

8. CHALLENGES OF INTELLECTUAL PROPERTY IN THE INFORMATION SOCIETY

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ABSTRACT

The progressive but increasing implementation of the Information Society has led to several changes in the way individuals understand creative activity and the value of intellectual property.

However, the intellectual property system, especially in the area of copyright, has not been able to adapt to these recent changes; instead, the system has sought to tighten sanctions and punitive rules. Traditional enforcement does not seem to work, because legislators have not understood the consequences of digitization, the irrelevance of the support, and the dematerialization of protected content.

While in the field of patents there is a progressive movement to increase the flexibility of the system, the same has not happened in copyright, thus hindering the development of new business models.

Keywords: *intellectual property, copyrights, patents, information society, piracy, incentives, rent-seeking, support irrelevance, overprotection, business models, digital content.*

1. INTRODUCTION

As a sociological phenomenon, the Information Society has increasingly been implemented today in an irresistible way, leading to a series of changes in society, individuals and institutions. This implies not only general improvements in information technology, global communications and computing, but also changes in consumer content preferences, and what interests us most is how they now understand the creative activity and value of intellectual property, as well as all information assets in general.

Unfortunately, the impact of the Information Society has not been entirely understood by the traditional industries of intellectual property protected products, nor by legislators or representatives of countries that negotiate international agreements of protection to the intellectual property system.

For example, in the case of copyright this has resulted in a protection system that has failed to adapt to technological change, which has led to the aggravation of penalties for file sharing,¹ protected or not (misnamed *piracy*); the increasing expenses in technological measures of protection; the creation of new copyright assumptions, the progressive extension of existing ones; and the proliferation of regulations that restrict the fundamental rights of individuals.² Unfortunately, all these measures seem to be insufficient to protect the current system.

Personally, I consider that all the above is based on an error in the conception of intellectual property rights. We seem to have forgotten that we are facing an **artificial property**, created by granting temporary monopolies to authors and inventors to **compensate** the efforts and resources invested in the creation or innovation, and to **incentivize** creation and innovation.

2. INTELLECTUAL PROPERTY AS ARTIFICIAL PROPERTY

For a long part of man's existence, the transmission of knowledge was oral: between those who created knowledge and those who acquired it. Traditions, stories, legends, inventions and technical improvements were transmitted from generation to generation. No one was the "owner" of knowledge, nor could it be appropriated. By communicating knowledge, it escaped its sphere of dominion, being in turn retransmitted to all.

With the invention of writing (4th century BC), knowledge and information were fixed on supports that allowed transmission to others, remaining unchanged for generations.³ Knowledge could pass from one to another without alterations. In this context, the great works of antiquity were developed, none of which had patrimonial protection of copyright. From Homer to Shakespeare,

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¹ A sample of the progressive hardening of the criminalization of copyright infringement is found in the amendments to Article 220 of the Peruvian Penal Code because of the Free Trade Agreement with the United States of America.

² As an example, it has been proposed to establish copyright of judicial decisions (see: Javier A Murillo Chávez, 'Copyrights of the Judge. What if we can Prove that the Copyrights Could Improve - in Some Aspects - the Justice?' [2017] 23 Revista La Propiedad

Inmaterial [online] Available from: <<https://search.proquest.com/docview/1933449416?accountid=45097>> accessed 20 May 2018), or about the data produced by the Internet of Things (see: Thomas J Farkas, 'Data created by the internet of things: the new gold without ownership?' [2017] 23(1) Revista La Propiedad Inmaterial [online] available from: <<https://search.proquest.com/docview/1933448449?accountid=45097>> accessed 20 May 2018).

³ Let us consider that the oldest remains of primitive Homo Sapiens have an antiquity of 195000 years (Omo Kibish Formation). In turn, let us consider that the earliest systems of literacy date back to 9000 years ago (Vinča, 7th century BC and Jiahu 6th century BC), and the first writing system (Sumerian cuneiform) dates from six thousand years ago.

authors couldn't control the copy or distributions of their works⁴. There were no restrictions on copying, reproduction, public broadcast or editing of the classics.

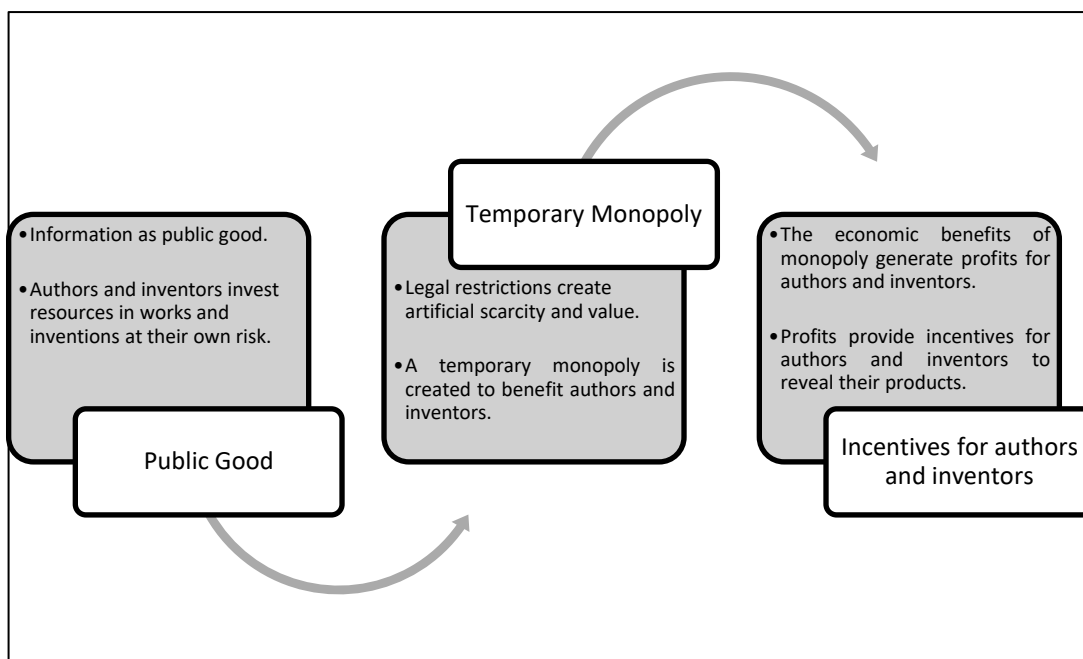
However, over time, inventors were granted certain rights (so-called privileges) to reveal their inventions to the benefit of the nascent cities. This system was then extended to authors, publishers, and printers.⁵

Already in the time of Elizabeth I Tudor, intellectual

property emerged in England in the form of royal favors (royal charters, letters close and letters patent) that the King or a lord of the land granted to those who introduced new techniques to produce certain goods, or to provide certain services.⁶ But, the Crown often made improper use of this power, turning them into privileges generating selective monopolies. The post-Elizabethan parliaments soon perceived that the monopolies generated by royal favors were to the detriment of free trade, so they worked towards suppressing them. Thus, the modern notion of intellectual property was developed, moving to a practical means of promoting technological progress and protecting public welfare. In 1623, the Statute of Monopolies rendered illegal all monopolies, except those established for a given year term, which forms the basis of current patent law.⁷

The intellectual property system which currently exists is an exceptional system, in which the law creates scarcity of a resource (information) through the creation of a temporary monopoly (intellectual property rights) with the objectives to compensate and encourage creation and innovation. It is an exceptional system that responds to a laudable purpose.

Illustration 1. Process of conversion of public property into intellectual property



The main idea was very simple: if we generate a scarcity in information goods, we will create value. That scarcity could be generated by the law through the creation of a temporary monopoly. The new value of property assets, generated by exclusivity, then grants profits to inventors and creators.

This system works if it can be respected by all individuals. In that sense, if there is a very strong public respect for the legal imposition of monopolies and the ability to police and enforce it, this deters potential offenders. Finally, there is a third possibility: compliance is cheaper than non-compliance, since it must incorporate prosecution costs.

In addition, the system must reconcile the interest of society in having access to new information with the interests of creators and inventors of the product of their intellectual work. In the case of copyright, Queen Anne of England was the first to deal with the reconciliation of interests.

The purpose of the Statute of Anne was to stimulate the promotion of art, literature and science, as demonstrated in its title: "An Act for the encouragement of learning by vesting the copies of printed books in the authors or

⁴ Alfredo Bullard, 'Reivindicando a los piratas ¿Es la propiedad intelectual un robo?' in *Derecho y Economía El Análisis Económico de las instituciones legales* (Palestra Editores 2006) 225.

⁵ Fermin de los Reyes Gomez, 'El Privilegio de los Diccionarios de Antonio de Nebrija (siglos xv-xviii): Otro Enredijo de Mil Diablos' *Corpus Eve* [online] 18 October 2013. Available from: <<http://eve.revues.org/850>> accessed 20 May 2018.

⁶ World Intellectual Property Organization, 'An explanatory note concerning the origins of the United Kingdom intellectual property legal regime' WIPO - World Intellectual Property Organization [online], 12 September 2015. Available from: <<http://www.wipo.int/export/sites/www/wipolex/en/notes/gb.pdf>> accessed 20 May 2018.

⁷ Idem.

purchaser of such copies, during times therein mentioned".⁸ A balance between individual interests and general interest was sought. This rule encouraged the author by certainly creating a monopoly in his favor for 14 years, after which the work passes into the public domain to serve as input for new creations.

But, as discussed below, the objectives have ended up being denatured in favor of continuous extensions of the term of protection, and the proliferation of increasing rights. This is so since the objectives of the system are often forgotten, as well as the economic nature of the goods. This overprotection has generated problems such as rent-seeking and piracy.

3. BACK TO THE BASICS: THE ECONOMIC NATURE OF INTELLECTUAL PROPERTY GOODS

There are two principles that are used to determine the economic characteristics in order to provide adequate economic treatment: **rivalry** and **exclusivity**.

Rivalry implies that the use of a good by an individual prevents others from using it simultaneously, thus reducing its availability. The typical case of rival goods is found in consumables. However, information assets can be used by several individuals simultaneously, without reducing their availability, or causing obstructions between users.

Exclusivity is the ability to exclude other individuals from using a good. While we can argue that all goods can become exclusive at a cost, we consider as excludable goods those whose use may be excluded from other individuals at a reasonable cost.

		EXCLUDABILITY	
		EXCLUDABLE	NOT EXCLUDABLE
RIVALRY	YES	Private Property	Commonly Used Resources
	NO	Club goods	Public goods

Illustration 2. Nature and economic treatment of goods.

Both original works and inventions are information assets. As such, there is a lack of rivalry and they are not excludable, at least at a reasonable cost. As pointed out

by economist Paul Krugman (Nobel Prize in Economics 2008), its treatment is more efficient as a common good.⁹

In consequence, the most efficient treatment for information assets such as intellectual property is being treated as public goods. And so, this type of goods was treated during much of history. Classical antiquities were made without the need for an intellectual property system to protect them.

The intellectual property protection system aims to encourage the creation and invention, in exchange for compensating the creator and inventor. The temporary monopoly is created for those seeking incentives and compensation, after which the intellectual property passes to a more efficient state: the public domain.

4. COPYRIGHT, OVERPROTECTION, RENT-SEEKING AND PIRACY

In the case of copyright, the term of protection has increased over time. We can argue whether a fourteen-year monopoly is reasonable or not to incentivize and compensate an author by suggesting that works are usually exploited in economic value in the first few months or years of publication, and by arguing that if the term of protection extends to all the author's life, it ceases to be an incentive but rather an over-compensation.¹⁰ That is to say, it ceases to be an incentive, and instead becomes an income.

When the term of copyright protection extends beyond the life of the author (for example: 100 years post mortis auctoris, as in Mexico), it becomes meaningless. Indeed, no economic theory can explain how you can incentivize a dead author to create new original works. As Richard Posner has pointed out, such a long extension of copyright over-compensates and therefore no longer encourages the creation of content but rent-seeking.¹¹

As a matter of fact, rent-seeking eliminates the incentive to create.¹² The property owner has no incentive to keep creating, since he or she can live with the income, and even can bequeath it.

Another effect of rent is that it increases the cost of access to information goods, and that cost may increase beyond the value that people in the market are able to provide. When this happens, a secondary market will emerge: piracy. Indeed, when people value well below the price set by the rights holder, they seek to meet the need in a different way, at lower costs. Protection

⁸ Alejandro Loredo, 'Derecho de Autor y Copyright Dos Caminos que se Encuentran' (2006) IV(23) Revista Mexicana del Derecho de Autor 27.

⁹ Paul Krugman et al., *Introducción a la Economía* (Editorial Reverté 2012) 181.

¹⁰ Guy Trittton, *Intellectual Property in Europe* (3rd ed., Sweet & Maxwell 2007) 473.

¹¹ Richard Posner & William Landes, 'Indefinitely Renewable Copyright' [2003] 70(2) University of Chicago Law Review 475.

¹² Enrique Pasquel, 'Una Visión Crítica de la Propiedad Intelectual: Por qué Eliminar las Patentes, los Derechos de Autor y el Subsidio Estatal a la Producción de Información' [online] (2004) 3(1) Revista de Derecho y Economía, available from: <http://works.bepress.com/enrique_pasquel/21/> accessed 20 May 2018, 71-72.

measures and penalties imposed on piracy can raise this cost, incorporating a cost of prosecution, but this does not always deter potential offenders.

Thus, we must understand piracy as a problem associated with the excessive costs of goods protected by intellectual property.¹³ Accordingly, a more expensive work is produced by the overprotection granted by copyright.

In consequence, copyright loses its reason for existence, and becomes a social tax that delays creation. This is because the creation process is not uni-directional but bi-directional. It is not only knowledge production (output) which is the priority, but also nurtured knowledge and information (input).¹⁴ The very existence of exclusive entitlements, like those granted by intellectual property, discourages other creations; it restricts the number of works available on the market, so that new artists have less access to existing works.¹⁵

If we consider that works have no rivalry, it is desirable that as many people as possible have access to them at the marginal cost of producing a single copy. In this way, the social utility of intellectual goods is maximized, allowing them to serve as an input for new creations. However, the monopoly price charged by the creator of intellectual property protected works moves away from the marginal cost of producing a copy and this generates a social loss equivalent to the sum of the prices that would have been paid by all those people who value the good over the marginal cost, but below the price imposed by the creator¹⁶, restricting access to the input of new creations.

Some argue that copyright law provides exceptions and remedies that can alleviate, to some extent, the effect of the monopoly, such as the right to quote or the right to make a private copy, which allows you to use protected works to create new original works.¹⁷ This may be so in

the works we know as classical (literary, artistic, etc.), but not for others, as software, where such use is not contemplated. On the other hand, both exceptions, in the Germanic-Roman system, are quite far from the more liberal concept of **fair use**, used in the Anglo-Saxon copyright regime.

Software is at the heart of the information society, and in the software, the right to quote has no value whatsoever. Drivers, libraries, programs and others are used either in their entirety, or not at all. In terms of software, fifty years is an eternity. In the world of software, the obsolescence is so fast that every four years the software produced becomes obsolete.

5. INFORMATION SOCIETY, DEMATERIALIZATION OF THE DIGITAL CONTENTS AND THE IRRELEVANCE OF PHYSICAL MEDIA

Before the implementation of the information society, piracy was a problem that was relatively controlled. However, popularization of personal computers, the Internet, social networks, and smartphones changed the way we see and interact with the world. In that digital environment, piracy rates have skyrocketed.

This has led many countries to increasingly restrict use of copyrighted works, and develop more drastic laws that impose criminal sanctions, and in an effort to monitor file sharing, arrive at violating fundamental rights such as privacy, freedom of opinion and expression.¹⁸ These laws, such as the Law Hadopi¹⁹ in France or the Sinde-Wert Law in Spain²⁰ have demonstrated little to no efficacy in reducing piracy rates.

But why were enforcement rules relatively effective before and not now, despite being much harsher? Maybe the answer to this is the physical media on which the works are fixed, and their subsequent insignificance.

¹³ Hal R. Varian, 'Copying and Copyright: Los Derechos de Propiedad en la Era de Internet' [online] [2006] (360) *Economía Industrial*, available from <<https://eco.mdp.edu.ar/cendocu/repositorio/01021.pdf>> accessed 20 May 2018, 23.

¹⁴ *Ibid*, pg. 20.

¹⁵ Robert Burrell & Allison Coleman, *Copyright Exceptions: The Digital Impact* (Cambridge University Press 2005) 40.

¹⁶ Enrique Cavero Safrá, 'Entre el Huevo o la Gallina y la Planchada y la Camisa: Introducción al Análisis Económico de la Propiedad Intelectual' [2012] (62) *Thémis* 126.

¹⁷ Gustavo Rodríguez García, '¿El Fin de la Historia para la Propiedad Intelectual?' [2008] (55) *Themis* 303.

¹⁸ United Nations, General Assembly, Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, [online] A/66/290 (10 August 2011) available from

<<http://www.ohchr.org/Documents/Issues/Opinion/A.66.290.pdf>> accessed 20 May 2018, 14.

¹⁹ The Hadopi Law or promoter Law dissemination and protection of creation on the Internet came into force on July 1, 2010, and given its ineffectiveness, was abolished on July 9, 2013.

²⁰ Sinde-Wert Law is a provision in Spain's Sustainable Economy Bill proposed by the Spanish government led by Jose Luis Rodriguez Zapatero in November 2009. It led to significant protests by the Spanish people and it was eventually stripped out from the Bill on December 21, 2010. On December 30, 2011 the newly elected government approved the final regulation needed to put it into place. This law created a new intellectual property commission designed to review requests from copyright holders about websites that they claim infringe upon their copyright. But also has a significant impact on individual privacy rights: it allows impacted parties to seek the identity of those they believe to have infringed on their copyright.

Indeed, by being stored on physical media (books, CDs, etc.), the intellectual property assets lost their characteristics of non-rivalry and non-exclusivity goods, and acquired the characteristics of a physical good. Thus, a good such as information, which lacked exclusivity, acquired this feature from other forms of media (book, canvas, photosensitive paper, etc.), so that it is easier to protect them.

quality of the original, as long as they contain the same information: original and copy now have the same information. And with the popularization of the internet, the physical support lost any kind of relevance it had previously, with grave consequences.

Released from any physical medium, original works retain the original characteristics of information assets. The work recovers its characteristics of non-rivalry and non-

excludability of the good. For the first time, the system of protection of intellectual property has to deal with the difficulties of the true nature of information assets: original works return to their immateriality, and are thus easier to copy.

To this must be added the phenomenon of hyper-connection, which leads to individuals being always connected to the Internet and their resources. Smartphones, smartwatches, tablets, and wearables keep the individual in continuous connection with the Internet, and digitalized works.

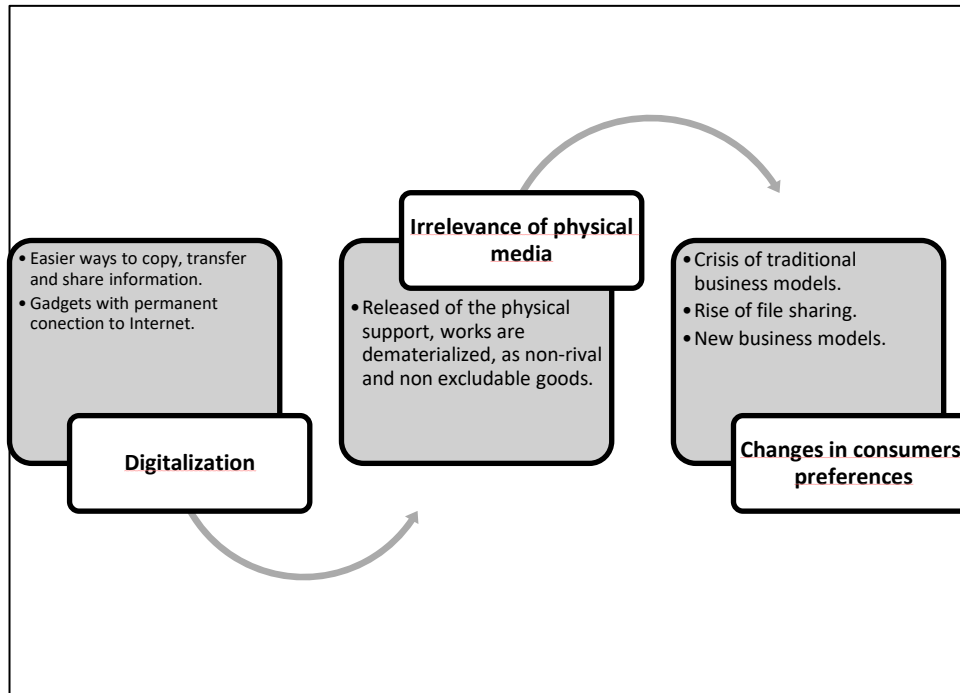


Illustration 3. Process of dematerialization of the original work and irrelevance of media.

Copying an intellectual property protected work had relatively high costs: a copy medium and physical media are needed in order to fixate and store every single copy, which add costs without maintaining the original quality. This facilitated enforcement, on the one hand, and made the difference between the price of protected goods and their illegal alternatives less obvious. **Having a physical medium allowed a relatively high degree of law enforcement and hindered piracy.**

But this situation changed when copyright information became digitized. Converted into a series of binary data, information is easy to reproduce, significantly reducing copying costs. Moreover, the copies maintain the same

This allows a change in the preferences of consumers of digital content. Ownership and possession of the content becomes meaningless for availability and access. Business models based on sales per copy (software manufacturers, record labels, and video producers) come into crisis. But this crisis was not produced by piracy, which the industry blames, and against which lobbyists react seeking to make protection laws for their business models rather than intellectual property. These business models are in crisis because they failed to see the shift in consumer preferences.²¹

On the other side, new business models are born, like Spotify and Netflix, based on **availability and access** to entire catalogs of works.²² However, these creations were first hampered by the rules of intellectual property.²³ The paradox of the case is that in places where the implementation of these two applications (and

²¹ Manuel de la Fuente Soler & Clara Viana Ballester, 'Intercambio de Archivos y Vulneración de Derechos de Autor' in Andrés Boix Palop & Guillermo López García (eds), *La Autoría en la Era Digital: Industria Cultural y Medios de Comunicación* (Tirant lo Blanch 2007) 306-308.

²² Laia Reventós, 'Daniel Ek, fundador de Spotify: "El Futuro está en el Acceso no en la Propiedad"' (El País, 5 March 2009) available from:

<https://elpais.com/diario/2009/03/05/ciberpais/1236223466_850215.html> accessed 20 May 2018.

²³ Manuel Angel Méndez, 'Spotify se desangra y demuestra cuál es el cáncer de la música: las discográficas' (El Confidencial, 25 May 2016) available from: <https://blogs.elconfidencial.com/tecnologia/homepage/2016-05-25/spotify-musica-streaming-discograficas-internet_1205674> accessed 14 September 2018.

others such as Google Music, Deezer, Apple Music, etc.) increased, piracy rates decreased.²⁴

This leads us to conclude that, before continuing to create norms seeking to defend a system of intellectual property tailored to old business models, we must adapt the system to the changes imposed by the information society. The system must adapt to the new digital environment and accept its rules, encouraging new business models and finally allowing for the reconciliation of access to information with the interests of creators.

But this does not only happen in copyright. In the case of patents, the excessive blocking ability of patent holders generates what Michael Heller has called the Tragedy of the Anti-commons.²⁵ Every invention, especially in complex fields such as biotechnology or hardware of electronic devices, requires the use of previous patents. Moreover, in areas where standards are set and interoperability is required, such as telecommunications, the number of patents that a company must obtain to place their product on the market significantly reduces the possibility of access.

Thus, we are faced with the paradox that patents, created to promote invention, have become important obstacles to inventive activity.²⁶ The patentees block investigations, by charging unreasonable royalties for licenses, and as in biotechnology, for example, patents are now used to stop research, prevent medical testing and keep society's vital information restricted.

On the other hand, the patent system raises the cost of litigation, so that small businesses who cannot access the patent system decide to seek protection for their innovations through other instruments such as trade secrets.²⁷ Large companies spend vast amounts of resources threatening, suing, answering demands, following processes and enforcing judgments, rather than allocating those resources to the field of research and innovation. The problem is that the consumer ends up paying the price, either by the higher cost of the products, or with a less innovative society.

Also, the current system promotes the use of defensive patents, which do not lead to any development. They are left in the trunk of the companies until they are sued for patent infringement, allowing them to counter-attack.²⁸ Resources for defensive patents can be used more efficiently in new developments and in real inventions.

In the patent wars, unleashed among technological companies, resources are wasted. But in biotechnology, the blockades of patent holders cost lives.²⁹ Luckily, unlike copyright, in the field of patents, states have been negotiating not to strengthen the patent system, but to make it more flexible, seeking remedies to the excesses raised by the patent system.

One of the most interesting cases of exceptions to the patent system is given by **compulsory licenses**. These licenses allow a government to produce a patented product or use a patented process without the consent of the patentee. The generic product is produced for the domestic market, not for export, and the patentee receives an adequate remuneration according to the circumstances of each case.

Compulsory licenses have been implemented since 1995 in the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). In 2001, the Doha Ministerial Conference allowed countries that could not manufacture pharmaceuticals to obtain cheaper copies elsewhere if necessary. It is not a complete solution to the problem of blockages, but at least it demonstrates the efforts made to make the patent system more flexible and efficient.

Other exceptions are linked to parallel imports and exceptions for anti-competitive practices. In the first case, it involves the importation and resale in a country, without the consent of the patent holder, of a patented product that has been legally placed on the market of the exporting country by the patentee or otherwise. In the second case, competition policies and rules enable the potential to regulate patent rights abuses and to complement the limitations inherent in patents.

²⁴ Luis Aguiar & Joel Waldfoegel, 'Streaming Reaches Flood Stage: Does Spotify Stimulate or Depress Music Sales?' (European Commission Joint Research Centre 2015) 25. See also: J.M. Sánchez, 'La guerra del "streaming" diluye la piratería' (ABC, 28 September 2017) available from: <https://www.abc.es/tecnologia/redes/abci-guerra-streaming-diluye-pirateria-201709260052_noticia.html> accessed 13 September 2018.

²⁵ Michael A. Heller, Professor of Real Estate Law at Columbia Law School, coined the term "tragedy of the anticommons" in 1998, as a mirror-image of the concept of tragedy of the commons, created by Garret Hardin. In a tragedy of anticommons, a resource is prone to underuse when multiple owners each have a right to exclude others from a scarce resource and no one has an effective privilege of use. See:

Michael A. Heller & Rebecca Eisenberg, 'Can Patents Deter Innovation? The Anticommons in Biomedical Research' [1998] 280(5364) *Science* 698. See also: Michael Heller: *The Gridlock Economy* (Basic Books 2008) 1-2.

²⁶ Michael A. Heller & Rebecca Eisenberg, 'Can Patents Deter Innovation? The Anticommons in Biomedical Research' [1998] 280(5364) *Science* 701.

²⁷ Ignacio de Castro & Judith Schallnau, '¿Cuánto Cuesta Defender los Derechos Propios de Propiedad Intelectual?' [2013] (3/2013) *OMPI - Revista* 27.

²⁸ Albert Esplugas, 'Patentes Defensivas' (*IJM Actualidad*, 16 April 2010) Available from <<https://www.juandemariana.org/ijm-actualidad/analisis-diario/patentes-defensivas>> accessed 24 July 2018.

²⁹ Michael A Heller, *The Gridlock Economy* (Basic Books 2008) 50.

These types of flexibilities mitigate the damage that can lead to blocking patents by patent holders, although they require a decisive partnership between the state, academia and industry in countries that can make use of them, which is not necessarily the case for less developed countries.

6. CONCLUSION

Part of the problem is the fact that we have not been able to react to the challenges that the Information Society imposes. Our goal should be to continue to promote creation and innovation, not to criminalize conduct or to defend a system at large. This part of making the system much more flexible can bring solutions ranging from state regulation of behavior to within the private sector itself.

Exceptions and remedies provided for patents are important, but still not enough to prevent blockages associated with new inventions. However, it gives us a good example of how the system aims to adapt to the current times. It is the way to go.

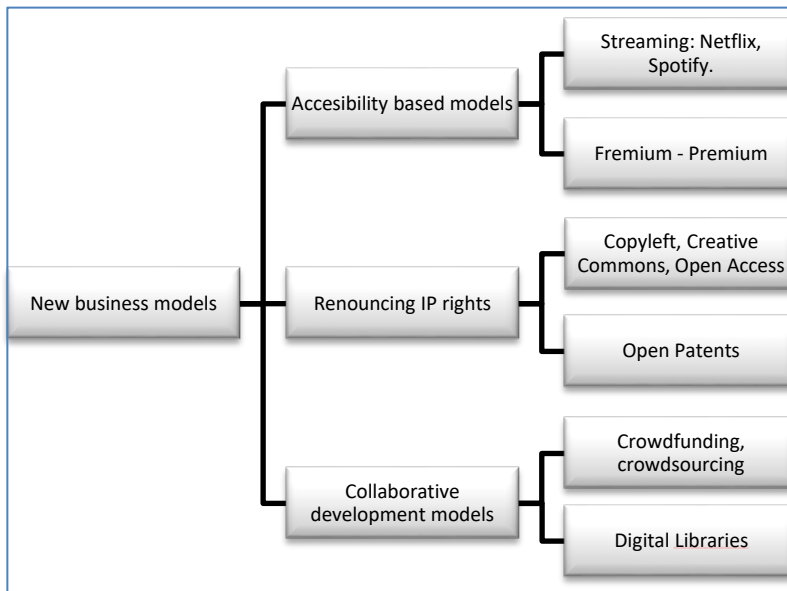


Illustration 4. *New business models in the Information Society.*

Copyright is moving to the opposite direction. It has not been able to adapt to the challenges imposed by the Information Society, and it toughens its laws instead of making them more flexible. The fatal conceit of the legislator aims to make excludable a good that should not be so, instead of seeking to efficiently deal with these information assets based on their inherent characteristics. It is the private initiative that is successfully facing the challenge, despite the obstacles imposed by inefficient laws.

We need more reasonable copyright exceptions to allow the creation process and the development of new business models better suited to digital environments. A more radical scenario implies the extinction of copyright, as critics of the system like Stephan Kinsella³⁰ and Michele Boldrin have suggested, due to its inefficiency to encourage creation.³¹ In this scenario, the market would take charge of the production of intellectual goods through new business models.

In fact, successful new business models in the information society are based, above all, on the flexibilization of intellectual property rights. To achieve this purpose, private companies have focused their business not simply on the exploitation of royalties granted by a temporary monopoly that, in practice, is inefficient because it lacks effective enforcement. Instead, they use market mechanisms to capture their clientele, considering the interests of consumers.

We can find three types of business models: The first is based on access to digital content, either through a flat rate, or a Freemium / Premium bonus scheme. These companies exploit the change in consumer preferences and use it to obtain a viable business.

A second model is based on the renounce of certain intellectual property rights, either for an ethical purpose (Free Software model) or practical considerations (Opensource Initiative). Therefore, revenues are not generated by the sale of software copies, but by businesses made around them. On other occasions, it is not a profit motivation, but certain ideals (personal, academic, etc.) that prevail to grant access to intellectual goods (Creative Commons, Open Patents) for free.

Finally, we find a third model based on collaboration, which allows to implement a project in need of capital (crowdfunding) or resources (crowdsourcing), including intellectual assets within these. But also, the possibility of sharing intellectual assets for common use (such as digital content libraries) or even shared patent portfolios.

The private initiative is already doing its part, where the adaption of business models to accommodate the conditions imposed by the Information Society can be seen. Doing business with non-rival and non-excludable goods can be seen, and to that end, new business models, based mostly on collaborative economies and the waiver of the right of blockage allowed by copyright and patents have been generated. The current system, developed in the nineteenth century, is its main obstacle. More flexible

³⁰ Stephen Kinsella, 'Against Intellectual Property' [2001] *Journal of Libertarian Studies*, 15(2) SEAS SPR 1 54.

³¹ Michele Boldrin & David Levine, 'The Economics of Ideas and Intellectual Property' [2005] 102(4) *Proceedings of the National*

Academy of Sciences. Available from <www.pnas.org/cgi/doi/10.1073/pnas.0407730102> accessed 24 July 2018, 1256.

systems of copyright and patent are an important requirement.

It is time to ask ourselves whether we should maintain the current intellectual property protection system, hardening it against what we perceive as a threat, or should we make it more flexible to allow the creators and inventors themselves to find efficient ways to face the challenges of the society of information. So far, the private initiative seems to have followed a more successful path to face these challenges.

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