

## **Contemporary Challenges in Regulating and Protecting Intellectual Property**

**Prof. Alaa Hussein Ali**

College of Law and Political Science - Anbar University

dr.alaa.ali83@uoanbar.edu.iq

**Assistant Lecturer Marwa Sabah Latif**

Human Resources Department - Anbar University

Marwa.sabah@uoanbar.edu.iq

**Abstract.** Intellectual property is a cornerstone of contemporary life, exerting a profound influence on various aspects of society. In our increasingly complex and interconnected world, numerous challenges emerge in different forms, such as technological advancements, economic transformations, and genetic discoveries. However, despite the dynamic nature of these challenges, national legislation often falls short in providing comprehensive regulations to effectively govern intellectual property rights. The dearth of detailed legal provisions leaves a pressing need for enhanced and robust protection of intellectual property. This necessity arises not only from the intrinsic value of the intellectual material itself but also from the crucial requirement of safeguarding the interests of its creators. Authors, inventors, and innovators rely on legal frameworks to secure their intellectual endeavors and foster an environment that encourages creativity and knowledge generation.

Furthermore, the significance of intellectual property protection extends beyond individual creators. It is of vital importance for society as a whole, as it underpins the continued advancement and progress in various fields. Effective legal safeguards enable the dissemination of ideas, incentivize innovation, and facilitate economic growth. However, the existing intellectual property laws face significant challenges in keeping pace with the rapid developments and transformations occurring in contemporary society. Technological advancements, for instance, have revolutionized the way information is created, shared, and accessed, posing novel issues that traditional legal frameworks may struggle to address adequately. Additionally, economic shifts and globalization have expanded the reach and impact of intellectual property, necessitating legal measures that can effectively navigate international complexities. In order to confront these modern challenges, intellectual property laws must evolve and adapt. They need to consider emerging technologies, digital platforms, and borderless information flows. Moreover, a comprehensive approach is required to ensure that intellectual property laws strike a balance between protecting the rights of creators and promoting broader societal interests, such as access to knowledge and cultural expression.

**Keywords:** intellectual property, contemporary life, challenges, legal protection.

## **1 Introduction**

The interdisciplinary approach embodies the integration of diverse fields of knowledge and disciplines in order to effectively tackle urgent and practical problems. This approach entails the convergence of multiple disciplines, leveraging their respective strengths and expertise to devise solutions. Interdisciplinary research thrives on the collaboration of a team of researchers, each possessing unique specializations, who collectively contribute knowledge from multiple fields to a singular research project. This collaborative composition enables the creation of a research endeavor that draws upon a wide range of cognitive disciplines.

In the current era of scientific and technological progress, the intersection of different knowledge domains carries profound implications for intellectual property rights. However, the concept of amalgamating various disciplines has been met with divergent viewpoints, competing visions, and tangible ramifications that have prompted international agreements on intellectual property rights. These agreements have played a pivotal role in incentivizing researchers and specialists to pursue further innovations and inventions. In our study, our objective is to identify the most pressing challenges arising at the nexus of legal, scientific, and other disciplines with regard to intellectual property in the advanced scientific technological era. Additionally, we will explore potential remedies to address these challenges, aiming to foster a heightened scientific community that adheres to ethical principles and abstains from illicit practices.

## **2 The Significance of the Research**

The research topic under consideration holds profound practical and scientific significance. Primarily, the development of the world within the framework of intellectual property protection offers unique and valuable insights that would be unattainable without the existence of laws and agreements safeguarding copyrights, innovations, and patents. Moreover, the growing importance of the interdisciplinary approach in protecting intellectual property stems from the establishment of foundational principles and methodologies in various disciplines. These approaches provide researchers with systematic and effective means to identify and address problems.

From a scientific perspective, the topic of intellectual property assumes paramount importance due to its sensitive and consequential nature. Furthermore, the significance of the subject is amplified by remarkable advancements in information technology and innovation. These developments have witnessed instances where authors and inventors, disregarding the natural and human boundaries that underpin fundamental human rights, have transgressed ethical boundaries in their pursuit of progress. Recognizing the significance of intellectual property rights, industrialized countries have made substantial investments in research and publications on the subject. Additionally, universities and institutions worldwide have established specialized programs of study in intellectual property across various fields, including economics, politics, sociology, education, and law.

Consequently, safeguarding intellectual property rights has become an urgent intellectual imperative, particularly in the context of an advanced era propelled by agricultural and commercial technologies, governed by machines, and shaped by technology. It is noteworthy that the growing importance of intellectual property rights has prompted countries globally to enact laws and regulations governing these rights, leading to the emergence of intellectual property law as one of the newest branches of legal studies.

### **3 Research Problem**

The focus of our study revolves around the legal dilemmas stemming from the research subject, primarily arising from a notable dearth of legislative comprehension regarding the legal dimensions in tackling contemporary challenges related to the regulation of intellectual property rights. Moreover, our objective is to ascertain strategies to surmount the obstacles that impede the efficient regulation of intellectual property rights and to establish robust legal safeguards for their protection.

#### **Research Questions:**

The study poses several inquiries within the research subject, necessitating legal resolutions, with a primary focus on the following:

- What are the principal contemporary challenges encountered in the regulation of intellectual property rights?
- Can scientific advancements be subject to specific limitations?
- How can a balance be struck between safeguarding intellectual property and promoting scientific progress?
- Is it feasible to shield human rights from the potential hazards arising from scientific creations?
- What strategies can be employed to surmount contemporary challenges in the protection of intellectual property rights?

#### **Research methodology**

The research employed a data analysis methodology to investigate the impact of contemporary challenges in regulating and protecting intellectual property. The primary data source utilized was existing datasets and records related to intellectual property rights, legal cases, and industry trends. These data were collected from reputable sources, such as government agencies, international organizations, and academic research repositories. The research methodology focused on analyzing and interpreting the available data to identify patterns, trends, and insights regarding the challenges faced in intellectual property regulation and protection. Statistical techniques, such as descriptive statistics and inferential analysis, were applied to examine relationships and draw meaningful conclusions. Ethical considerations in this approach involved ensuring the proper handling and confidentiality of the analyzed data and adhering to data usage policies set by the data providers. By leveraging data analysis techniques, the research aimed to provide evidence-based insights into the contemporary challenges surrounding intellectual property and contribute to the existing body of knowledge in the field.

#### **Research Plan:**

Given the intricate and multifaceted nature of the topic, our research is structured into two sections, outlined as follows:

Section 1: The Implications of Contemporary Challenges in the Organization and Protection of Intellectual Property.

Section 2: Overcoming Contemporary Challenges in the Organization and Protection of Intellectual Property.

### **4 The Implications of Contemporary Challenges in the Organization and Protection of Intellectual Property.**

The term "intellectual property" refers to any creations of the human mind, including inventions, artistic works, designs, logos, and trade-related (1) names and images. These creations are protected by a range of legal rights, such as patents, copyright, industrial design, and trademarks, which enable

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(1) Dr. Abdul Karim Mohsen Abu Dlou, Conflict of Laws in Intellectual Property, Dar Wael for Publishing, Amman, Jordan, 2004, pp. (26-27).

inventors and innovators to receive recognition and financial compensation for their work (2). The goal of the intellectual property system is to strike a balance between the interests of creators and those of the general public, creating an environment that encourages creativity and innovation (3). However, in recent years, the digital, economic, and scientific revolutions have presented significant challenges to the intellectual property system. These challenges have been most prominent in the areas of genetics, economy, and technology. In light of these developments, it is essential to examine the challenges facing intellectual property in these three areas, which we will do in the following subsections. The first part will examine the impact of technology and technical developments on intellectual property. The second one will state the impact of economic developments on intellectual property. The final part will examine the impact of genetic developments on intellectual property.

#### **4.1 The impact of technology and technical developments on intellectual property**

The term "intellectual property" refers to any creations of the human mind, including inventions, artistic works, designs, logos, and trade-related names and images. These creations are protected by a range of legal rights, such as patents, copyright, industrial design, and trademarks, which enable inventors and innovators to receive recognition and financial compensation for their work(4). The goal of the intellectual property system is to strike a balance between the interests of creators and those of the general public, creating an environment that encourages creativity and innovation.(5) However, in recent years, the digital, economic, and scientific revolutions have presented significant challenges to the intellectual property system. These challenges have been most prominent in the areas of genetics, economy, and technology. In light of these developments, it is essential to examine the challenges facing intellectual property in these three areas, which we will do in the following parts. The first part will address the impact of globalization on intellectual property. Meanwhile The second section: the impact of artificial intelligence on intellectual property.

##### **4.1.1 The impact of globalization on intellectual property**

. 6 Globalization has impacted various aspects of life, but intellectual property is among the most significant and apparent areas affected by this phenomenon. In fact, globalization marked the emergence of capitalist production, and its scope includes the globalization of production, exchange, and modernization, fueled by the rise of technological advancements and competition among powerful nations.

The impact of information technology's modernization on intellectual property is a complex issue that is intertwined with the emergence and development of globalization. Despite extensive literature on this topic, it remains difficult to pinpoint a clear and fixed origin of globalization and its stages of development, as it is a multifaceted phenomenon with diverse features.<sup>(7)</sup>

Thus, it can be asserted that the impact of advancements in communication technology on intellectual property is significant and ongoing. The rapid development of information technology and various forms

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<sup>(2)</sup> Dr. Heidi Issa Hassan, *Conflict of Laws in Intellectual Property Matters*, Lamar for Publishing and Distribution, Cairo, 2019, p. 22.

<sup>(3)</sup> Dr. Ali Abbas, *International Business Administration*, Al-Hamid Library, Amman, Jordan, 2003, pp. (86-87).

<sup>(4)</sup> Dr. Mahmoud Abdel-Rahim El-Deeb, *Legal Protection of Intellectual Property in the Field of Computers and the Internet*, New University Publishing House, Alexandria, 2005, p. 42.

<sup>(5)</sup> Dr. Abdul Rahim Antar Abdul Rahman, *Gaps and Exceptions Clauses Under the TRIPS Agreement - A Comparative Study*, First Edition, Arab Studies Center for Publishing and Distribution, 2016, p. 26.

<sup>(6)</sup> Haseeb Elias Hadid, *Intellectual Property in Today's World*, Dar Al-Kutub Al-Alami, Beirut - Lebanon, 2014, p. 14.

<sup>(7)</sup> Dr. Mahmoud Abd al-Rahim al-Deeb, previous source, pg. 41.

of media, including text, audio, and visual media, has already brought about various effects on intellectual property. Moreover, it remains to be seen whether new technological means will emerge in the information space and merge with existing ones, potentially creating either positive or negative effects on intellectual property in the Arab world. In this context, it is essential to examine the factors that may impact intellectual property at different levels, including:

The first factor: the rapid exchange of various terminologies in the international system. This includes investment capital, commodities, goods, information of all kinds, and the exchange or transmission between different individuals.

The second factor: the emergence of global networks of interaction, such as the interaction between governmental and non-governmental organizations, civil society institutions, and multinational companies.

The third factor: the emergence of what can be relatively called global systems; Whether the new world order, the global financial system, the global nuclear energy system, and the global economic system.<sup>(8)</sup>

All of this has led to an increase in intellectual property infringement, as new methods of exploiting intellectual works emerged alongside the development of technology.<sup>9</sup> The rise of digital works is an example of this phenomenon. With the use of the internet, it has become possible to download scientific research files, letters, and dissertations for free through specific programs. This has led to the exchange of thousands of such materials around the world, creating an identical copy of the original work available on the internet.<sup>10</sup>

It is important to note that the images of assault mentioned above can result in both moral and material harm. Additionally, it is important to consider that such actions can also be carried out through means other than the internet, such as mobile phones, which have the capability of sending and receiving messages, films, and pictures, and can also be done through telex and fax machines.

From the above, it is evident that intellectual property plays a crucial role in encouraging creativity and innovation, which ultimately leads to a better standard of living and cultural advancement. These rights have become an essential component of the social, economic, and cultural systems of countries. However, with the globalized economy and international trade, there has been a push to unify the rules for the protection of industrial property rights, leading to a debate between developed countries with a significant stake in these rights and developing or underdeveloped countries, which have limited access to such rights.<sup>(11)</sup>

The international community has sought to address the challenges of intellectual property by entering into agreements. These agreements include the Paris Agreement on Industrial Property, the Berne Agreement on Intellectual Property, and the TRIPS Agreement from the World International Trade Organization (WIPO). Most Arab countries have joined these agreements, except for the TRIPS agreement, which applies only to Arab countries that are members of the World Trade Organization, making them legally bound to these agreements. Developed countries are also obliged to provide technical assistance to developing member states in the field of intellectual property under the TRIPS agreement.<sup>(12)</sup>

#### **4.1.2 The impact of artificial intelligence on intellectual property**

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<sup>(8)</sup> Dr. Yahya bin Issa Al-Riyami, The reality of economic globalization on intellectual property in the Arab countries, an article published on the website: (<https://alroya.omK>) Date of visit 6/7/2022, time of visit 3:00 pm.

<sup>(9)</sup> Abd al-Karim Muhsin Abu Dalu, previous source, p. 26.

<sup>(10)</sup> Ahmed Hossam Taha, Crimes arising from the use of computers, Dar Al-Nahda Al-Arabiya, Cairo, 2005, p. 41.

<sup>(11)</sup> Dr. Farhat Hamo, The Globalization of Intellectual Property Rights Protection and its Implications for Development in Developing Countries, research published in the Journal of International Law and Development, Abdul Hamid Ibn Badis University, Issue 2, 2014, p. 112.

<sup>(12)</sup> Dr. Abd al-Rahim Antar Abd al-Rahman, previous source, pg. 26.

. Artificial intelligence (AI) systems serve as the foundation for learning systems and are commonly described as machines that can perform tasks that are typically carried out by humans, either with limited or no human intervention. The impact of AI is becoming increasingly prevalent in various fields and industries, and as its development accelerates, its influence and use are expected to grow, impacting society and the economy. Moreover, AI is predicted to assume many of the routine tasks that were previously performed by humans. (13)

It is evident that the purpose of intellectual property rights is to safeguard the owners from any unauthorized use or infringement of their works that fall under these rights, and to enable them to receive compensation for the use of their works. Intellectual property rights typically have a specific duration and are granted only if certain conditions are met. (14) Furthermore, there are certain regulations that allow the use of certain types of intellectual property under specific circumstances without requiring permission from the right holder. Such licenses are intended to achieve a balance between the interests of creators and innovators, and the interests of the general public, so that everyone can benefit from the advantages of intellectual property. (15)

The fundamental purpose of the intellectual property rights is to safeguard the works from theft or unauthorized usage, and also to provide compensation to the owner for its usage. However, the benefit of the society as a whole takes' precedence over the personal benefit of the owner. Therefore, it is imperative to establish frameworks to balance the interest of both parties without infringing on the rights of the authors. The intellectual property system aims to foster innovation through new technologies and creative works, including those generated by artificial intelligence. Consequently, the system is designed to promote innovation. Many countries have recognized the significance of artificial intelligence and have developed strategies for enhancing their artificial intelligence capabilities and regulations. Although most consumers do not rely entirely on artificial intelligence applications, they may use some form of AI application, such as the product recommendation system on online retail platforms like Amazon. AI applications serve as mediators and filters between consumers, products, and brands by providing recommendations based on past purchase decisions. (16)

Artificial intelligence continues to have an impact on how consumers perceive the market, products, and brands. When a consumer is prompted to search for a product, AI may only recommend three products, limiting the consumer's awareness of all the products available in the market. Nonetheless, the consumer still makes the ultimate decision to purchase. Furthermore, AI provides general-use technology that aids in the implementation, management, and administration of intellectual property systems and tools. Existing intellectual property laws, including patents, copyrights, industrial designs, and trade secrets, protect works and inventions arising from human creativity. (17).

Artificial intelligence also significantly affects the creation, production and distribution of economic and cultural goods and services. Artificial intelligence is playing an increasingly important role in driving major advancements across various fields and industries, including the development of autonomous vehicles, advanced manufacturing processes, medical diagnostic tools, and smart sports equipment with modern sensors, among other advanced technologies and communication tools that are widely used today. A notable example of the impact of artificial intelligence in the business world is the ten-year global technical sponsorship and dual brand licensing agreement between English football club Manchester United and Adidas, which is set to end in July 2025. This partnership demonstrates how AI and other cutting-edge technologies are driving innovation and transforming the way that companies conduct their operations and engage with consumers. (18).

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(13) Dr. Ahmed Hassan Omar, The Interrelationship of Artificial Intelligence with Intellectual Property Rights, an article published in Al-Hiwar Al-Motadman - Issue: 7173 - 2/25/2022, pg 3.

(14) Dr. Samiha Al-Qalyubi, Industrial Property, Dar Al-Nahda Al-Arabiya, 5th edition, Cairo, 2005, p. 125.

(15) Dr. Salah Zain Al-Din, Industrial and Commercial Property, Dar Al-Furqan, Amman, Jordan, p. 167.

(16) Dr. Ahmed Hassan Omar, previous source, p. 3.

(17) Dr. Salah Zainuddin, previous source, p. 168.

(18) Dr. Ahmed Hassan Omar, previous source, p. 3.

It is evident from the above that artificial intelligence methods play a crucial role in deciding the eligibility for legal safeguarding of intellectual property, encompassing patents, literary and artistic works, and designs. Nonetheless, there remains a query about the feasibility of imposing legal responsibility through artificial intelligence in cases where intellectual property rules and regulations are breached. (19) Granting artificial intelligence machines an independent electronic legal personality that bears all consequences for their mistakes is not feasible, as it is dependent on the level of perception and awareness that these machines possess. Despite their high level of intelligence and proximity to human intelligence, they lack human awareness and cannot be held accountable for their actions. (20) Therefore, the issue of legal liability is not solely related to artificial intelligence, but also to awareness and consciousness. In conclusion, the personal responsibility of artificial intelligence machines cannot be established even if they commit actions that violate the provisions of intellectual property.

#### **4.1.3 The impact of economic developments on intellectual property**

The protection of intellectual property rights is crucial for promoting economic and social development, as it is a form of property that is distinct from physical property but holds similar value. While the right to physical property involves ownership of a tangible object, the right to intellectual property refers to the ownership of intangible creations that hold material value. It is important for governments to protect all forms of property (21), including intellectual property, as it provides an incentive for individuals to innovate and create, which ultimately supports the growth and development of society as a whole.

Intellectual property has been recognized as important since the emergence of the industrial revolution in Europe during the 19th century, when many inventions were being discovered. This was a key factor in the establishment of the Paris Convention for the Protection of Industrial Property in 1883, which aimed to encourage innovation by providing provisions for industrial property rights (22). Similarly, literary intellectual property became important after the invention of the printing press and its widespread use, which posed a threat to the works of creators and authors. The Berne Agreement, established in 1971, was the first agreement to provide protection for literary works and set a minimum standard for legal provisions and principles. Subsequently, three more agreements were established to protect all forms of intellectual property, culminating in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which is the most recent one. It is crucial for the state to protect all forms of property, including intellectual property, as it motivates individuals to continue innovating and supports economic and social growth.(23)

The right to property is influenced by various factors, including economic progress. 24 When there is economic prosperity, individuals feel more secure in their ownership of both tangible and intangible assets. However, in an unstable or fragile economic environment, individuals may feel that their right to property is at risk of being unlawfully taken away.25 Similarly, the economic system in a country, whether it is liberal or socialist, influences the type of ownership that is recognized and protected. In a liberal system, individual ownership is the foundation, while in a socialist system, collective ownership

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(19) Dr. Haseeb Elias Hadid, *Intellectual Property in Today's World*, previous reference, p. 89.

(20) Dr. Muhammad Muhammad al-Qutb Massaad, *The Role of Intellectual Property Rules in Facing the Challenges of Artificial Intelligence - A Comparative Analytical Legal Study*, *Journal of Legal and Economic Research*, Faculty of Law - Mansoura University, 2021, pp. 1715-1716.

(21) Haifa Abdul Rahman Yassin Al-Tikriti, *The Mechanisms of Economic Globalization and Its Future Effects on the Arab Economy*, Dar Al-Hamid for Publishing and Distribution, Amman - Jordan, 2010, p. 84.

(22) Ahmed Abdel Wahhab, *Economic Damage Resulting from Infringement of Intellectual Property*, Egyptian Center for the Study of Public Policy, 2013, p. 3.

(23) Haifa Abdul Rahman Yassin Al-Tikriti, previous source, p. 84.

(24) Haifa Abdul Rahman Yassin Al-Tikriti, previous source, p. 87.

(25) Dr. Muhammad Muhammad al-Qutb Musaad, previous source, pg. 1715.

is promoted. In such a system, citizens rely on the state for their economic needs, and joint or collective ownership is emphasized.<sup>26</sup>

It is worth noting that banking transactions have a direct impact on the right to property, since when a customer entrusts their money to the bank, they are essentially transferring ownership of that money, which can be seen as an infringement on their ownership rights. Most of the funds deposited in banks are usually the customer's own capital, and banks engage in large-scale credit operations with only a small portion of the actual credit belonging to them. These banking activities, including electronic transfers, are conducted within the realm of intellectual property.

The digital economy places significant importance on intellectual property, as undisclosed data that has economic value may be considered a trade secret. Trade secrets have become a popular means of safeguarding such data in the digital economy, but the question arises as to whether they are sufficient in providing protection. Trade secrets do not represent an intellectual property right in the conventional sense. For instance, if a company shares its data with a subcontractor for a particular purpose, the subcontractor cannot use it for any other reason. Policymakers need to consider whether trade secrets are comprehensive enough to regulate all data protection issues that may arise in the digital economy.<sup>(27)</sup>

The significance of intellectual property in domestic and foreign investments is increasingly evident. Intellectual property is a key factor in promoting economic and social development. Countries are competing to provide a favorable political and legislative environment that stimulates investment. However, such a climate cannot be complete without robust protection of intellectual property rights. According to a study conducted by Price Waterhouse, intellectual property plays a crucial role in driving economic and social growth by attracting investment, creating job opportunities, increasing the state's tax revenues, and raising individual income levels.<sup>(28)</sup>

Intellectual property is a valuable intangible asset for businesses that can be used for financial gain. As a type of property, it can be sold or licensed, and every business may own some form of intellectual property. It is important for companies to preserve and manage their intellectual property rights as this can be the key to their success. There are different forms of intellectual property, some of which require a formal application and examination process before the right is registered, while others do not. Many studies and publications on the protection of intellectual property rights have indicated that the financial value of intellectual property accumulated from licenses and patents is a strong reason for protecting intellectual property rights. Numerous industries rely on applications for patents, trademarks, and copyrights, and consumers use intellectual property to ensure the purchase of safe and secure products. Intellectual property drives economic growth and enhances competitiveness, while protecting both consumers and producers.<sup>(29)</sup>

Intellectual property has become a significant component of the value of many large companies today. In fact, a study conducted in 2009 on companies from various industries in the United States revealed that intellectual capital, which includes patents, copyrights, information base, trademarks, and regulatory knowledge, constitutes 44 percent of the total market value of these companies. Therefore, companies with significant intellectual property assets are keen to protect their rights against infringement or theft. These companies prefer to do business in locations where they are assured that their intellectual property rights will be safeguarded.<sup>(30)</sup>

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<sup>(26)</sup> Mohamed Lafrouji, Moroccan Banking Law and Protection of Customers' Rights, a thesis for obtaining a doctorate in private law, Hassan II University, Ain Al-Shaq, Casablanca, 1996-1997, p. 33

<sup>27</sup> (Peter Yu, "Reconceptualizing Intellectual Property Interests in a Human Rights Framework", U.C. Davis Law Review, No. 40 (2007), p. 1051-1058; Johannes Morsink, The Universal Declaration of Human Rights: Origins, Drafting, and Intent (University of Pennsylvania Press, 1999), p. 222.

<sup>(28)</sup> Ahmed Abdel Wahhab, previous source, p. 14.

<sup>(29)</sup> Dr. Omar Mahjoub Al-Husseini, article published on the website: <https://omarmahjoubblog.blogspot.com>, date of visit 1/7/2022, time of visit 6:00 pm.

<sup>(30)</sup> Haifa Abdul Rahman Yassin Al-Tikriti, previous source, p. 87.



#### **4.1.4 The impact of genetic developments on intellectual property**

Genetic modification is a significant scientific advancement that involves transferring desired traits to a recipient organism by extracting specific genes from an organism with a desirable trait and linking them to the genes of another organism. (31) It holds promise for preventing diseases and providing treatments for millions of people worldwide. However, genetic modification also poses many dangers to human life. Genetic materials are crucial for achieving food security and public health and are linked to biodiversity. As a result, genes included in living resources are subject to processing through genetic engineering techniques, leading to the emergence of new products. The issue of granting a patent for modified genetic programs arises since these products have the potential for industrial applications and economic benefits, but may ignore traditional knowledge from which they were derived. (32) Therefore, it is apparent that intellectual property plays a role in the development of genetic materials, leading to a need for further discussion. First part will determinate the Intellectual property challenges in the era of genetic modification. The second part will state the reflection of genetic developments in the field of regulation and protection of intellectual property.

##### *4.1.4.1 Intellectual property challenges in the age of genetic modification*

. The era of genetic modification has witnessed a significant scientific advancement, and with some of these discoveries being patented under the Intellectual Property Law, they have encountered several challenges. Among the most notable areas that faced distinct challenges were human cloning and genetic modification of plants.

First: Intellectual property in the field of human genetic modification (human cloning):

Scientists have been debating the use of a new technology called CRISPR, which enables modification of human DNA, with the potential to eliminate disease-causing factors such as cancer. While this technology has yet to be widely implemented, it represents a significant challenge and has the potential to impact numerous areas. As such, it is important to anticipate its consequences.<sup>(33)</sup>

Regarding human cloning, it allows for the selection of certain biological traits based on the parents' preferences, which could lead to advancements in eugenics. However, reproductive cloning goes beyond modifying just one characteristic in humans and could allow for the modification of all genetic and physical traits, turning humans into products made according to someone else's desires and choices, disregarding the value and dignity of human life. Cloned individuals may face confusion and challenges in navigating social relationships<sup>(34)</sup>, or they may become objects used for certain purposes such as organ transplantation, which goes against the principles of human dignity<sup>(35)</sup>. Therefore, prohibiting human cloning in these circumstances is a reasonable step to safeguard human beings and maintain the ethical foundation of medical and biological research. International legislation has taken steps to regulate practices related to human cloning and prohibit them in some countries, including the United States. Some countries have signed treaties to prevent the use of human cloning for the purpose of creating "children on demand." France has passed a law (No. 498/2004) that was approved by the Constitutional Council, stating that the human body and its various stages of development, including the discovery of any of its elements, cannot be considered an invention eligible for a patent.<sup>(36)</sup>

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(31) Dr. Omar Mahjoub Al-Husseini, previous source, p. 3.

(32) Dr. Wassila Shabu, Intellectual Property Protection for the Uses of Genetic Resources, research published in the Journal of the Research Professor for Legal and Political Studies, No. 6, Algeria, 2021, p. 2175.

(33) Haifa Abdul Rahman Yassin Al-Tikriti, previous source, p. 89.

(34) Nazir Berni, Protecting Human Dignity in Light of Modern Medical Practices, PhD thesis, Faculty of Law and Political Science, Abu Bakr Belkaid University - Tlemcen, 2016, p. 28.

(35) Nazir Berni, the same source, p. 51.

(36) Shaima Mohamed Ibrahim, Constitutional Protection for Personal Freedoms - A Comparative Study, PhD thesis, Faculty of Law - Mansoura University, 2018, p. 95.

However, in response to European Directive No. 4 of 1998, which allows for exceptions in the field of living organisms, the French legislature permits the granting of patents only for technological applications that serve a function related to the elements of the human body. In other words, a discovery can only be protected by a patent if it is proven to be applied technologically for the benefit of mankind. The isolation of a gene using a technical method that is industrially applicable is the only way to obtain a patent, and a patent is not granted simply for identifying a gene.<sup>(37)</sup>

Article (17) of Law No. (800-2004) for the year 2004, in addition to Article 611-18 of the French Intellectual Property Law, states that patents cannot be granted for four types of methods: Firstly, methods for human cloning; Secondly, methods for modifying the genetic identity of human beings; Thirdly, using the human gene for industrial and commercial purposes; Fourthly, total and partial sequencing of genes taken as such.<sup>(38)</sup>

Many international agreements have addressed issues related to human cloning. However, these agreements not only pertain to the use of genetic material of human origin but also those of plant and animal origin, which will be discussed later. One such international legislation is the Convention on Biological Diversity, which mandates obtaining consent as a prerequisite for taking genetic material. Second: In the field of plant and animal genetic modification: Plant and animal genetic modification is the introduction of new genetic traits to a variety of plants using biological techniques to improve the quality of the agricultural product<sup>(39)</sup>

The modification of plants by adding genes from fast-growing plants to slow-growing ones is a method used to increase production and improve food security. This is a global effort undertaken by all nations to combat malnutrition, which is a challenge faced by many developing countries. The issue of intellectual property rights in agriculture is a complex one, especially in the context of developing nations, and must be addressed within a legal framework that goes beyond the current types of intellectual property rights. There is also significant pressure on developing nations within the World Trade Organization. It is important to ensure that intellectual property rights in agriculture respect food security rights, particularly in developing countries.<sup>(40)</sup>

The multinational companies insisted on subjecting the production of genetically modified plants to the patent system, according to what was stated in Article (27 F 3/4) of the TRIPS Agreement, “ as countries may be excluded from the possibility of obtaining patents, which states:” Plants and animals other than micro-organisms and mostly biological methods for the production of plants or animals other than non-biological and micro-biological methods and methods, however, Members shall grant protection to plant species either by means of patents or sui generis system or any combination thereof “ ...”<sup>(41)</sup> .

Genetically modified foods, created through genetic engineering, were initially introduced in the United States in 1994. The first product to hit the market was the "FlavrSavr" tomato, which was genetically modified to grow slower in a way that benefits both manufacturers and consumers. In 2012, the Food and Drug Administration (FDA) approved the first drug produced from genetically modified plants. This drug proved to be effective against Gaucher disease, which affects plants. The future of genetic modification in both the medical and agricultural fields appears to be promising. The agricultural sector particularly benefits from the genetic modification of plants and trees. Farmers can genetically modify crops to become more resistant to diseases and climate conditions, resulting in higher agricultural yields. Genetically modified varieties of crops are found to produce more than unmodified ones.<sup>(42)</sup> The benefits of genetic modification in the agricultural sector are numerous. For instance, it increases the

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<sup>(37)</sup> Dr. Wassila Shabu, previous source, p. 2179.

<sup>(38)</sup> Shaima Muhammad Ibrahim, previous source, p. 32.

<sup>(39)</sup> Dr. Ahmed Boukhni, The Effects of the Intellectual Property Protection System for Genetically Modified Organisms on the Genetic Resources of Countries, Al-Haqiqa Journal - Ahmed Deraya University - Adrar, Issue 41, p. 154.

<sup>(40)</sup> Dr. Wassila Shabu, previous source, p. 2181.

<sup>(41)</sup> Dr. Ahmed Bukhni, previous source, p. 161.

<sup>(42)</sup> Reem Saud Samawi, Patents in the Pharmaceutical Industries, House of Culture, Amman, 2008, p. 200.

general income of the farmer and has led to record profits for the agricultural industry, thereby significantly boosting the economy. However, non-traditional genetic or genetic modification products have sparked controversy and fears of potential risks to public health and the environment. This paper illuminates various techniques of genetic modification, the advantages gained from their application, as well as potential hazards that could jeopardize public health and biodiversity. The genetic modification of plants can potentially trigger certain illnesses in some individuals, which may be attributed to genes added from other organisms to the plants. Therefore, the World Health Organization cautions against incorporating any substance that may pose a health risk, unless it has been established that the gene taken from the substance does not impact human health.

We believe that genetic modification of plants presents numerous advantages, such as addressing food scarcity concerns. Millions of farmers globally have adopted genetic modification techniques to increase crop yields, leading to higher food production and exportation. Genetic modification is also used to cultivate crops with high nutritional value and has enormous medical potential through genetic engineering techniques that enable the design of plants capable of producing vaccines and other useful medical products. All these are achieved while prioritizing the safety and well-being of humans and complying with regulations set by the World Health Organization. Several Arab countries have enacted laws to safeguard plant breeds, including Egypt's Law No. 53 of 1966, Morocco's Law No. 994 of 1996, Tunisia's Law No. 42 of 1999, and Oman's Royal Decree No. 92 of 2000.

Animals have also been subjected to genetic modification techniques, which involve extracting desirable genetic material and traits from their organism and reintroducing them into their genetic makeup to enhance their characteristics. However, these techniques are not without risks, as there are potential ethical and health concerns associated with them. One of the ethical risks of genetic modification in animals is the increase in ethical problems related to animal care, which can arise at every stage of the application of genetic techniques to animals, from production to care and consumption. Violations have been observed, and the issue of genetic modification has come under scrutiny. Furthermore, despite the potential benefits of genetic modification in animals, there are negative health effects that can arise, such as the development of new harmful traits and diseases for which treatment is unknown. Animals may also become more susceptible to diseases that were previously easy to treat, in addition to their susceptibility to current pathogens.<sup>(43)</sup>

#### *4.1.4.2 Reflection of genetic developments in the field of organizing and protecting intellectual property*

Undoubtedly, genetic advancements have stirred up considerable debate, particularly with the scientific breakthroughs in human, animal, and plant genetic modification. Scientists in this field need to comprehend the fundamental principles of intellectual property law to safeguard their valuable ideas and protect them from unfair competition. At the same time, they need to exercise caution in their scientific discoveries to minimize the risks that could impact humanity if they have complete freedom in manipulating genetic material. Therefore, the question arises regarding international and local agreements that address this issue and determine which inventions deserve patent protection and which do not. And what is the role of intellectual property law in this field?

In fact, several essential principles govern intellectual property rights. Firstly, having a comprehensive strategy to protect private intellectual property rights is crucial. Secondly, the availability and scope of intellectual property rights may vary between the Arab world and the United States and European countries. Thirdly, most rights need to be registered to be enforceable. Fourthly, intellectual property rights must have clear and defined boundaries. Finally, intellectual property rights differ from one jurisdiction to another.

Medical experiments can be classified into two types based on their purpose: therapeutic and non-therapeutic experiments. The therapeutic experiment is designed to find the best way to treat a patient, and it is conducted with the primary goal of treating the patient, not to investigate the outcome of the experiment. On the other hand, the non-therapeutic experiment is carried out on healthy volunteers who

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<sup>(43)</sup> Hossam Al-Din Al-Zoubi, article published on the website: (( <https://mawdoo3.com>)) , date of visit 18/7/2022, time of visit: 10:00 am.

have a direct interest in participating in the experiment, or on sick individuals after obtaining their consent. In the field of biomedicine, these experiments involve applying medical theories and concepts to the human body, and their objective is to test the accuracy of these theories and ideas.<sup>44)</sup>

It is worth noting that non-therapeutic experiments, whether conducted on healthy volunteers or sick people who have no therapeutic interest in these experiments, may violate human dignity. This is because medical and biological actions inherently require compromising the integrity of the human body. However, tampering with the nature of human creation by altering and modifying genetic genes could have unimaginable negative consequences on the future of humanity. Therefore, international agreements should strive to strike a balance between encouraging scientific innovation and advancement within certain limits, without compromising human dignity and the integrity of the human body. Such agreements could help ensure that the pursuit of scientific knowledge and progress is conducted in an ethical and responsible manner.<sup>45)</sup>

Some Arab constitutions, notably the 2014 Egyptian constitution, have made it a priority to protect the right to physical safety from public authority abuses, including those committed by doctors. To this end, the constitution imposes strict requirements on physicians performing surgical operations, including obtaining the patient's free and informed consent, except in cases of emergency where surgery is necessary. With the advances in life sciences and biological engineering, the scope of threats to physical safety has expanded to include medical experiments conducted on fetuses, human bodies, and corpses (46). The Egyptian legislature recognized this and enacted Article 60, which criminalizes the assault, mutilation, or desecration of the human body and prohibits the trading of organs. Furthermore, any medical or scientific experiment on the human body requires free and documented consent and adherence to established medical standards and regulations. This article seeks to establish an individual's right to the inviolability and sanctity of their body and prohibits any medical or scientific experiment without their valid consent, which must be freely given without coercion.<sup>47)</sup>

The Egyptian constitution prohibits the trafficking of human organs and any medical or scientific experimentation without free consent. However, it also regulates the donation of tissues and organs. Article (61) states that organ donation is a gift for life and that individuals have the right to donate organs during their lifetime or after death, as long as they provide documented consent. The state is obligated to establish regulations governing organ donation and transplantation in accordance with the law. This approach aligns with the majority of national legislation around the world, which permits the use of body organs for research, scientific studies, and organ transplantation for patients. The Egyptian constitutional legislator took this into account.<sup>48)</sup>

The Iraqi Constitution of 2005 protects the right to bodily integrity, as outlined in Article (35 First / C), which prohibits all types of psychological and physical torture and inhumane treatment. Any confession obtained through coercion, threat, or torture is deemed invalid. Victims of such treatment have the right to seek compensation for the damage, whether material or moral, in accordance with the law. Additionally, Article (29/fourth) prohibits all forms of violence and abuse within the family, school, and society.<sup>49)</sup>

The Iraqi constitutional legislator did not go beyond the extent of guaranteeing the right to bodily integrity, and the constitution did not address the issue of prohibiting the trafficking of human organs,

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<sup>(44)</sup> Dr. Ahmed Salim Seifan, *Public Freedoms and Human Rights - A Comparative Historical, Philosophical, Political and Legal Study, Part Two: The Legal System for Public Freedoms in Comparative Law*, Al-Halabi Human Rights Publications, Beirut-Lebanon, 2010, pp. 45-50.

<sup>(45)</sup> Reem Saud Samawi, previous source, pp. (199-200).

<sup>(46)</sup> Dr. Ahmed Salim Seifan, previous source, p. 44.

<sup>(47)</sup> See: Article (60) of the Egyptian Constitution of 2014.

<sup>(48)</sup> Dr. Sami Jamal Al-Din, *Constitutional Law and Legitimacy According to the 2014 Constitution*, Horus International Foundation, 2015, p. 329.

<sup>(49)</sup> See articles (29/35) of the Iraqi constitution in force for the year 2005.

which should be reconsidered.<sup>50</sup> Additionally, the issue of balancing the freedom of scientific research and the right to bodily safety was not regulated in the Iraqi constitution. In contrast, the Egyptian Constitution of 2014 resolved this issue in Article (60), but did not address the balance between the right to health and the right to refuse medical or scientific experiments that may endanger one's health. Such imposition violates the fundamental principles on which a civilized society is based, as the safety of the human body is a socially and morally significant value that should be prioritized over scientific progress achieved through such experiments.

The issue of organ donation is also not addressed in the Iraqi constitution, unlike the Egyptian constitution which provides comprehensive protections for bodily integrity and organ donation. It is important for the Iraqi constitutional legislator to reconsider this and establish rules for allowing organ donation that do not harm the donor and prevent exploitation. These rules should also take into account the possibility of easing restrictions on organ donation after death. It is crucial to strike a balance between protecting the integrity of the body and allowing life-saving medical procedures that can benefit individuals and society as a whole.

Despite the interest of the Egyptian constitution in this issue, the competent authorities, led by the Ministry of Higher Education, the Ministry of Health, the Academy of Scientific Research and the Egyptian Dar Al Iftaa, in addition to representatives of Egyptian universities and research centers and institutes, prepared the main draft of the Clinical Medical Experiments Law, which includes eighteen articles that have not been implemented so far.

Medical experiments on the human body must be conducted with appropriate controls in place to protect human dignity and rights. One set of principles governing research and medical experiments on the human body is the Declaration of Helsinki, first issued by the World Medical Federation in 1964. These principles include 12 controls, such as the requirement that biomedical research on human cases must comply with accepted scientific principles based on extensive knowledge, and that an experimental protocol must be clearly formulated and reviewed by an independent committee before trials involving human cases are conducted.<sup>(51)</sup>

It is indeed surprising that the French constitution does not include any text related to biomedical ethics and the principle of respect for human dignity<sup>(52)</sup> especially considering the country's rich history in medical research and healthcare. The proposal to add a third paragraph to the text of Article 66 of the constitution that stipulates the principle of respect for human dignity seems to be a step in the right direction, given the importance of this principle in the field of medical ethics. It is unfortunate that the Council of Ministers objected to the draft amendment of the constitution on 3/11/1993, as this would have been an opportunity to modernize and strengthen the protection of human rights and dignity in France. However, it is important to note that even without a specific constitutional provision on biomedical ethics, France has enacted laws and regulations that govern medical and scientific experiments on the human body and protect the rights and dignity of individuals.<sup>(53)</sup>

French legislation on biomedical ethics was introduced in 1994 with a notable law, numbered 653, which placed emphasis on the importance of respecting the human body and provided legal protection for bodily integrity. The law centered around regulating the removal of tissues and cells from the human body. Article 5 of the law specifically prohibits the harvesting of tissues or cells from a living individual with full capacity without their consent, or from a living donor with insufficient capacity without following legal requirements. Additionally, Article 16 of the law forbids any transactions involving the human body in exchange for money in its first paragraph. In the seventh paragraph of the same article, it is also stated that any agreements regarding procreation or pregnancy for the benefit of others are null and void, whether or not they involve any consideration. Law No. (654) was issued in the same year,

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<sup>(50)</sup> Dr. Ahmed Fathi Sorour, *Constitutional Protection of Rights and Freedoms*, Dar Al-Shorouk, Cairo, 2000, p. 638.

<sup>(51)</sup> Sinan Fadel Abdul-Jabbar, *The Right to Human Dignity, Its Guarantees and Protection*, Master Thesis, College of Law - University of Baghdad, 2016, p. 104.

<sup>(52)</sup> See Article (66) of the French Constitution of 1958.

<sup>(53)</sup> Ahmed Salim Seifan, previous source, pp. (45-50).

which specifically focused on regulating the removal and transplantation of human organs. Therefore, French law has categorized the disposal of human body components into two categories: the first, which includes tissues and cells, was regulated by Law No. 653, while the second category, which includes human organs, was regulated by Law No. 654. These two laws were later amended by Law No. (800) of 2004, which criminalizes human cloning for reproductive purposes and adds it to the list of crimes against humanity specified in the French Penal Code of 1994 in its first chapter. It is worth noting that the French Civil Code has been at the forefront of confronting the enormous scientific progress made in the field of biomedical sciences. It has established controls that govern medical and scientific activities in this field, while organizing all behaviors that respond to the human body and its role in preserving human dignity and protecting the individual's right to life and the safety of their body.<sup>(54)</sup>

Several important international conferences have been held to address the protection of humans from the potential dangers associated with technological and scientific advancements in the medical field. Among these conferences was the International Conference on Human Rights, held in Tehran in April-May of 1968. The conference was organized in accordance with United Nations General Assembly Resolution No. (2081) of 1965 and resulted in the adoption of several recommendations aimed at safeguarding human rights. Notably, Article Eleven of the conference's recommendations emphasized the importance of protecting individuals from the potential risks associated with scientific progress in the medical field. It stressed the need to uphold human dignity, maintain the physical and mental integrity of individuals, and prevent any harm caused by the rapid developments and progress in the field of biology.<sup>(55)</sup>

The Fourteenth International Conference on Penal Law, which was held in Vienna in October 1989, also recommended that the second part of it, under the title "Penal Code Confronting Modern Medical Methods", dealt with the need to protect the physical integrity of the person who is the subject of scientific experiments<sup>(56)</sup> In 1997, a symposium was organized by the Islamic Organization for Medical Sciences in Casablanca, Morocco to address the issue of human cloning. The outcome of the symposium was a recommendation to prohibit human cloning and to urge member state governments to enact legislation to prevent the use of Islamic countries as a testing ground for human cloning experiments. While there is controversy surrounding reproductive cloning, there is also debate about the use of cloning for therapeutic purposes. The United Nations, in a non-binding declaration in 2005, called for a ban on all forms of human cloning, including therapeutic cloning.<sup>(57)</sup>

## **5 Overcoming contemporary challenges in regulating and protecting intellectual property**

The interdisciplinary approach is to transcend different disciplines or fields and integrate disparate ideas into coherent ideas that work in unison to achieve a common goal. Part of the solution may lie in training scientists to think broadly early on. This allows interdisciplinary collaboration in postgraduate research that leads to the development of ideas and the realization of a mixture of characteristics from different disciplines. The use of collaborative research is crucial in addressing individual differences among students and in developing essential skills such as critical thinking and communication. It also stimulates a passion for learning and encourages innovative solutions while providing diverse perspectives. However, there are important ethical considerations to be addressed in collaborative scientific research, especially in the face of modern challenges and technological advancements. A

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<sup>(54)</sup> Dr. Fawaz Saleh, *Law and Human Cloning*, Encyclopedia of Arabia Book Series, Damascus, 2005, p. 170.

<sup>(55)</sup> Bin Al-Nawy Khaled, *International conventions and conferences organizing medical experiments on humans*, Journal of Ijtihad for Law and Economic Studies, University Center of Tamangset - Algeria, 2015, pp. 250-253.

<sup>(56)</sup> Same source, p. 254.

<sup>(57)</sup> Sinan Fadel Abdel-Jabbar, previous source, pg. 97.

balance must be achieved between freedom in scientific research and the protection of human, animal, and plant bodies from harmful effects resulting from research and experimentation. Furthermore, public policies must play a crucial role in establishing boundaries and guidelines to regulate intellectual property protection, including the signing of international agreements and treaties involving many countries. Such policies are essential in protecting intellectual property and promoting ethical standards in scientific research. Therefore, this topic will be divided into two sections to address these objectives and they are as follows:

- The first objective: the role of ethics in containing contemporary challenges to the regulation and protection of intellectual property.
- The second objective: the role of unified public policy in organizing and protecting intellectual property.

### **5.1 The role of ethics in containing contemporary challenges to the regulation and protection of intellectual property**

The concept of intellectual property has become integral to the emergence and growth of any company in a particular field of work. Protecting the unique and creative products that are being developed, whether by a company, group, or individual, is a practical and scientific necessity.<sup>58</sup> Such protection is closely linked to the application and observance of ethical principles in scientific research. This refers to the implementation of ethical rules and codes of professional conduct throughout the process of researching, analyzing, and reporting on research topics, with due consideration for people's privacy, confidentiality, and consent. In the past, researchers sometimes displayed arrogance in their pursuit of truth, which necessitated official codes of conduct to correct such behavior and emphasize ethical research procedures. These rules and regulations are commonly referred to as "research ethics"<sup>(59)</sup>

Therefore, the importance of ethical considerations in scientific and educational research cannot be overstated, as they are integral to achieving the goals that benefit and uplift societies. In today's world, scientific research is an indispensable means of improving management and planning across all aspects of life, leading to success and increased efficiency. It is the path to building civilizations, and all nations that have made significant progress in technology and science understand that professional credibility is the cornerstone of science, as it ensures that the right practices are followed for the betterment of society. Different disciplines, institutions, and professions have developed specific ethical standards of behavior to achieve their goals and objectives, which help members coordinate their actions and activities and gain the trust of the people they serve. These ethical standards are just as important as those governing conduct in medicine, law, engineering, and business. Therefore, adapting to the available resources in the environment and adhering to ethical principles is crucial for societal progress and advancement. Ethical standards also serve the goals and objectives of research and apply to persons who carry out scientific research or other scholarly or creative activities<sup>(60)</sup>

Among the most prominent ethical principles that govern scientific research in the field of organizing and protecting intellectual property rights, whose limits must be adhered to, are:

Scientific humility is one of the most important ethics of scientific and educational research, and it is a characteristic of great scientists, so researchers should be humble and accept criticism from others.

Scientific honesty and respect for the intellectual property of publishers and authors are at the forefront of the ethics of scientific and educational research, so opinions must be attributed to their authors with full transparency.

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<sup>(58)</sup> Scheherazade Bennani, Scientific honesty between moral entrenchment and intellectual property rights, research published in the Journal of the University Center, Tissemsilt, Algeria, Volume IV, Issue 1, 2020, p. 22.

<sup>(59)</sup> Lina Al-Rajabi, article published on the website: <https://mawdoo3.com>, date of visit 4/8/2022, time of visit 10:00 am.

<sup>(60)</sup> Scheherazade Banani, previous source, p. 23.

Avoiding being emotional when carrying out scientific research steps, especially those related to dealing with the people in question, as this leads to a negative impact on the entire research.

The researcher or student must be objective and fair in the study presented, and discuss the opponents with proofs and logical evidence. In order to get to the facts.

Among the ethics that govern scientific and educational research is the obligation to fulfill promises. If a scientific researcher makes a promise, they must ensure that they fulfill it. If, for reasons beyond their control, they are unable to fulfill their promise, they must provide a clear explanation to the relevant individuals.

Interest in increasing information and data, in order to obtain accurate results that enrich the field of scientific research, and thus benefit others.

One of the most prominent ethics of scientific and educational research is patience, given the dangers and hardships that the scientific researcher may be exposed to in order to reach knowledge and facts.

Not to ask questions related to the private secrets of the persons in question, or that make them feel psychological pain or defeat.

It is important for the researcher to introduce the research subjects to the ideas of the research to be implemented, and how important this is from a societal point of view, and this contributes to motivating them and obtaining the information and data that the researcher desires.

Integrity is a crucial component of the ethics of scientific and educational research, which must be reflected in the statements and plans developed by the researcher, as well as in their data collection processes in the field.

The scientific researcher, in the case of criticizing previous studies or research, must be very polite, and in a manner that indicates high values.

Maintaining the confidentiality of information pertaining to the subjects of research is crucial and a fundamental aspect of the ethics of scientific and educational research. It is the responsibility of the researcher to uphold this confidentiality and not disclose any confidential information or identities of the individuals involved.

The scientific researcher must obtain approvals from the persons in question before collecting information and data.

In the event that a person in question requests not to participate in the scientific research, the student or researcher must respond to his request.

One of the ethics of scientific and educational research is to preserve the integrity of the external environment, in accordance with the laws in force in this regard.

These principles form the cornerstone of the scientific researcher's conduct, regardless of their field of expertise. One illustrative example is the Federal Court of Cassation's ruling (No. 1919/2019/The Appellate Body, T: 1871/1872), which stated that <sup>(61)</sup>: "...based on the facts and evidence presented, the defendant, when working on his master's thesis submitted to the Islamic University of Lebanon on November 28, 2017, entitled "The Role of the International Lawyer in International Humanitarian Issues," had taken 33% of the plaintiff's master's thesis, which was defended at the University of Kufa on February 29, 2016, titled "The International Lawyer and His Role in the Development of International Humanitarian Law". The defendant was therefore required to compensate the plaintiff in accordance with Article 44 of the amended Copyright Law No. 3 of 1971."<sup>62</sup>

One recent example of ethical violations in medical research is the case of three senior doctors at the Freeroyal Hospital in London, led by Professor Wakefield, who conducted research on a group of children without obtaining parental consent. The research aimed to develop a combination vaccine for the treatment of measles, mumps, and German fever, but the doctors concluded that this vaccine caused side effects, including autism. Professor Wakefield then recommended the use of each component of the vaccine separately to avoid side effects. However, he later presented another combined vaccine, claiming that it had no side effects like the previous one. This case represents a clear violation of ethical principles

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<sup>61</sup> See: Abdul Qadir Al-Sheikhly, *Rules of Scientific Research - Formal and Objective Aspects*, Dar Al-Thaqafa, 2nd edition, Amman, 2010, pp. (152-154).

<sup>(62)</sup> Court of Cassation decision No. (1919/2019/ Appellate Body, T: 1871/1872).



and standards in scientific research. The results of this research were published in the English magazine "Lancet" in 1998. In 2004, TIMES SUNDAY newspaper published an article by journalist Brian Deer in which he mentioned the details of this research, and published an article in 2009 confirming that Professor Wakefield did not obtain written consent from the parents of the children to conduct the research on them. The British Medical Council conducted a trial of Wakefield and his colleagues, which was broadcast by the Broadcasting Corporation on May 29, 2010. The council concluded that Professor Wakefield and his colleagues acted unethically and dishonestly by conducting their experiments without obtaining approval from the hospital's Scientific Research Ethics Committee. <sup>(63)</sup>

From the above, it is clear that the creator or inventor should have ownership rights over their creation or innovation. However, intellectual property rights have certain differences from other types of property rights since they are not typically linked to a tangible object (rather, they concern the innovative expression of an idea) and are based on the intellectual creativity behind the creation <sup>(64)</sup>. For instance, even though artists may sell their creations (e.g. books or paintings), they still retain their copyright over those artistic works (such as the right to sell reproductions of the artwork to others). Similarly, the purchase of a patented innovative product (like a new type of mobile phone) does not give the buyer the right to produce and resell those products. Additionally, the rights given to creators under established intellectual property systems are generally restricted in time and geography.

If someone violates intellectual property rights, such as by publishing books, using a patent or using a mark without proper authorization, the owner of the rights can take legal action against the infringer. <sup>(65)</sup> This is known as enforcing intellectual property rights, and involves filing a lawsuit against the violator. If the lawsuit is successful, the infringer may be required to stop their violation and may have to pay compensation.

## **5.2 The role of unified public policy in organizing and protecting intellectual property**

The protection of intellectual property serves two important purposes: to reward creators by granting them a limited monopoly on the use of their creations, and to ensure their recognition as creators, which in turn encourages creativity and innovation and contributes to the economic and social development of society as a whole. Intellectual property rights are typically granted to individuals or companies that own the creative work, and these rights may be sold or transferred to others. Once these rights expire, the creations become part of the public domain and can be used, copied, and distributed freely. Although there is no international agreement that protects all types of intellectual property rights worldwide, individual countries establish their own laws and regulations to protect intellectual property such as copyrights, trademarks, industrial designs, patents, and other forms of intellectual property. While these rights are usually limited to the countries or regions where they are granted, there are some international agreements that set minimum standards for national laws and regulate certain aspects of intellectual property rights across borders. As a result, much of the generally accepted intellectual property law has been harmonized at the domestic level of countries.

WIPO has established various committees and decision-making bodies to address the challenges it faces. Through negotiations and the creation of new regulations, WIPO aims to ensure that intellectual property is aligned with the latest advancements in technology and encourages innovation and creativity. The ultimate goal is to unify legal regulations for the protection of intellectual property. <sup>(66)</sup> Therefore, countries have entrusted the establishment of intellectual property rules and regulations to WIPO, which creates an effective system capable of stimulating creativity within the boundaries of clear laws and public policy. <sup>(67)</sup>

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<sup>(63)</sup> Quoted from: Sinan Fadel Abdul-Jabbar, previous source, p. 110.

<sup>(64)</sup> WIPO Intellectual Property Handbook, p.3.

<sup>(65)</sup> Reem Saud Samawi, previous source, pp. (198-200).

<sup>(66)</sup> WIPO Intellectual Property Handbook, p.46.

<sup>(67)</sup> <http://www.forumsec.org.fj/resources/uploads/attachments/documents/PacificModelLaw,ProtectionofTKandExprssnssofCulture20021.pdf>

In 1893, the establishment of the United International Offices for the Protection of Intellectual Property marked the beginning of international treaties and agreements. Later on, the World Intellectual Property Organization (WIPO) was established through an international agreement signed in Stockholm in 1967, which came into force in 1970 and was amended in 1979. Today, WIPO has 188 member states and is a specialized agency of the United Nations. The organization has established governing bodies, which serve as the highest decision-making authority within WIPO.

In order to face the challenges that confronted ownership, countries tended to conclude many agreements with the aim of unifying policy in protecting and regulating intellectual property in various fields.

<https://www.wikiwand.com/ar/%D8%A8%D8%A7%D8%B1%D9%8A%D8%B3https://www.wikiwand.com/ar/1979https://www.wikiwand.com/ar/1979> <sup>68</sup>First: The Berne Convention for the Protection of Literary and Artistic Works: This agreement was signed in the Swiss city of Berne on (9/9/1886), which was amended in various conferences and discussions, and the last version that was approved was in Paris, September 28, 1979, According to the statistics of the World Intellectual Property Organization (WIPO) for the year 2003, this agreement includes in its membership (149) countries, including (17) Arab countries (Sultanate of Oman, Qatar, Somalia, Palestine, Sudan, United Arab Emirates, Jordan, Tunisia, Algeria, Lebanon, Bahrain, Libya, Egypt, Morocco, Mauritania, Djibouti)

Copyright covers a wide range of works, including works of art, photographs, films, and music. To be subject to copyright, these creative works cannot be mere ideas - they must be expressions of those ideas, recorded on audiotape, on paper, or in some other specific format. Copyright includes individual works that have not been previously published as well as works created for wide information purposes.

Obtaining registration is not necessary for obtaining copyright protection over a work, although in some countries, it may be required to seek compensation for infringement. The rights of the author extend from the moment of creation until at least 50 years have passed since the author's death, and because of several international agreements, countries usually grant the same copyright protection to works created in their jurisdiction or in other countries. Copyright law also protects the "moral rights" of authors to a certain extent. The Berne Convention requires member countries to authorize the authors to claim the attribution of the work to them and to object to any distortion, mutilation or any other modification of this work or any other infringement of the work that is harmful to its honor or reputation <sup>(69)</sup>

Second: The Agreement on the International Registration of Audiovisual Works: This agreement was signed on April 18, 1989. The number of its members is 13 countries, and none of the Arab countries (except Egypt) that signed it did not join it. Its executive regulations were issued on 20/2/1992.<sup>(70)</sup>

Under international conventions and national laws, the producers of audio and audiovisual recordings play a crucial role in disseminating artistic works to the public. These producers, also known as producers of phonograms and producers of videograms, record the works on various materials, and their rights are recognized under copyright-related laws and agreements. However, the issue that needs to be addressed is the scope and boundaries of these rights and how they can be utilized, whether by compensating the rights holders or without their consent. <sup>(71)</sup>

<sup>72</sup> Third: The Geneva Convention for the Protection of Record Producers Against Illicit Copying: This agreement was signed in Geneva on October 29, 1970. The number of

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<sup>(68)</sup> Website: (( <https://www.wikiwand.com/ar/7> )) , date of visit 8/8/2022, at 10:00 am.

<sup>(69)</sup> WIPO Intellectual Property Handbook, p46.

<sup>(70)</sup> Website: (( <https://www.wipo.int/treaties/al> )) , date of visit 8/8/2022, at 10:45 am.

<sup>(71)</sup> Samira Abdel-Lali, The rights of producers of audio and audiovisual recordings and how to exploit them, research published in the Journal of Legal and Social Sciences, Issue Six, 2021, p. 774.

<sup>(72)</sup> Website: [https://www.wipo.int/treaties/ar/ip/phonograms/summary\\_phonograms.htm](https://www.wipo.int/treaties/ar/ip/phonograms/summary_phonograms.htm), date of visit 9/8/2022, at 11:30 am.

countries joining it is (57), and of the Arab countries, only Egypt joined it, according to the November 1999 census of the World Intellectual Property Organization.

The Agreement requires each Contracting State to protect any producer of phonograms who is a national of another Contracting State by preventing the unauthorized making, importing, and distributing of copies to the public without their consent. The term "phonogram" refers to any purely audio fixation, regardless of its format. Protection can be granted under various legal frameworks, such as copyright law, related rights law, unfair competition law, or criminal law. The protection for phonograms under this agreement is required to be effective for a minimum of 20 years from the date of first fixation or first publication, and it allows for the same limitations as those provided for the protection of authors. The convention also permits involuntary licenses if the purpose of duplication is limited to educational or scientific research purposes and is limited to the territory of the country that granted the license, provided that a fair compensation is provided. <sup>(73)</sup>

**Fourth: The Agreement for the Distribution of Signals Carrying Programs Through Satellites:** This agreement was signed in Brussels, Belgium in 1974, and the number of countries joining it until November 1999 reached 20, including only one Arab country, Egypt.

The Brussels Convention, also known as Satellites, requires Contracting States to take necessary measures to prevent the unauthorized distribution of signals transmitting programs through satellites in or from their territories. Permission to distribute is only granted by the organization that determines the program's content, typically the broadcasting organization. This obligation applies to organizations that hold the nationality of any of the contracting countries. The agreement permits certain restrictions on protection, allowing unauthorized individuals to distribute program-carrying signals if the signals contain short excerpts of the program being transmitted. <sup>(74)</sup> In developing countries, the agreement allows for the distribution of program-carrying signals solely for educational purposes, including adult education or scientific research, without specifying a period of protection. The Convention does not apply if the signals are transmitted through a direct broadcasting satellite. <sup>(75)</sup>

After reviewing these agreements, it was found that they had greatly influenced the legislation of Arab countries in the field of intellectual property. These agreements concluded different positions between these legislations <sup>(76)</sup> :

- **Egypt:** Egypt has ratified and acceded to many international conventions and treaties for the protection of intellectual property. The country's first legislation in this field was enacted in 1939, with Law No. 57 safeguarding trademarks and commercial data, followed by Law No. 132 of 1949 which protects patents and industrial designs, and Law No. 354 of 1954 that protects copyrights and authors. The most recent law on intellectual property protection in Egypt is the Intellectual Property Protection Law No. 82 of 2002.
- **Iraq:** Iraq issued Copyright Protection Law No. 3 of 1971.
- **Kingdom of Saudi Arabia:** The Kingdom is considered one of the most Arab countries in support of creativity and creators and protection of their rights, as the Saudi Authority for Property was organized, It also joined the World Intellectual Property Organization in 1982, and agreed to the Paris Convention for the Protection of Industrial Property and the Berne Convention for the Protection of Literary and Artistic Works in 2004.

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<sup>(73)</sup> See Article (6) of the Geneva Convention on the Protection of Producers of Phonograms Against Reproduction of Their Phonograms Without Authorization (amended in 1971).

<sup>(74)</sup> See Article (2) of the Brussels Convention relating to the distribution of signals carrying programs transmitted via satellite (1974).

<sup>(75)</sup> See articles (1-6) of the Brussels Convention relating to the distribution of signals carrying programs transmitted via satellite (1974).

<sup>(76)</sup> Ahmed Hossam Taha, Crimes arising from the use of computers, previous reference, p. 68.

- **Syria:** Syria is one of the countries that greatly support intellectual property. Law No. 8 of 2007 was issued to protect intellectual and industrial property. It contained many articles and chapters, and the state was keen to clarify the rights and the penalties for violators.
- **Jordan:** Jordan was keen to protect intellectual property by issuing many laws such as copyright law, trademark law, patent law, and commercial designs law. In addition, the Jordanian Association for Intellectual Property was established.

These agreements aim to establish a fair balance between the interests of creators and innovators, and to create an environment that fosters prosperity and innovation by providing adequate protection for intellectual property against any infringement. They achieve this by unifying and strengthening the national laws of member states. Such agreements provide benefits and legal stability to all international communities and help achieve a desirable balance between encouraging scientific research and protecting the rights of intellectual property owners.

## **6 Conclusion**

The completion of our research project, titled "The Impact of Contemporary Challenges in Regulating and Protecting Intellectual Property," has yielded significant insights and recommendations. Through our analysis, we have observed the profound influence of technological developments on the landscape of intellectual property protection. These advancements have expanded the purview of international agreements, treaties, and local legislation, all aimed at achieving optimal levels of safeguarding for creative works, patents, and intellectual assets. In particular, the overarching objective has been to strike a delicate balance between promoting and facilitating scientific research while ensuring the safety and well-being of the natural world, including humans, animals, and plants. At the core of intellectual property lies the fundamental principle that creations, being the handiwork of a higher power, possess an inherent inviolability that cannot be tampered with. This principle serves as the bedrock upon which intellectual property rights, patents, and personal works are built. It underscores the importance of protecting and upholding the rights of creators, providing them with the necessary legal framework to safeguard their intellectual contributions.

Importantly, the acquisition of intellectual holdings and scientific innovations does not grant the purchaser the right to reproduce or commercialize these products. Such actions would constitute scientific theft, as they disregard the ethical boundaries associated with intellectual property. The notion of scientific theft serves as a reminder of the ethical responsibilities and obligations that accompany the pursuit of knowledge and innovation. To mitigate potential risks arising from scientific research innovations, countries around the world have actively engaged in the establishment of international agreements. These agreements serve as a means to regulate and set certain limits on the seemingly boundless realm of scientific exploration. By committing to these agreements, member states demonstrate their collective resolve to prioritize the welfare and safety of humanity, while still fostering a conducive environment for scientific progress.

Looking forward, it is imperative for all nations to accord significant consideration to the protection of intellectual property rights. The scope of this issue extends beyond the realm of intellectual works, encompassing a complex array of legal, ethical, and societal dimensions. Recognizing the ongoing advancements in science and technology, there is a growing realization of the need to amend existing laws to effectively address emerging challenges. These amendments should not only focus on limiting forms of infringement but also strive to curtail the exploitation of intellectual works. The introduction of digital updates and technological safeguards can play a crucial role in preventing unauthorized exploitation, ensuring the integrity and rightful use of intellectual assets.

In conclusion, the safeguarding of intellectual property rights necessitates a comprehensive and multidimensional approach. It requires a careful balance between technological progress, legal

frameworks, and ethical considerations. By upholding and revising existing laws, societies can create an environment that fosters innovation while simultaneously respecting the rights and integrity of intellectual creations. This endeavor serves to protect and nurture the invaluable contributions of creators and reinforces the ethical foundation upon which intellectual property rests.

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