective intellectual property encourages innovation and creativity for the benefit of all. The agreement that established WIPO was signed in 1967 (1).

In the current era, intellectual property has become one of the most important components of the modern era, and the world celebrates World Intellectual Property Day every year on April 26, the date on which the WIPO Agreement entered into force in 2000 (2).

Recently, Arab countries have been interested in developing legislation specific to intellectual property rights, including the Arab Republic of Egypt, the United Arab Emirates, and the Kingdom of Saudi Arabia.

The Nature and Objectives of Intellectual Property Rights: Intellectual property raises numerous issues that make it distinct and unique from property and personal rights. From the perspective of civil and commercial law, it relates to the nature of intellectual property rights and the methods for investing and exploiting them. From the perspective of administrative law, it relates to understanding the procedures for registering intellectual property. From the perspective of criminal law, it relates to The report on the criminal protection of this property, and finally, it is included in international law when studying international agreements regulating the rules of intellectual property rights (3). Opinions vary regarding the nature and essence of intellectual property rights among legal scholars, with some viewing them as having a special or distinct nature, meaning that they are not real rights. On the other hand, they are also not personal rights, which has led to a discrepancy in their treatment, as they possess somewhat different characteristics, which makes them viewed as distinct and of a special nature. On the other hand, others believe that intellectual property rights, with their financial aspect, are a special real right that grants their owner a privilege, authority, and jurisdiction over their creativity and intellectual production. Intellectual property is considered property that can be negotiated, transferred, seized, and inherited, in accordance with the terms and rules established by international legislation and agreements.

Types of Intellectual Property Rights: Although intellectual property rights derive from a single source, namely human identity, they are not unique. Rather, they are numerous and varied, corresponding to the diversity of human ideas and creativity. These include copyright and literary property rights, as well as rights arising from industrial designs and models, patents, or industrial property rights, as well as rights relating to the ownership of distinctive trademarks, trademarks, and trade names and titles, or what is known as commercial property. The Berne Convention is considered the first building block in literary and artistic property, while the Paris Convention concluded on March 23, 1883 is the first building block in industrial property. In addition, there is the International Tréseau Convention and there are also 14 agreements, 3 of which concern patents, 4 concern trademarks, 3 concern industrial models, 2 concern signs of origin, one concern new plant varieties, and the last concern the Olympic emblem (1). According to the above, intellectual property rights can be classified as follows:

(1) Literary and artistic property, also known as copyright and related rights: Literary intellectual property rights are the authority and jurisdiction over all ideas, opinions, and all intellectual, literary, artistic, and scientific creations produced by the human mind, regardless of the method or form of expression of this creativity. This property includes the rights of authors, composers, and other literary and artistic works, as well as theatrical, television, audio, and visual works. (2) Copyright and related rights represent a framework aimed at protecting literary and artistic works, and include everything that can be included under this concept, from written materials such as books, to oral materials such as lectures, to artistic works, visual and audio works, and other materials mentioned in international agreements and laws. Literary and artistic property is divided into two main types: copyright and related rights, as detailed below:

(a) Copyright: This right is a fundamental means of protecting authors and creators. It is a special right, encompassing both moral and financial rights. Moral rights are private rights related to the author's person and may not be waived or disposed of. They include mentioning the author's name, not compromising the identity of works and various innovations, and not distorting or distorting them. Moral rights are personal rights, similar to a person's right to bodily integrity, life, honor, and reputation (1). From a legal perspective, moral rights are inalienable because they relate to the author's person. They are also imprescriptible, meaning they continue and do not lapse with the passage of time, whether used or not, regardless of the length of time. They continue even after the death of their owner, and they are not subject to seizure or assignment. Moral rights include two types of rights. The first is the right of paternity, which means attributing the work that the author has composed to him and acknowledging his ownership of it, so his work is mentioned in conjunction with the author's name and linked to him. The second is the right to respect the work: meaning the right to object to any distortion of the work or any use of it that harms the author's reputation and fame. The author has the right to object to that (2). The second aspect of copyright is financial (material) rights. Just as the author has moral rights that must be protected and safeguarded, he also has financial rights that grant him the authority to exploit and benefit financially from his work as he sees fit, enabling him to do so, in addition to preventing others from such exploitation. According to Egyptian Intellectual Property Rights Law No. 82 of 2002 (Articles 147, 149/152), the author and his universal successor enjoy the right to license or prohibit any exploitation of the work, particularly through copying, translation, editing, or making it available

to the public, including via computer or the internet. The author may transfer all or some of his financial rights to others, provided that this is done in writing and with details. The author's disposal of the original copy of his work, regardless of the type of disposal, does not result in the transfer of his financial rights. (b) Related Rights: These are rights associated with, connected to, and related to copyright, as they are derived from a protected work. They include the rights of performers, such as actors and musicians, to their performances; the rights of producers of sound recordings, such as tape recordings and CDs, to their recordings; and the rights of broadcasting organizations to their radio and television programs.

(2) Industrial and Commercial Intellectual Property: This term encompasses types of intellectual property that have been transformed into a practical application. This concept includes inventions, industrial designs and models, trademarks, and other applications that are used at the industrial or commercial level. It is defined as "the rights that apply to new innovations, such as inventions, industrial designs and models, or to distinctive signs used either to distinguish products (trademarks) or to distinguish a business (trade name)."

Second Requirement

Rights Covered by Legal Protection

Digital works are divided into two types: software programs. The report on the criminal protection of this property, and finally, it is included in international law when studying international agreements regulating the rules of intellectual property rights (3). Opinions vary regarding the nature and essence of intellectual property rights among legal scholars, with some viewing them as having a special or distinct nature, meaning that they are not real rights. On the other hand, they are also not personal rights, which has led to a discrepancy in their treatment, as they possess somewhat different characteristics, which makes them viewed as distinct and of a special nature. On the other hand, others believe that intellectual property rights, with their financial aspect, are a special real right that grants their owner a privilege, authority, and jurisdiction over their creativity and intellectual production. Intellectual property is considered property that can be negotiated, transferred, seized, and inherited, in accordance with the terms and rules established by international legislation and agreements.

Types of Intellectual Property Rights: Although intellectual property rights derive from a single source, namely human identity, they are not unique. Rather, they are numerous and varied, corresponding to the diversity of human ideas and creativity. These include copyright and literary property rights, as well as rights arising from industrial designs and models, patents, or industrial property rights, as well as rights relating to the ownership of distinctive trademarks, trademarks, and trade names and titles, or what is known as commercial property. The Berne Convention is considered the first building block in literary and artistic property, while the Paris Convention concluded on March 23, 1883 is the first building block in industrial property. In addition, there is the International Tréseau Convention and there are also 14 agreements, 3 of which concern patents, 4 concern trademarks, 3 concern industrial models, 2 concern signs of origin, one concern new plant varieties, and the last concern the Olympic emblem (1). According to the above, intellectual property rights can be classified as follows:

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(2) Industrial and Commercial Intellectual Property: This term encompasses types of intellectual property that have been transformed into a practical application. This concept includes inventions, industrial designs and models, trademarks, and other applications that are used at the industrial or commercial level. It is defined as "the rights that apply to new innovations, such as inventions, industrial designs and models, or to distinctive signs used either to distinguish products (trademarks) or to distinguish a business (trade name)."

Second Requirement

Rights covered by Legal Protection

Digital works are divided into two types: software programs. The issue of information transfer at a tremendous speed has become one of the issues that captured the world's attention at the end of the last century and the beginning of this century. As much as advanced technology has facilitated public life, there are challenges that have emerged that differ in nature from those

that existed before the invention of modern means of communication and the emergence of the digital work environment and electronic means. Digital changes in knowledge society technologies have effectively impacted the various rules of the creative and intellectual system, its foundations, and the emerging legal relationships within it. This has created numerous legal challenges for existing systems. Their most evident impact has been in the field of intellectual property, specifically in relation to providing protection for new works created by the digital environment, the information revolution, and the rapid development in the fields of computers and communications. This is in addition to providing protection for digital intellectual and creative works. We will address this through the first section, "Legal Protection of Intellectual Property in the Digital Age," and the second section, "Technological Protection of Intellectual Property in the Digital Age," as follows:

The first section, "Legal Protection of Intellectual Property in the Digital Age,"

Protection of intellectual property depends on the existence of applicable laws and enforcement mechanisms that enable creators of intellectual property (such as software) to control how their work is used, and to ensure that they are rewarded and their efforts and creativity are appropriately recognized for their work (1). In practice, Protecting these rights is far from simple as it appears. There are fundamental issues that involve the dichotomy between copyright and the rights of any relevant organization. At the same time, most creators of intellectual property do not want their content to be withheld; rather, they want others to be able to access it, continue to develop it, and, in many cases, even pay them for its use. Considering all of this data reveals the complexities of the current situation (2). This is not the only issue. On the other hand, protecting intellectual property in the digital environment is considered a dilemma at both the local and global levels. This is because the digital environment has not yet been controlled due to the large number of users, on the one hand, and the limited capabilities available to handle such a number of users, on the other hand, and its increasing expansion, on the third hand, and the rapid technological and software progress that makes it difficult to control effectively. This makes pursuing it extremely difficult to date.

2.2. Rights Protected in the Digital Environment

Based on the Multiplicity and Diversity of Intellectual Property Rights Intellectual property rights protected in the digital environment can be identified as follows:

1. Literary works: These are divided into two types: written works and oral works.

A. Written works: These are creative works made available through writing, whether in paper, printed, or electronic form (digital texts that the public can receive by reading). Excluded from the scope of protection are judicial works or works issued by state institutions and others, such as laws, orders, decrees, judicial rulings, decisions, and administrative contracts, as they fall within the scope of public property. Also excluded are journalistic information and daily news related to the dissemination of general news that are not characterized by originality, whether in terms of the subject matter or the commentary on it (1).

B. Oral works: These are oral works that address the public orally to convey a specific idea, such as lectures, sermons, and lawyers' pleadings, as long as they possess both the elements of originality and creativity.

- Artistic works: These are theatrical works of faith, or any works that use signs or movement with speech or gestures. They fall within the protected rights, whether they are recorded and preserved in texts or improvised (2).
- Musical works, which are music played on musical instruments or instruments and preserved in the form of notes, or singing, which is the human performance of music with or without words.
- Fine and applied works, which are creative embodied arts formed from one or more primary tools, such as statues, stone engraving, or the formation of clay sculptures, as they result from the intellectual and physical effort of the author of the work. In the digital environment, there are two forms of this. The first form is an extension of the work's protection via the internet, where it is used to identify and disseminate knowledge to others only that the sculpture or fine work is an original work of art belonging to its owner, so that the originality becomes his property. This is achieved by taking pictures of the sculpture and publishing them or writing a report about it. The second form is the direct completion of the sculpture in digital form, where it becomes a three-dimensional digital structure, which in itself is a work of art possessing all the elements required for its legal protection or in accordance with electronic publishing contracts (1).
- Photographic works: These are traditionally printed and digital photographs. UNESCO defines them as a fixed resemblance, the latter resulting from a surface sensitive to light, radiation, or whatever the technical nature of the method used, whether chemical or electronic, to create the image. In the digital environment, registered photographic works are made available to their owners, granting them exclusive rights. The image may be displayed to the public for viewing purposes only, without the possibility of copying. In some cases, copying is possible, provided that the associated rights are known.
- Computer programs: Computer programs refer to software, which is a digital work protected by law.

Authorities entrusted with protecting intellectual property rights internationally and in the Arab world:

There are several entities entrusted with protecting intellectual property rights internationally and in the Arab world, including the following:

WIPO: The World Intellectual Property Organization, an agency of the United Nations. It seeks to unify intellectual property rights laws among member states, achieving several goals, including:

- Harmonizing international rules and standards on intellectual property.
- Providing global services in the field of intellectual property.
- Facilitating the use of intellectual property for development.
- The global reference source for intellectual property information and studies.
- Providing an effective administrative and financial support structure to enable WIPO to implement its programs.

European Patent Office (EPO): Established in 1973 in Munich, the EPO is an intergovernmental organization comprising 38 member states. Its headquarters are in Munich, with a section in The Hague. The office's protection extends internationally by examining patents before registration in the patent repositories of non-member states through the technicality of Cooperative Patent Classification (CPC). It also helps improve the climate for registering inventions, ensuring protection, and avoiding legal disputes, with its judicial jurisdiction in settling disputes in accordance with the Munich Convention of 1973 (1).

The European Union Intellectual Property Office (EUIPO): An agency of the European Union (EU), established in 1994, it is responsible for managing the European Union trademark, European and international cooperation in the field of intellectual property (IP), and the European Observatory for Intellectual Property Rights Infringements. The office enjoys legal personality and financial independence (2). The Regional Intellectual Property Organization (ARIPO): Established under the Lusaka

Agreement in 1976, ARIPO is an international organization that handles intellectual property rights issues and receives applications for patents and trademarks registered in its member states. It has introduced several protocols, including the Harare Protocol for the Registration and Regulation of Patents, the Banjul Protocol for Trademarks, the Arusha Protocol for Plant Varieties, and the ARIPO Protocol for Traditional Knowledge (3).

The African Intellectual Property Organization (OAPI): Established under the agreement of September 13, 1962, in Libreville, Gabon, the body responsible for intellectual property matters was established. It is headquartered in Yaoundé, Cameroon, and is concerned with harmonizing provisions with international agreements related to intellectual property rights. It simplifies national registration procedures, grants title to rights, and provides protection for patents, trademarks, trade names, new plant varieties, layout designs, and integrated circuits (1).

6. The Arab regional level: Intellectual property rights are distributed at the Arab regional level between two organizations. The first is the Arab League Educational, Cultural and Scientific Organization, headquartered in Tunisia, which is responsible for everything related to copyright and related rights. The second is the Arab Industrial Development and Mining Organization, headquartered in Rabat, Morocco, which is responsible for everything related to industrial property rights. The office of the Secretary-General of the League of Arab States coordinates between the two organizations. There was a move to establish a new Arab organization for intellectual property, but this project was not completed (2). Legal Protection of Intellectual Property in Egyptian and Jordanian Law:

2.3. Legal Protection of Intellectual Property in Egyptian Law

The Egyptian legislator adopted the approach of preparing a unified legislation that addresses all aspects of intellectual property rights protection, believing in the benefits of this approach and keeping pace with many comparative legislations in this field. This effort resulted in the issuance of Law No. 82 of 2002, which includes four books, each of which addresses one or more areas of intellectual property rights, with the aim of providing the maximum possible level of protection for these rights. The first book is devoted to patents, utility models, layout designs of integrated circuits, and undisclosed information. The second book is devoted to trademarks, commercial data, geographical indications, and industrial designs and models.

Article 10 of the law stipulates that the patent owner's right to prevent others from importing, using, selling, or distributing the product is exhausted if he markets the product in any country or licenses others to do so. This allows the availability of patent-protected products in the Egyptian market at the lowest prices prevailing globally through parallel imports.

The second aspect of copyright is financial (material) rights. Just as the author has moral rights that must be protected and respected, he also has financial rights that grant him the authority to exploit his work materially and benefit from it as he sees fit, by enabling him to do so, in addition to preventing others from such exploitation. According to the provisions of Egyptian Intellectual Property Rights Law No. 82 of 2002 (Articles 147, 149, and 152), the author and his general successor enjoy... After that, he has the right to license or prohibit any exploitation related to the work, especially through copying, translation, editing, etc., or making it available to the public, including making it available via computer or the Internet. The author may transfer all or some of his financial rights to others, provided that this is done in writing and with details. The author's disposal of the original copy of his work, regardless of the type of disposal, does not result in the transfer of his financial rights.

Legal Protection of Intellectual Property in Jordanian Law:

The Hashemite Kingdom of Jordan has made continuous efforts in the field of copyright protection and updating its laws and regulations in response to global developments in this field. The government is aware of the need to encourage and support intellectual creativity, which is a prominent cultural aspect. This interest coincided with the establishment of the Jordanian state in 1921, as the state continued to recognize the Ottoman Copyright Protection Law, which was issued in 1910 when Jordan was part of the Ottoman Empire and remained in effect until 1992. It included (59) articles and granted the author the right to ownership. On all his intellectual products and within his material and moral rights, he also identified the protected works and divided them into panels and Manuscripts, sculptures, drawings, maps, other surfaces, models, ideas, books, publications, and all products of ideas.

The law defines protected works, as stated in Article 3, Paragraph B, as follows:

1. Books, brochures, and other written materials.
2. Works delivered orally, such as lectures, speeches, and sermons.
3. Theatrical works, musical and musical plays, and pantomime.
4. Cinematographic, broadcasting, audio-visual works.
5. Works of drawing, photography, sculpture, engraving, architecture, applied arts, and decoration.
6. Musical works, whether translated or not, accompanied by lyrics or not.
7. Illustrations, maps, plans, plans, three-dimensional works related to geography, and surface maps of the earth.
- 8- Computer programs.

Article 4 defines the author as the person who publishes a work attributed to him, whether by mentioning his name on the work or by any other means, unless he provides evidence to support this. The same applies to pseudonyms, provided there is no doubt about the true identity of the author. Some articles also address translation, whether into another language or converting it from one genre of literature, art, or science to another. The law, as stated in Article 1, excludes "laws, regulations, judicial rulings, decisions of administrative bodies, international agreements, and all other official documents and translations of these works or any part thereof, as well as news published, broadcast, or communicated publicly, and works that have become public property, primarily national folklore, in which the competent minister is granted the right to the author to confront distortion, modification, or harm to cultural interests." The law also addresses the financial and moral rights of the author. Regarding the duration of protection, the law set it at thirty years after the author's death, which was later amended (in 1998) to fifty years, in accordance with Article 12 of the TRIPS Agreement, the International Trade Agreement on Intellectual Property Rights, and the Berne Convention for the Protection of Literary and Artistic Works of 1886, later known internationally as the Paris Act of 1971, as amended in 1979. For the same reasons, the articles related to translation were amended to align with relevant international agreements. Similar or related rights were added, namely the rights of performers, producers of phonograms, and broadcasting and television organizations. The term of protection was also stipulated, consistent with the provisions of the 1961 Rome Convention for the Protection of Performers and Producers of Phonograms and the TRIPS Agreement, upon which the World Trade Organization is based, and which Jordan joined in early 2000.

The Second Requirement

Technological Protection of Intellectual Property in the Digital Age

After the work was considered the culmination of the author's efforts and the fruits of his labor, with the rapid and continuous development of information technology, what is known as electronic publishing emerged, making human intellectual production available through an electronic medium or on the internet. However, publishers' fears of publishing their works on the internet due to illegal copying, piracy, or theft have led some companies to refrain from continuing electronic publishing operations. This has necessitated the implementation of electronic measures to protect these works in the electronic environment, including the following:

Technological measures: These are technological means to enable rights holders to protect their works and reduce infringement. These measures include the following:

Technological measures aim to hinder access to and use of the work except for those licensed by the rights holder. These measures include encryption, which conceals the message and makes it unreadable by unauthorized parties. The Digital Works Identification System (DWS) is a system that counts all works published on the Internet, allows for identification of their circulation, and monitors each publication, provided that they have been internationally registered (1).

Electronic signature: A digital equivalent of a handwritten signature. It can be used to authenticate the identity of the signatory on a document, confirm the integrity of the document's data, or authenticate the identity of the sender and ensure that the original content of the message or document sent has not been altered. It is used to sign a document electronically. Anyone can verify the signature, and if used correctly, it guarantees the integrity of the signed message and the identity of the signatory.

Digital censorship systems are software systems that allow the device downloading protected files and works from the Internet to enter a password that allows these works to be opened and used only on the device to which they were downloaded. At the same time, the recipient cannot copy or redistribute these works. The same systems can be used to protect CDs and other media (2). **2- Information necessary for managing fields:** These are systems that prevent access to protected digital works and include the following elements:

Digital watermarks. A watermark is encrypted information, such as a logo or other information attached to a digital file, that is invisible and does not affect its perception. The logo can be effectively extracted from digital media to claim ownership rights (3).

A database system contains comprehensive information about the work, including the name of the author, the copyright owner, the protected work, and other information necessary to authorize a third party to use that work for a specific purpose. The database may also contain the conditions on the basis of which the rights holder authorizes the use of the protected work (3). A set of systems that prevent access to a work without the permission of the rights holder: This type of system is an extension of the database system, but it is more advanced. In addition to the database, it relies on a system license. This system is characterized by its integration with hardware devices into special chips, which some call "containers." The container placed to protect a specific work automatically performs a number of functions related to managing the protected rights (1).

In addition to the above, some websites allow the suspension or freezing of a participant's rights for a specific period of time if the computer they use to log in occurs, or the cancellation of their subscription to the website if there is a clear violation or infringement of a component of intellectual property, or an attack on the website or service. This depends on the type of incident caused by the user, especially if it is repeated. Some websites suspend a user's account for a period of time if the number of downloads exceeds the limit specified and permitted by the site, then reopen the account. However, if the violation is a violation that affects intellectual property or involves an attack on the service site, then the cancellation of the subscription is the appropriate penalty. The matter may even extend to prosecuting the participant if the site is harmed. As a result.

3. CONCLUSION

In this research, we presented the legal system of intellectual property in the digital age through the following topics. In the first section, we addressed the general nature of intellectual property in the digital age through two sections: the first section deals with the concept, characteristics, and types of intellectual property, and the second section deals with the rights covered by legal protection. In the second section, we addressed the legal protection of intellectual property in the digital age through two sections: the first section deals with the legal protection of intellectual property in the digital age, and the second section deals with the technological protection of intellectual property in the digital age. We reached a set of conclusions and recommendations as follows:

4. RESULTS

- It is necessary to consider intellectual property in the current century as a powerful engine driving the process of economic development, and thus developing human capital by creating individuals capable of generating creativity, generating revenue, encouraging investment, and promoting culture. This will be reflected in scientific research and its development in society.
- Working on Establishing model systems for the protection of intellectual property rights by updating national laws and legislation in this area, in addition to imposing deterrent penalties on violators of intellectual property rights and copyrights in light of the transformations in the digital environment in the knowledge society.
- Removing the clear discrepancy in the actual application of intellectual property legislation between relevant authorities, and eliminating conflicts and disputes of jurisdiction to prevent perpetrators of digital crimes from escaping punishment due to these conflicts, which contributes to the spread of crime at higher rates.
- Working to raise social awareness through educational activities, conferences, seminars, and lectures on the protection of intellectual property rights in the digital age, to spread awareness. A culture of respecting and protecting intellectual property rights (IPRs) is also promoted. This is in addition to organizing an annual conference to discuss the latest national and international legislation, laws, and agreements related to the protection of IPRs in the digital environment. This is intended to develop information awareness of the dangers of these crimes.

5. RECOMMENDATIONS

- Continuous efforts must be made to raise awareness of IPR issues through various media and advertising outlets that

appeal to all segments of society, in accordance with national legislation. Campaign programs must also address emerging and anticipated crimes and their impact on society, economically, culturally, and socially, as well as the penalties prescribed by law.

- At the Arab level, the study recommends that Arab countries cooperate to develop IPR laws that keep pace with global developments and challenges, as well as the transformations of the digital environment and the knowledge society, which has become the secret to the strength and superiority of societies. - Encouraging the exchange of Arab expertise and knowledge and increasing participation in international conferences, seminars, and academic workshops related to security aspects of combating cybercrime and protecting intellectual property rights.
- The necessity of establishing a specialized court for intellectual property disputes, such as the Arab Electronic Court, affiliated with the League of Arab States. This court would issue its decisions promptly to confront advanced and emerging crimes in the digital environment, and would have the authority to enforce them through relevant authorities within Arab countries. It is also necessary to unify Arab laws and measures regarding intellectual property rights.

REFERENCES

- Anna, A. (2015, May 1). *Live director performance: Theater IP dilemma*. Retrieved from <https://sites.udel.edu/cisc356/2015/05/01/live-theater-performance-the-director-ip-dilemm>
- Downing, D., & Covington, M. A. (2009). *Dictionary of computer and internet terms* (10th ed.). Hauppauge, NY: Barron's Educational Series.
- EUIPO. (2023). *About us*. <https://www.euipo.europa.eu/en/the-office/about-us>
- Gupta, Y., Agrawal, S., Sengupta, S., & Chakraborty, A. (2017). Digital video watermarking using diverse watermarking schemes. In *Encyclopedia of Information Science and Technology* (4th ed., pp. 4872–...). <https://doi.org/10.4018/978-1-5225-2255-3.ch422>
- Hawk, S., & Kaiser, K. (2008). Offshore software development outsourcing. In M. Khosrow-Pour (Ed.), *Encyclopedia of Information Science and Technology* (2nd ed.). Hershey, PA: Information Science Reference. *Note: I did not find a valid DOI for this chapter. The chapter "Offshore Software Development Outsourcing" is listed on IGI Global but is often cited without a DOI. IGI Global+1*
- Khosrow-Pour, M. (Ed.). (2006). *Dictionary of information science and technology*. Hershey, PA: Information Science Reference.
- King, K. P. (2008). Intellectual property. In L. A. Tomei (Ed.), *Encyclopedia of information technology curriculum integration*. <https://doi.org/10.4018/978-1-59904-881-9>
- Reitz, J. M. (2014). Computer program. In *Online Dictionary for Library and Information Science*. Retrieved from https://odlis.abc-clio.com/odlis_c.html
- Reitz, J. M. (2014). Database. In *Online Dictionary for Library and Information Science*. Retrieved from https://odlis.abc-clio.com/odlis_d.html
- World Intellectual Property Organization. (2008). *Intellectual property* (20th ed.). WIPO. *Note: I did not locate a DOI for this edition of the WIPO publication.*
- Al-Sanhouri, A. R. (2008). *Al-Wasit fi Sharh Al-Qanun Al-Madani* (Vol. 8). Dar Al-Nahda Al-Arabiya.
- Al-Sharif, A. (2010). Intellectual property rights in the era of information and communications technology. *Journal of Libraries and Information*, Al-Fateh University, (5).
- Al-Jilali, A. (2012). *Intellectual property rights crises*. Dar Al-Khaldouniya for Publishing and Distribution.
- Al-Asiri, A. A. (2003). *Intellectual property in Islamic law*. Naif Arab University.
- Hawas, F., & Daas, K. (2019). Intellectual property protection between the inability of the law and the need for technical measures. *Algerian Journal of Legal, Political and Economic Sciences*, 56(2).
- Al-Qaddal, H. A., & Bakhit Abu Al-Bashar, A. M. (2013). Libraries and intellectual property issues in the digital environment. In *Proceedings of the First Regional Conference: The Role of National Associations and Libraries in Supporting Freedom of Access to Information under Intellectual Property Rights Laws* (IFLA & AFLI, Qatar).
- Al-Qaddal, H. E. (2010). The extent of librarians' knowledge of intellectual property rights in Sudan: A case study of university libraries in Khartoum State. In AFLI & Lebanese Library Association (Eds.), *Proceedings* (No. 2).
- Ahmed, K. H. (2021). *Intellectual property rights and their role in protecting digital works and domain names on the internet*. Dar Al Fikr Al Jami'i.
- Abdel Aziz, M. M. O. (2015). Initiatives to protect intellectual property rights in the electronic environment: Copyright as a model. *Middle East Public Relations Research Journal*, (8).
- Zidane, M. (2020). *Intellectual property rights* (Syrian Virtual University).
- Abu Salah, M. A. (2016). *The reality of intellectual property and its impact on investment in the information technology sector in Palestine* (Master's thesis, An-Najah National University), p. 26.
- Belhraoui, N. (2013). *Protection of intellectual property rights in Algerian law: A study of the institutional framework for combating counterfeiting*. Dar Belqis.
- On Stages: Law in the era of modern communication technologies — The legal system of computers. (2004). *Algerian Journal of Legal, Economic, and Political Sciences*, Faculty of Law, University of Algiers, (4).
- Aissani, T., & Abdullah, F. (2021). Digital works protected by intellectual property laws in international agreements and Algerian law. *Journal of Policy and Law*, 13(1).
- Arab, Y. (2004). Legislative measures for the protection of information and digital works. In *Proceedings of the Fifth Scientific Symposium on the Role of Documentation and Information in Building Arab Society* (Arab Information Club, Damascus).
- Zuhair & Al-Tas Al-Harj. (2018). *Intellectual property rights*. Syrian Virtual University.
- Anttiroiko, A.-V. (2008). Strategic knowledge management in public organizations. In M. Khosrow-Pour (Ed.), *Encyclopedia of Information Science and Technology* (2nd ed., pp. 2632–2637). Hershey, PA: Information Science Reference.