



المعهد القومي للملكية الفكرية

The National Institute of Intellectual Property  
Helwan University, Egypt

## المجلة العلمية للملكية الفكرية وإدارة الابتكار

دورية نصف سنوية محكمة يصدرها

المعهد القومي للملكية الفكرية

جامعة حلوان

العدد الخامس

ديسمبر ٢٠٢٢



**الهدف من المجلة:**

تهدف المجلة العلمية للملكية الفكرية وإدارة الابتكار إلى نشر البحوث والدراسات النظرية والتطبيقية في مجال الملكية الفكرية بشقيها الصناعي والأدبي والفني وعلاقتها بإدارة الابتكار والتنمية المستدامة من كافة النواحي القانونية والاقتصادية والإدارية والعلمية والأدبية والفنية.

**ضوابط عامة:**

- تعبر كافة الدراسات والبحوث والمقالات عن رأى مؤلفيها ويأتي ترتيبها بالمجلة وفقاً لإعتبارات فنية لا علاقة لها بالقيمة العلمية لأى منها.
- تنشر المقالات غير المحكمة (أوراق العمل) فى زاوية خاصة في المجلة.
- تنشر المجلة مراجعات وعروض الكتب الجديدة والدوريات.
- تنشر المجلة التقارير والبحوث والدراسات الملقاه في مؤتمرات ومنتديات علمية والنشاطات الأكاديمية في مجال تخصصها دونما تحكيم في أعداد خاصة من المجلة.
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- تصدر المجلة محكمة ودورية نصف سنوية.

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- تقبل المجلة كافة البحوث والدراسات التطبيقية والأكاديمية في مجال حقوق الملكية الفكرية بكافة جوانبها القانونية والتقنية والاقتصادية والإدارية والاجتماعية والثقافية والفنية.
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### المراسلات

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ص.ب: ١١٤٦١ جاردن سيتي

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**The Impact of IPR in protecting And Enhancing Digital  
Economy  
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## The Impact of IPR in protecting And Enhancing Digital Economy

Muhammed Mahmoud Selwawy Mansy

### Abstract:

In the online world, Intellectual property law is designed to protect the legitimate rights of those who produce original works and thus provide incentives for that work. Intellectual property is protected through laws on copyright, patents and trademarks. In most cases, the impact of loss on the internet is greater because internet is borderless and infringing materials can travel across different geographical regions within few seconds. Detecting infringement of Intellectual Property Rights is fairly a complex task. Both online as well as offline world.

The rapid growth of the digital economy, enabled by broadband penetration, and coupled with increases in computing power and storage, creates global markets for content and rights holders. But it also creates a threat that — without adequate controls — piracy will damage the creative industries. The discussion paper on which this article is based, “Intellectual property rights in today’s digital economy”, therefore focuses in particular on the ways that the growing digital economy is impinging on copyright.

There are a number of major challenges facing us as to how we may protect intellectual property in the expression of ideas and information in an electronic world as compared with the traditional expression of those ideas by material means. In the Information Technology Age, the

protection of Intellectual Property Rights (IPR) requires even greater attention and dedicated strategy for its protection. On the internet, protection of intellectual property has an important bearing on the growth of e-commerce.

It may be easy to detect infringement of intellectual property rights on the internet, but effective law enforcement poses a challenge while combating infringements of intellectual property rights in digital space. As we know, with the growth of information technology age internet is used for transacting business. When more activities start to happen on internet, offences are bound to occur in the internet. For this suitable legislation needs to be drafted in order to curb the offences on the internet. A multi-prolonged approach is needed to encompass technical, social and legal measures will be required to adequately protect intellectual property rights in cyberspace.

### ***Keywords***

Intellectual property rights - digital economy - Protection - digitalization

### **Introduction**

Intellectual property is a key concern in the quest for growth, development competitiveness. Advancement in knowledge is considered a key driver of economic prosperity nowadays and in the future. The ongoing revolution in the field of information and communication technology has reduced the cost of creating, processing and

transmitting knowledge on all levels; nationally region ally and worldwide. The ongoing rapid development in the field of information and communication technology has imposed new challenges for IP regimes and policymaking.

To be competitive in the globalized economy countries has to create, adapt and maintain institutional and legal framework incentive to the creation of knowledge its commercialization and protection. Intellectual property rights have a key role to play in this regard.

At the same time, both the innovation process itself. And the production activities of companies are globalizing very fast. This raises challenges in terms of managing, protecting and enforcing intellectual property rights across borders.

Countries with economies in transition face additional challenges to integrate into the increasingly global production network and find their own niche in the increasingly global value chains. To be successful, they need to assign high priority to developing their own innovative capacities, as well as their ability to absorb and adopt technological innovations from abroad and move up the value chain over time. Again IP regimes have a key role to play in this regard. Well-designed intellectual property system gives temporary exclusive rights to inventors and thereby they can exploit their exclusive rights by selling or assigning them to others.

Such monopoly granted by the country where the creation occurred, has to be enforced by the IPRs' owners,

who have the burden of policing the infringement on every territory on the limits of jurisdictional reach of laws and regulatory actions of countries. In addition, the digitalization of works such as music and movies has a tremendous impact on those industries when technology switched from analog to digital, with global reach of illegal distribution.

### **Research problem:**

The ultimate aim of the intellectual property law is to encourage innovation and creativity, through providing time-limited protection to those monopolistic rights, which in its turn contribute to enhance economic development especially in developing countries.

The underlying question of this paper is whether traditional types of protection sufficient in the age of digitization or more elaborated types of protection are increasingly required. The research problem has in finding a proper technological method of protecting IPRs especially digital from piracy, imitation illegal copying or unauthorized usage. This research is trying to answer the following questions.

- 1- What is digital economy and what are its characteristics?
- 2- Is IPR protection important in enhancing digital economy?
- 3- Are IPR methods of protection sufficient to guarantee monopolistic rights in the digitalization era?

### **The purpose of the research:**

This research tries to achieve the following objectives:

- Identifying intellectual property and stating its importance in economy growth.
- Identifying digital economy and the role IPRs plays in its enhancement.
- Discussing the convenience of IPR protection to digital economy.

### **The significance of the research:**

The significance of the research is twofold:

#### **Theoretically:**

Digitalization is affecting all aspects of life globally. Consequently it has significant effect an economy which requires amendments to IP laws and modification to adopted IP policy.

#### **Practically:**

Discussing traditional IP protection methods and modification required to cope with digitalization.

### **Intellectual property rights, definition, types, and importance what are intellectual property rights**

Intellectual property rights are exclusive loyal right granted by the competent authorities for intellectual activity and production in industrial, scientific, literary and

artiste fields. These monopoly rights safeguard creators and other producers of intellectual goods and services by granting them certain time-limited rights to control their use. Protected IPRs like other property can be sold, owned, licensed or bought intellectual property rights (IPRS) can be defined as the rights given to people over the creation of their minds. They usually give the creator an exclusive right over the use of their creations for a certain period of time.

The growth of the digital economy provides significant opportunities and access to new global markets but it also creates a risk. Illegal copying and distribution of copyright materials has had a hugely disruptive effect on a range of copyright industries including music, film, software, games and TV. As broadband coverage, capability and capacity increase there is a threat that without adequate controls the disruption will cause permanent, long-term damage to the creative industries. This issue alone is not enough to outweigh the value of providing access to the digital economy but it also can't be ignored. Providing adequate copyright protection will ensure the long term supply of quality commercial content and will provide protection to incentivize local creative sectors to develop and take advantage of access to the global economy.

Although technology and digital technology create new challenges for IPR, the underlying IPR frameworks remain the same. There are four main IPR areas:

- Patents – covering inventions of technical features or processes. They give exclusive rights, for a limited time (under the WTO a minimum of 20 years) for the owner to use or sell their invention.

- Trade Marks – cover distinctive or unique signs that are used to distinguish goods and services. They can be a word, logo, symbol, design, image, sound, colour or a combination of these. Trademark rights are typically maintained by use and maintenance of the registration.

- Design – covers the visual and physical appearance of products. Design rights extend beyond the purely utilitarian to cover the aesthetics. Like trademarks, they are maintained by use and registration.

- Copyright and related rights – which give automatic and exclusive rights to the author, or creator, of original work. Original work can cover writing, music, art, films, broadcasts, sound recordings and databases. These frameworks cover the range of IPR protection, from pharmaceutical to fashion goods, technology to the arts and everything in between.

The frameworks also have a strong international element to them to ensure the protection of rights internationally with the World Intellectual Property Organization (WIPO), World Trade Organization (WTO), the World Customs Organization (WCO), the World Health Organization (WHO), the International

Telecommunications Union (ITU), the Group of Twenty Finance Ministers and Central Bank Governors (G-20), the International Criminal Police Organization (INTERPOL), the Asia-Pacific Economic Cooperation (APEC) Forum, and the Organization for Economic Cooperation and Development (OECD) all active in the area of IPR policy and/or enforcement.

The nature of the digital economy and the nature of digital content create new challenges for the creative industries, law enforcement and regulators. The OECD 2009 report on digital piracy<sup>28</sup> highlighted the differences between digital and physical goods:

- The marginal cost of reproduction: Digital goods have an almost zero cost of reproduction. This, along with the fact that the quality of the copy is almost identical to the original and that copying is easy, are key features of digital products. Barriers to entry for digital piracy are low.

- Digital Delivery: Digital delivery is easy. There is limited storage cost, limited transport cost (if any) and little risk of the goods being intercepted like traditional counterfeit goods. Delivery via the internet or through local networks is easy and provides significant flexibility in the way the goods are delivered.

- Market Scope: Goods can be delivered instantaneously almost anywhere in the world. Traditional barriers do not constrain the distribution of digital goods,



they are solely constrained by the network availability and the capacity of the user's hardware to store the material.

- **Hardware Dependence:** The availability of hardware is a key difference from most physical goods. There is no hardware necessary to use a counterfeit handbag! With much greater prevalence of broadband devices and network capacity increasing globally, hardware availability will become less of a barrier for legitimate and illegitimate distribution of digital content.

- **Life Span:** The OECD highlights that consumer tastes for digital products appear to be shorter than for physical goods. However, once created digitisation extends the lifespan of digital products and extends their durability.

Digital markets offer significant potential to the creative industries. The very nature of digital products that makes them targets for piracy also creates opportunities for rights holders to exploit the value of their rights more widely, at lower cost and at greater scale. It is unquestionable that digital markets have been hugely disruptive to existing business models, but it remains open to question as to whether, in the long run, legal business models will be able to compete with illegal ones, ultimately to the benefit of the creative industry. For the digital economy the main IPR issues relate to copyright and copyright protection. However, patents and some elements of trademark protection also raise some interesting challenges for policy makers.

## Patents

Patents and patent protection are areas of significant focus within the ICT sector. Although patent law applies across all industries, it is particularly important within the technology sector where, not only is significant competitive advantage gained through research and development, but innovation and further market development are gained by leveraging these developments under license. The latest OECD patent statistics for 2007 show that nearly 40% of all patents globally are technology-related, with 80% of these being specifically ICT-related. A functioning and effective patent environment is therefore critical to ensure a vibrant, innovative, economy by encouraging invention, exploitation and sharing. In the technology sector some companies have evolved business models that are entirely based on inventing new technologies, patenting the invention and then licensing the rights without ever manufacturing goods.

Qualcomm, which has a market capitalization of \$96 billion, has a business model founded on creating and licensing IPR. As their corporate profile states, “The goal of their [Qualcomm’s] resulting business model is to rapidly develop innovations and license them as broadly as possible”<sup>23</sup>. The company’s valuation is the result of an estimated \$12 billion investment in research and development since its foundation in 1985. The value of patents was also recently demonstrated when Google agreed to place a ‘stalking horse’ bid for Nortel’s portfolio

of patents of \$900m only for them to lose to a \$4.5bn bid the 6000 patents by a consortium including Apple, RIM, Ericsson, Sony and Microsoft. However, this deal also raised one issue of increasing concern in the area of technology patents, that of patent ‘trolls’<sup>24</sup>. In commenting on the stalking horse bid Google stated, “The patent system should reward those who create the most useful innovations for society, not those who stake bogus claims or file dubious lawsuits”. It went on to state, “we hope this [Nortel’s] portfolio will not only create a disincentive for others to sue Google, but also help us, our partners and the open source community”. The Coalition for Patent Fairness<sup>25</sup> when commenting on the US 2009 Patent Reform Act stated reform is needed to protect “inventors and innovators from unjustified lawsuits and to allow them to continue to make products and services that will help the US economy grow”<sup>26</sup>. In May 2011, it was announced Microsoft had become a member of a crowdsourcing service designed to challenge and invalidate specious software patents and to avoid litigation costs.

The nature of the technology sector, which displays rapid innovation and incremental development, is driving a number of challenges. Administratively, the rapid growth in the volume of patent applications is placing administrative pressure on patent offices; more important though, it is resulting in patent ‘thickets’. These occur where interrelated and overlapping patents result in a lack of clarity of who owns the patent and, as a consequence where to go for the licence, which – in turn – potentially inhibits further innovation. A representation of the

smartphone ‘thicket’ is shown below. Patent thickets are not new. In the 1850s a patent thicket prevented Singer from launching his innovative new sewing machine<sup>27</sup>. After a period of claim and counterclaim the patent owners agreed to settle through a patent pool. Today, patent pools, technology standards and cross-licencing agreements are all attempts to navigate through the complexity of the patent jungle. This is not always successful and the technology sector has become increasingly litigious. Although litigation is not in itself an issue, it becomes a problem if this stifles innovation or acts as a barrier to new market entrants. ITU-T, in conjunction with the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) have been active in developing common patent policies.

These policies have been designed to ensure that patents used in technology standards encourage patent holders to share their intellectual property in the knowledge that their interests are protected by mitigating against some of the potential issues related to technology patents. Patents are critical to support new innovation and growth. Most stakeholders see the international patent registration, licensing and enforcement systems as effective. There are concerns that the exploitation of the system by a few patent trolls for financial gain (unrelated to creating and exploiting innovation) is adding unnecessary cost, and risk, to innovators.

## **Trademarks**

Trademark protection is not significantly impacted by the digital economy. Naturally new channels of distribution and marketing are opened up and there is a wider geographic scope for trademark use. This is true for legitimate and counterfeit use of trademarks but the fundamental issues and challenges of trademark protection remain the same.

Closely related to trademark protection is the effective management of a domain name registry. Having an effective dispute resolution mechanism in place to recover domain names is an area of increasing concern. The .com domain is globally the most popular with over 80 million registrations, while the Chinese .cn is second with 13 million names. However, the volume of national domain names is growing as a consequence of congestion in the .com domain.

In 2010, trademark holders filed 2,696 cybersquatting cases covering 4,370 domain names from 57 countries with the WIPO Arbitration and Mediation Centre, an increase of 28% over the 2009 level and 16% over the previous record year, 2008. Since 1999, 20,000 cases covering 35,000 domain names have been raised with 91% demonstrating evidence of cybersquatting. As the domain is the critical access point for brands to market and to sell their services globally, the ability to protect domain names and, where appropriate, recover them is an increasingly important aspect of IPR in the digital economy.

## **Copyright**

The nature of the digital economy and the nature of digital content create new challenges for the creative industries, law enforcement and regulators. The OECD 2009 report on digital piracy<sup>28</sup> highlighted the differences between digital and physical goods:

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This classification defines copyright industries in four groups:

- Core industries, which exist to create copyright materials,
- Dependent industries, which manufacture equipment that facilitate copyright activity,
- Partial industries, which don't create copyright but are dependent on copyright and
- Support industries, which distribute copyright materials.

The original intention of copyright was to encourage the development of new creative work. It was a system put in place to stimulate incentives for artistic production. Copyright is still a critical foundation for the core copyright, creative industries, and it is these industries that are most impacted by copyright infringement, in particular commercial scale piracy, with counterfeiting having a greater impact on the partial copyright industries. Frontier Economics 30 estimated the total value of all counterfeiting and piracy globally was between \$455bn and \$650bn in 2008, with digitally pirated goods estimated to be about ten per cent of the total value. In the digital economy, copyright continues to perform the critical function of encouraging new works but also has a wider impact, playing a significant role in fostering innovation; the impact of copyright is therefore now much wider than the creative industry alone. Digital technologies, the companies that exploit them, and the business models they facilitate are all potentially impacted by copyright. Finally, the Internet, coupled with access to broadband networks, has facilitated an explosion of creativity and content production by consumers. This tsunami of content, and the involvement of everyday consumers in the generation and publication of content, places new and different stresses on the existing copyright frameworks.

### **The role of IPRs in economic development:**

To achieve considerable ecumenical development, it is required to apply the correct Policy incentives. While tax, regulation and infrastructure. are all key, intellectual



property is particularly important to foster innovation and knowledge-based industries due to three distinct characteristics:

Knowledge-based industries compete by inventing next generation products and services rather than competing on price and commodification.

They are characterized by very high initial fixed costs (for example R & D and design), but relatively low marginal costs of production.

They embody and depend on intellectual property in order to justify risk investments in innovation

As such, intellectual property is increasingly essential as global trade becomes more about intangible products and services, based on research and development efforts, brands, and patented or licensed technology rather than about moving physical goods from their point of manufacture to consumer in different countries.

It is obvious that IP drives economic growth the IP system is a significant driver of competition and economic growth in modern, knowledge-based economic innovation is responsible for almost three quarters of the US. Growth rate after world war II.

Many stakeholders believe there are inefficiencies in licensing, concerns have been raised on the role and transparency of collecting societies, over overlapping

rights, delays in licensing and challenges in efficiently obtaining international rights. All of which inevitably increase uncertainty and costs, which potentially undermine the business case for new services. This also suggests there are structural issues in rights management that increase costs and inhibit innovation

in new services. Even where rights are available, the commercial terms on offer don't always support an economically viable model, a problem exacerbated when competing with 'free'. There is a perception that inflexibility from some rights holders and their collecting societies are stifling legal, innovative, online businesses and as a consequence encouraging and facilitating illegal ones. Pirate services show 'the art of the possible' when unconstrained by licensing and other considerations. The challenge is to see how legal services can be developed to move at the same speed, with as much flexibility but whilst supporting a viable, if evolved, business model. The content industries are reacting; 'On Air On Sale' policies for music are designed to limit the pre-release window for music.

Film studios are increasingly premiering films internationally following the example of the Indian film industry that has had to manage simultaneous regional release strategies to limit piracy and to protect revenues.

The creative industry have also been addressing the technical solutions that will allow for a more efficient, transparent licence procedure for rights. The Global Repertoire Database (GRD),

International Music Registry (IMR) and the PPL repertoire database (PPL) are examples of these initiatives in the music industry, all of which have the objective of reducing transaction costs and administrative costs. As the industry looks for a market based solution, it would seem appropriate that policy makers allow the market to develop and adapt rather than specify a single regulated solution which may lack the flexibility to adapt to future challenges.

## **Economy in the Digital Era.**

### **Digital economy:**

Disruptive technology and industries, the sharing economy, the digital economy, these terms are all synonymous with transformational changes occurring in the way businesses and individuals produce, deliver and consume goods and services in an increasingly digitalized marketplace.

The term digital economy is being put forward to try and capture or put a box around the new ways consumers, producer and markets are interacting and exchanging goods and services, while the terms has garnet significant importance, there is not yet a definition that can comprehend what is meant by digital economy it is not clear if such a definition will ever emerge. It is not so much a piece or sector or industry of the economy, rather it is transforming the entire economy consequently, it is more appropriate to refer to the digitalization of the economy rather than the digital economy.

It is clear that digitalization of everything is affecting both our business and personal lives, but there is little information currently available to help us understand the economic, social and environmental impacts.

All stakeholders in the digital economy have a role to play in protecting copyright and, where appropriate, in enforcing copyright. Different industry stakeholders already undertake, on a voluntary basis, a number of measures to protect copyright whilst also ensuring they meet other obligations. Industry codes of practice potentially play a valuable role in self-regulation by providing a level playing field and consistent 'rules' which set a benchmark and consistency for the players in the ecosystem. Industry codes of practice also typically balance a range of interests and factors, providing a consensus view of the appropriate collective action that should be taken.

There are already many Codes of Practice that have been implemented in different markets to address copyright issues. The sites supporting UGC have their principles that outline how they address copyright concerns and more recently the ISPs in the US have implemented a Code of Practice, in part to educate consumers on copyright infringement and in part to strengthen enforcement effort.

Policy makers can facilitate and encourage industry stakeholders to develop Codes of Practice to protect copyright and to encourage dialogue between the different industry stakeholders. Although it is unlikely there will be

unanimity across all the stakeholders on the content and obligations agreed in the Codes, they can provide an effective alternative to regulatory intervention and potentially can be introduced faster and at lower cost to the industry. Industry codes can also be more adaptable and flexible than regulation, allowing for easier evolution in response to market circumstances. This flexibility is helpful in the internet environment.

A final advantage of industry Codes is that they can be implemented internationally far more easily than regulation or legal frameworks. This allows the industry to potentially address some of the international issues and challenges faster and more effectively than policy alone.

Education alone will not address the challenges of copyright infringement, but, as the evidence of research into consumer attitudes show, there is an important role to raise awareness, in which all stakeholders need to participate. Globally there have been a number of efforts to increase consumer education, the Strategy. One study identified and reviewed messaging from over 350 campaigns

. Whilst it is clear that education alone will not be enough to prevent copyright infringement it is one element of the campaign to address the issues. The SSRC study assessed that approximately 25% of these education campaigns were focused on children and students, the key target demographic for downloading and using illegal copyright material. Educating consumers on the

importance of copyright and on the impact and harm of copyright infringement is not only an industry responsibility. There is also a role for government to play in increasing awareness of impact of copyright infringement.

Education alone will not prevent copyright infringement but combined with an effective market structure and proportionate enforcement approaches it forms an integral part of the potential solution. Policy makers should look, in conjunction with industry, to see how they can most effectively educate consumers on copyright issues.

## **Conclusions**

The Internet, broadband and the growth of the digital economy is one of the great transformational catalysts society has seen. The wider social and economic benefits and the potential to further enable change have been widely reported. Although for many the transformational change has been good, for the creative industries it has created significant disruption. The debate on future copyright is a delicate balance between the protection of the copyright owner and the development of frameworks that encourage use, innovation and creativity.

Although there is strong consensus on the principle of copyright, there is a great deal of divergence on what this means in practice with regard to legal protection and

enforcement of rights. The digital economy with new technologies, new applications and new markets is placing significant pressure on policies and existing legal frameworks. Finding the right balance between protecting content owners and those wishing to use copyright material with a variety of technologies and for a variety of purposes is a significant challenge for policy makers and regulators.

Within the overall IPR debate copyright is the issue of most relevance to telecoms regulators and policy makers. Telecoms regulators are increasingly being looked to as the authority to implement rules that protects copyright, provide protection for consumers and encourage investment and service innovation within the digital economy. The focus of this paper is therefore on copyright and the implications of the growth and development of the digital economy on copyright issues.

Digital copyright infringement is ubiquitous. There are a number of technical approaches used by pirates to copy and share content. These techniques are increasingly sophisticated and have increasing scale and scope. Industry is making efforts to work cooperatively to mitigate the risks and to help to enforce copyright. These efforts alone have clearly not managed to limit copyright abuse and there is an on-going debate on the role of different players in the ecosystem in enforcement.

Managing the balance between the IPR creator and the individual user, between innovation and status quo, and between enforcement and liberalization is a significant

challenge for policy makers. If insufficient protection is given to rights holders then the incentive to create new works is lost, if too much protection is given there is a risk innovation and investment in networks will be chilled.

Whilst across businesses the digital economy fight a high stakes commercial battle there is also a risk that consumers become the collateral damage. For regulators implementing processes and proportionate rules that protect the rights of all stakeholders whilst encouraging investment, innovation and consumption is a new challenge.

To achieve the optimum balance policy makers and regulators have to encourage creativity, encourage innovation and encourage consumption and use by consumers. The risks relating to these areas are outlined below.



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