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Software Piracy in Developing Countries: Prevalence, Causes and Some Propositions

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Abstract

Innovation is often described as key factors of competitiveness, as the driving force of the economy or as the basis of growth. This may be somewhat exaggerated, but it must be admitted that there cannot be any scientific advances without innovations, both are somewhat synonymous and correlated by a causal link. However, a paradox lies behind this reasoning: property rights, measures to protect innovation and creativity and aims to encourage more innovations and creativity. However, do these protective become a shovel that serves to deepen the know-how gap between the South and the North? It is widely known that, only, those who pay have the right to educate themselves, while the less fortunate remain held hostage and forced and obliged to follow in order to survive. Indeed, some of the arguments put forward above are pure sophistry, but are often used either by the adepts of the Robin's hood ideal or by the defenders of the sacrosanct right of property. This work aims to ascertain what, why and how not to respect the right to property, and notably software piracy, not to justify the practice, but to confront this phenomenon with the arguments of property rights and to demonstrate the selfishness and deception that lie behind the curtain of each camp, and subjecting them to the socio-cultural and economic realities of the developing countries, and demonstrate with concrete cases, that a consensus is possible.

Keywords: Knowledge, Human rights, Intellectual property, WIPO, Software piracy, Crackers, Robin hood effect.

Introduction

Human creativity always plays a key role in the evolution of human society, and it is never wrong to highlight that the most creative nations are very often the most successful. Indeed, creativity may have many forms and even expressed in various ways. Nevertheless, we have to question ourselves, what is creativity? «The origin of the word ‘creativity’ is hard to pinpoint in history. It seems however, that Mathias Sarbievius […] is the first to make use of the word in 1623, in order to distinguish the creation (divine Act, or act of representation of the world as created by God) from the Act 'second creation' that is proper to mankind. Thus, creativity is merely a reflection of the artist quality and henceforth of his work [...]. At the beginning of the 1980s, creativity became a phenomenon of universal investigation applied to both; science and art, sociology and economy, consequently to both knowledge and perception (Kolp, 2009, p. 3).

One may wonder what will happen if creativity were not recognized? If its authors remain anonymous or not even paid for their relentless efforts? From an altruist point of view, creativity is seen as an individual human act that must be transmitted in order to educate and to inspire other peoples for the sake of knowledge and progress in sciences and arts.

Therefore, creativity has to submit certain rules in order to comply with ethics. Unfortunately, the efforts of certain authors and the denial of their intellectual property become commonly usual, notably with the internet advances; the fact that deteriorates creative aspects.

For a half of a century, technological revolution compared to industrial revolution, trembles the foundations of human societies. The spectacular development of Internet and the companies’ progressive networking as well as society give birth to a specific phenomenon, simply stated in society advances and information and knowledge sharing. This greatly alter the classic design trade and relations among men: any form of information flows among billions of users throughout the planet denying the notions of time and space. The development of ICT’s bring to existence intellectual creations worldwide, and here, a question doubts the adaptation of a right of intellectual property whose fundamentals were set two centuries ago.

Despite this spectacular evolution of the internet and all that is related to, a digital divide appears between North and South countries: it results in the inequality of access and the use of information technologies, i.e knowledge available online and especially economy based on knowledge.

However, the triptych 'Creativity, intellectual property, knowledge economy (the right to this one) and in the case of the Web, access to online knowledge and the use of softwares require compensation of authors and rights holders (as content producer and broadcaster). But in case where users cannot afford to pay (by lack of means especially), opposition appears between the collective good which consist of giving the means and methods to better process information and the interests of entrepreneurs to privatize most possible dissemination of knowledge in order to derive an added value (Arnaud, 2006). This situation and other factors push millions of users in rich and poor countries to use hacked software. Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers.

1. Problem Formulations

Considering what was cited above we sum up the problem of our research work in the following question: “Does intellectual property laws, imposed on softwares and online resources, constitute an opposition to the right of people to learn and develop and hence to their fundamental rights?”

To answer this question, we will try to tackle the problem making use of the following elements:

- The right to know;
- The basic principles of intellectual property;

- Software piracy and its forms;
- Its prevalence in the world;
- Its causes, through a literature review;
- Its repercussions on the various actors;
- And conclude with the arguments confrontation of different parties and try to probe elements of consensus.

2. Knowledge, Rights and Economy:

2.1 Human rights and knowledge rights:

The universal declaration of human rights in article 19, states that: "Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers".

A little further is in its art. 22, we cite that: "Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality". Last but not least, we find in art. 26, the no less important 'Right to education'.

Therefore, every individual, in order to figure himself, to develop and to live with dignity, is entitled to his social security based on the achievement of cultural right, taking into account that culture is a component of knowledge. Moreover, the right of expression inherently includes the right to access to information (Curtis, 2009).

Furthermore, to promote good governance, the development of nations and the struggle against poverty (whose ignorance and illiteracy are one of the main causes), the international community, and at the end of a meeting held in 2002 in Sofia, Bulgaria, established the day of 28 September of each year as 'The International day to Right Know' and created the 'FOI Advocates Network', "…a global coalition working together to promote the right of access to information for all people and the benefits of open, transparent, and

In the same vein, in 2013, the Obama Administration was committed to the proposal "…that citizens deserve easy access to the published results of federally funded research freely available to the public within one year of publication, and requiring researchers to better account for and manage the digital data resulting from federally funded scientific research..." (Stebbins, 2013).

Of course, these measures taken by the highest international bodies and by the most developed countries are not a denial of the intellectual property rights (although some projects like 'Google Books' were accused of doing so), and therefore an incentive to practices of hacks, but rather a recognition at the highest peak of the people right to know and to knowledge, and their importance in the process of economic and social development of individuals and nations.

2.2 knowledge-based economy:

If the nineteenth century was characterized by the rise of industrial economy in Western societies, the second part of the twentieth century and the rapid transition of Western capitalism by more service-based economy, then, the opening years of the twenty first century, considered as the era of 'knowledge economy' (Hargreaves & Shaw, 2006, p. 44). Actually the most suitable term is, 'economy knowledge-based', and that means for each country, the sectors of production and services based on the intensive activities in knowledge (Foray, 2009).

But how do we acquire knowledge? Still, what is knowledge? Let's start with the second part. Knowledge may be defined from various angles: for Plato, it is not a mere true belief, but a true belief 'with reason'. For others, as Descartes or Locke, knowledge is either a basic knowledge or an

inferred from a basic knowledge. Knowledge bases are the first principles, those who are not derived from anything else (sensations, principles of logic, impressions, etc.), whereas the derived knowledge are science and our common knowledge about the world (Wikipedia, 2007). More generally, "Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, descriptions, or skills, acquired through experience or education by perceiving, discovering, or learning" (Wikipedia, 2017). This definition, already, gives the answer to the first question cited above, concerns the means to acquire knowledge, that are: "the interpersonal exchanges, the experiences (perceptions),reflections (personal) and meditations, spontaneous documentary research, and reading (written or audio-visual works)" (ASSIPO, 2009).

In conclusion, and at the risk of redundancy, we may say that every man has the right to live with dignity and to flourish both economically and socially, but to thrive, and especially at this time, one has to acquire and use knowledge, since the term "knowledge-based economy" results from a fuller recognition of the role of knowledge and technology in economic growth (OECD, 1996, p. 9). In this framework and at the occasion of the Eighth World Telecommunication Exhibition and Forum, at Geneva on 9 October 1999, and well before the TIC reached their current development, Kofi Anan the former United Nations Secretary-General, said about the digital divide: "Three days from now, the world's population will pass the six billions mark. Five out of those six billion live in developing countries […] these people lack many things: jobs, shelter, food, health care and drinkable water. Today, being cut off from basic telecommunications services is a hardship almost as acute as these other deprivations, and may indeed reduce the chances of finding remedies to them" (Anan, 1999). So, the access to knowledge and education are not only human rights, but the necessary conditions to human race development and the struggle against poverty and inequalities.

Finally, as media that convey knowledge, and especially for the last two means of acquiring knowledge (research, documentation and reading), we simply may say that means are material and non-material. They can be material in case of books or any other physical item, and immaterial in case of means of dissemination or impalpable transmission, such as voice, thoughts, or digital resources (eBooks, software, applications, etc.) either used online or offline. But whatever the support is especially when it comes to knowledge inferred from a basic knowledge of (cinematographic, literary or artistic work, computer software, an invention; an innovation, etc.), it is often 'protected' and falls within intellectual property schemes.

3. Intellectual Property Rights:

3.1 Definition, evolutions and purposes:

According to Online Etymology Dictionary, 'Propriety' derives from Latin 'proprietatem' (nominative 'proprietas').This means 'quality of what is own',proper.

itself comes from Latin 'proprius' (appropriateness, ownership). On the other hand, the word 'intellectual', was originated from Latin 'intellectualis', that is relative to the understanding, from 'intellectus', in a meaning of discernment and understanding.

In the real context, these two words take a mercantilist meaning often expresses what relates more to property than to the intellect: the intellectual property laws, allow the creator, or the owner or patentee, a brand or a protected work by the copyright to benefit from its work or its investment (WIPO, 2013), for a long time, and even after death of the original creator.

These rights were stated in article 27 of the 'Universal Declaration Of The Human Rights'[1], They find their origin in the first official conventions related to the protection of the property rights which goes up at the end of the XIXth century (with the exception of copyright, Appeared long before). It was inspired by 'Literary and Artistic International Association', founded in 1878 under

[1] "Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author".

the presidency of honor of Victor Hugo during a congress, held in Rome in 1882. It was an expression of the wish to set up the foundation of a 'literary property union', in order to put the basis of a uniform legislations that protects the copyright (Desbois, 1960).

In 1883 the convention of Paris for the protection of the industrial property was ratified. Its aim was "…to help the inhabitants of a given country to make sure that their intellectual creations are protected abroad by the use of labels, license industrial drawing, patent, brand and so on." (JurisPedia, 2002). It is only in 9 September 1886 that the convention of Bern came into light. It was related to intellectual property and was ratified by 10 states[2]. It aimed to help countries to obtain international protection of their rights, to exert a control on the use of their original works and to perceive a remuneration in this respect whatever the material used (novels, new poems, plays, songs, operas, musicals, sonatas, drawings, paintings, etc. (JurisPedia, 2002).

In 1893, the two offices, resulting from the conventions of Paris and Bern, that are in charge of their implementations and following-up, were joined together within the same organization called 'The United International Offices for the Protection of Intellectual Property' (BIRPI), which continued until 1970 and was replaced by the Stockholm convention 'World Intellectual Property Organization' (WIPO).

To answer the question 'why protecting intellectual property? The WIPO counts three primary ways that are (WIPO, 2013, p. 3):

- The progress and the wellness of humanity that depend on the capacity to create and invent in the areas of technology and culture.
- The legal protection of new creations encourages the engagement of additional resources to the service of innovation.
- The promotion and the protection of the intellectual property stimulate the economic growth, create new jobs and new branches of activity and improve quality of life.

In other words, intellectual property laws remunerate creativity and mankind. Without copyright protection consumers may not acquire, safely any products or service. It also dissuades counterfeiters and piracy. Without the advantages, which they withdraw from the system of the patents, researchers and inventors would not be very inclined to continue to endeavour to improve quality and the effectiveness of the products in the interest of the consumers (WIPO, 2013, p. 4).

3.2 Types of Intellectual Property:

- **Copyright:** is the legal term used to describe the rights of the creators on their literary works, artistic musical sculptural and cinematographic works, as well as the computer programs, advertising databases, creations, technical geographical maps and drawings (WIPO, 2013). These "moral right", which recognizes in particular the paternity work of the author and the respect of its integrity. These right are perpetual in certain countries as well as they are inalienable and imprescriptible. They confer an economic monopoly of exploitation on work during a certain time before they can be used freely (enter the public domain).
  It is known that that the first true protective legislation of the authors interests , goes back to 1710 under the reign of the queen Anne of Great Britain: the 'Statute of Anne' (also known as 'the Copyright Act 1710') that gives the right to authors to enjoy a 14 years monopoly of their creations (Scammell, 2003).
- **Patents**: It is a monopoly on an invention. Thus, an inventor who presents a patent application must be evaluated by a special office assuring that invention goes under current law when he wants to exclude his fellow-members from research and the market revolving around his invention (Bond, 2006).

[2] Germany, Belgium, Spain, France, Britain, Italy, Luxembourg, Principality of Monaco, Switzerland and Tunisia.

- **Labels:** It is any sign, any symbol, or any external appearance which allows a product or a service to be distinguished from those of competition (Novagraaf, 2011).
- **Drawing and industrial models:** concern the decorative or aesthetic aspect like 3D shapes and textures or the 2D lines and colours of an object (WIPO, 2013).
- **Geographical indications and designations of origin:** They are signs used on products coming from a given geographical zone, which have qualities, fame or characteristics due primarily to this place of origin. In most cases, the geographical description contains the products origin name place (WIPO, 2013).

3.3 Software rights regimes around the world:

As stated above, software, computer programs and databases, as well as literary, musical and cinematographic works, may be the subject of copyright. Moreover, art.10 of the TRIPS agreements stipulates that: " …Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971) […] Compilations of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations shall be protected as such. Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyright subsisting in the data or material itself" (WTO, 2001). The main purpose of these agreements is, according to the WTO: "Desiring to reduce distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade…"

However, it was only after a global consensus in the 1980s that software was assimilated to a mind work, protected by literary and artistic property and susceptible to counterfeiting. Regarding the definition of computer program (from which software is a type), it was stated at European level in 1988, through 'Green Paper on Copyright and the Challenge of Technology' (APP, n.d.).

But if we consider the exponential evolution of computers, in general, and of the internet in particular, the eighties is for the digital era, is what prehistory is in our present era! Then, it's foolish to adopt the traditional regimes to this sector. On the other hand, copyright protects only forms and not ideas or concepts, and this protection derogates in certain points from what is called 'Common Copyright Law'. It is a work that is not addressed directly to man but goes through a machine (APP, n.d.).

Given that software and digital resources in general fall under the copyright regime, we will focus in this part of our paper on the 'rights' in particular. In all copyright-affected countries, the death of the author marks the starting point of the period of protection to be granted to the rights holders. The author enjoys his rights as long as he is alive. Generally, the calculation is done in calendar years. A frequent exception in legislation concerns works that have no identified author or no single author. Thus, for works that remain anonymous or pseudonymous, as well as for collective works in the strict sense, the date of publication is the starting point of the term of protection (Frochot, 2015). The encyclopaedia Wikipedia on the page devoted to "the List of countries' copyright lengths", provides an interesting map to analyze:

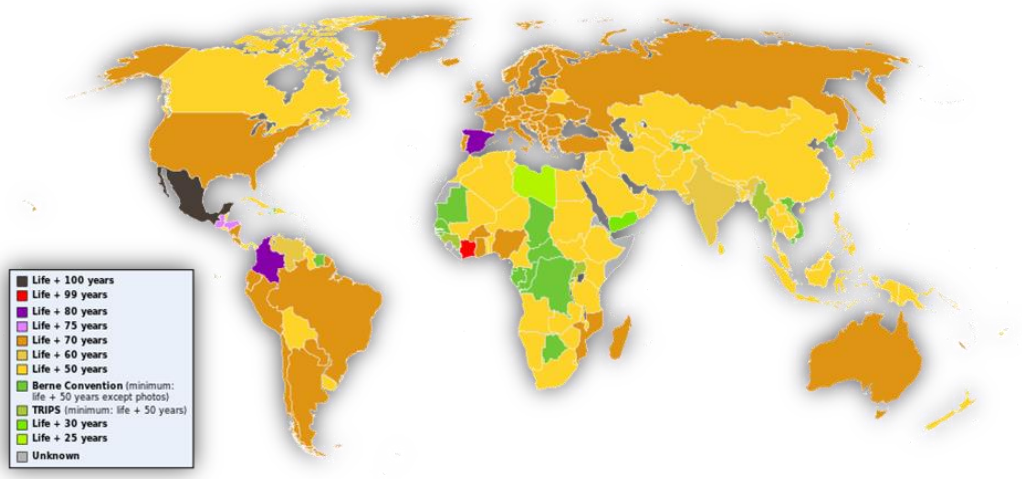


Fig 1. Map of countries by copyright lengths

Source: *https://en.wikipedia.org/wiki/List_of_countries%27_copyright_lengths*

The 50-years rule (beyond the death of the author) was enshrined in 1948 in the Berne Convention, which at the time included only a few dozen signatory countries. The so-called 'Universal Rights of Author', convention signed in Geneva in 1952 and entered into practice in 1956, was intended, partly, for developing countries and envisaged a period of 25 years post mortem as property right to authors. It is nowadays the shortest duration that exists (Frochot, 2015). Generally, and in different parts of the world, the protection period varies between 25 and 70 years: in Europe and according to 'Council Directive 93/98/EEC' of 29 October 1993, this period has a maximum of 70 calendar years post mortem. In the United States, the federal copyright law envisages, for works created after 1978, a period of 70 years post mortem. Exceptions and arrangements exist, which may extend to 95 years the term of protection of works published before 1978 (Frochot, 2015). Now, two things challenge us, i.e. the duration of protection and the software creation:

- The duration of protection is as much important that the country is developed. This period varies between 25 and 50 years for the developing countries, according to the Berne Convention, and it is 70 years and more duration in developed countries. This may seem normal for software, as most of them are created either in developed countries or in developing countries, by giants such as Microsoft or Symantec.
- Software creations benefit from the same regimes (duration of protection) in all countries what matter the artistic or intellectual creations.

In the same respect, let's look at this quote from (Bond, 2006): "... if, in some cases, the protection of investment by patent law encourages innovation, it is the opposite, in terms of software. Insofar, since commercialization of software is inexpensive, there is no need to protect any investment. Innovation is, therefore, not encouraged by the existence of operating monopolies, but rather slowed down by the latter, which entails costs (licenses and prosecutions) which are completely disproportionate to the expected revenues, and discourage software authors who live in an anxiety to get their patent infringed […] thousands of software are designed every day, and the state of the art can evolve exponentially between the day of patent filing and the delivery of it […] The distinction between 'obvious' and 'non-obvious' is very difficult to do when one reads the source code of a software […] software has no more 'industrial vocation' in the sense of patent law that a music partition […] For these reasons, the Munich Convention on the European Patent (1973) and much national legislation have clearly excluded software from the field of patentability".

To conclude, the international community, led by WIPO, did not ask so many questions and did not consider it necessary to adapt to digital era or to question the technological obsolescence (infinitely

faster in software than in literary works), by introducing proprietary regimes of ownership. Due to the lack of consensus and coherence, it is not surprising that the struggle against software piracy is so ineffective.

4. Counterfeiting and software piracy: Forms, prevalence and causes

The noun 'Counterfeiting' comes from Latin 'contrefacere', which means 'Imitate'. It is therefore the "Intentional and calculated reproduction of a genuine article (such as money or trademark) for the purpose of misleading the recipient or buyer into believing he or she is receiving or buying the genuine article itself." (Business.Dictionary, 2007). However, the definition given by the WTO is more accurate: "Unauthorized representation of a registered trademark carried on goods identical or similar to goods for which the trademark is registered, with a view to deceiving the purchaser into believing that he/she is buying the original goods." (WTO, 2011).

There are, generally, four types of Counterfeiting (Perret & Gharbi, 2008, p. 63):

- **Artistic:** Reproduction; importation or sale of a literary work or artistic original without authorization of the author or having the right.
- **Of Brand/Label:** Copy or imitation, without authorization, of a sign being used to distinguish a product or a service (trademark, of trade or service) and having been the object of a deposit; detention, sale or importation of a covered product of a fake brand.
- **Of Drawing and Model:** Copy, sell or importation, without authorization, an object that is distinguished by a particular and non-functional presentation that has been filed or that is already on the market.
- **Of Patent:** Copy, without authorization, of asuitable new invention for industrial application and having been the object of a deposit; importation or sale.

Let us note that these four types of counterfeiting coincide with the four types of intellectual property, which we cited earlier. Therefore, we can say that there is counterfeiting when one infringes intellectual property. There is also another type of counterfeiting called "offence of filling" like, for example, putting a fake perfume in an original brand bottle (Perret & Gharbi, 2008, p. 64).

Said otherwise, it is possible to classify the types of counterfeiting according to other criteria, depending on their quality of being luxury items or common products, according to the nature of the counterfeited products (dress, drug, software, etc.) or according other parameters like the geographical source, but the typology related above, is most adapted to our problematic.

4.1 Software piracy and its forms:

Software piracy, also known as "copyright infringement of software" (Aladdin, 2007), is a crime commonly defined as illegal copying, downloading, sharing, selling or installing of copyrighted software. The majority of softwares are purchased with a single-user license (it can be used by exactly a single authorized user in one or more machines as long as the same licensee is the only user). Making multiple copies of it and sharing it with other persons is considered to be violation of the license terms and conditions (Khadka, 2015, p. 1).

There are different types of software piracy occurs in different forms. The most common forms of software piracy as listed by SIIA[3] and BSA[4] are:

- **Internet piracy:** It is one of the simplest and fastest means to acquire software while out passing the licence (Khadka, 2015). Thus, thousands of sites propose softwares to downloading, and provide even '*Cracks' (*little program who exploit gaps of which break software protections, making them usable on several machines), or a Key Generator, which provide keys of license's activations, ready to use. This form of piracy increased considerably with the advent of high-speed connection and the proliferation of torrent

[3] Software & Information Industry Association.
[4] The Business Software Alliance

clients (Bitorrent, Utorrent, etc.) and websites proposing thousands of torrents links to be exploited. (like Torrent9, PirateBay or Rarbg for example), who offer with or without a free inscription, hundreds of thousands of downloaded files in peer to peer[5] (such as softwares, videos of all kinds, music files, Books, etc.).

- **Softlifting:** If a person has a single license, and that he can use it on once on only one machine (or on limited number, as it is the case of the antivirus Kaspersky Lab or MS Office 2016), and if he download it on other machines or provides a copy of it to other person, that would, thus, constitute a violation of license and is regarded as an act of software piracy. That is the case which one encounters more within the organizations, which are often satisfied with the purchase of only one specimen of a software and duplicate it on other machines (Korhonen, 2015).
- **Software counterfeiting:** Or 'CD-R Piracy' (the counterfeiting with the direct meaning of the term), which consists in selling at relatively low prices, illegal copying of software by making them authentic, and by conditioning them similarly to the originals. They are sometimes accompanied by documentation to complete the illusion (Khadka, 2015). At least 50% of the software are installed on the PC's in the United States by way of counterfeits (SIIA, 2008).
- **Unauthorized use of academic software:** called also 'Commercial Use of Non-commercial *Software'.* Many software companies sell academic versions of their software to educational institutions at low price, but if the use is normally restricted at the institution, which acquired it, some people violate the license by making a private or commercial uses (SIIA, 2008).
- **Hard-disk loading:** It is the fact of individuals or companies which sell PC's uploaded with fake softwares as incentives with the purchase of their products (Khadka, 2015).
- **Renting:** involves someone renting out a copy of licensed software for temporary purposes. In such type of piracy, software is rented to individual computers and returned the original software to the renter (Khadka, 2015).

4.2 Worldwide software piracy prevalence:

The development of the classical counterfeit (of material objects), is supported by licit or illicit spaces that promote international trade. They are free zones, known as grey, white or of black holes: the 'grey areas', which are in Dubai or in Africa for most known, are precisely delimited territories where the customs authorities cannot intervene or very with difficulty, and where the licit one and the illicit one is scrambled. 'White areas', are strategic territories which are not reproduced on the cards. These phantom territories would intervene in the traffic, in particular, of counterfeited drugs, with the assistance of public or military authorities. 'Black holes', are territories which are almost not attached to an authority, leaving the seizure with the criminal networks which is one of most known is the 'China Mall' of the emirate of Fujairah at 40 km away from Dubai. In this place around 200,000 m² are divided in clusters of counterfeiting goods (cosmetics, leathers, foods, toys, etc.), that go through scrambled tracks before arriving at destination in order to mislead any control (Lachartre, 2013, pp. 125-126).

Regarding the software piracy (except the software counterfeiting proposed in stores and stalls of markets), for the counterfeiters, the matter is so easy: the virtual confrontation of supply and demand does not require displacements, but also the fact that the product is delivered almost instantaneously (just the time of the download).

According to a study carried out by the BSA in 2015, the following maps show the number of PC's which uses softwares without licenses (or 'warez'). To be more accurate and for a clear analysis,

[5] Or P2P network, where the "peers" are computer systems which are connected to each other via the Internet. Files can be shared directly between systems on the network without the need of a central server. In other words, each computer on a P2P network becomes a file server as well as a client (Techterms, 2013).

we selected, for each area of the world, the 5 countries with the largest percentages of uses of unlicensed software, as well as the 5 countries the least affected:

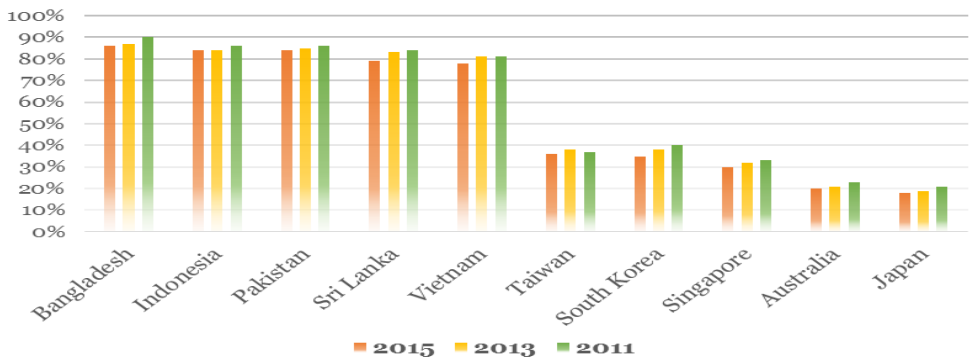


Fig 2. Rates of unlicensed software installation in some countries of Asia-Pacific

Source: Established by authors and based on BSA report: "Seizing Opportunity Through License Compliance", May 2016, p6.

This figure illustrates an interesting phenomenon. On the left countries where the prevalence of the unlicensed software is very important that are countries where GDP per capita is relatively low like Bangladesh ($3,339.6), Pakistan ($5,010.8), Indonesia ($11,057.6), etc. The right side of the figure shows rich and technologically developed countries, where GDP per capita stretches between $34.647 (South Korea) and $85,382.3 (for Singapore). Whilst, China is not represented in Fig.2 (although it is considered as the Eldorado of the counterfeit), not because of a low rate of warez (it's around 70%), but because the high rates in others Asian countries relegate it further down the ranking.

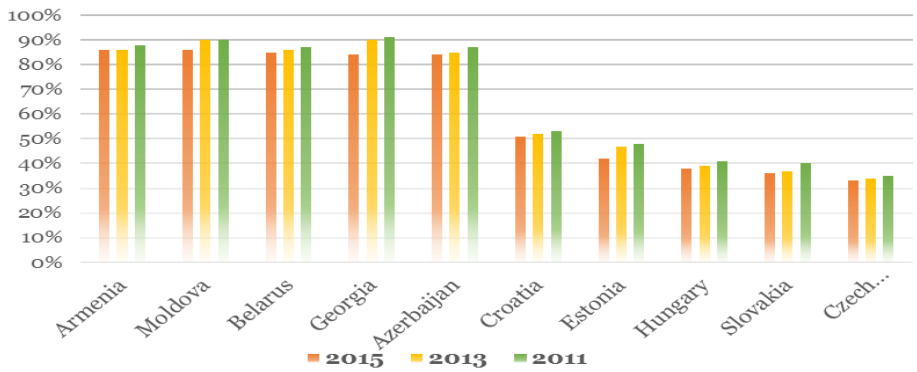


Fig 3. Rates of unlicensed software installation in some countries of Central and Eastern Europe

Source: Ibid.

Regarding Eastern Europe, the rates are also high; countries at the left of the figure often exceed 80% and those of the right side exceed 40%. Here, we notice again the relationship between GDP and the rates of installed warez: In the 5 countries above, the least affected countries are those where the average GDP per capita, in 2015, exceeds $28.300, whereas countries on the left have a high rate of installed warez and their GDP per capita is less than $11800. Russia comes in the 20th position on a list which account 24 countries of Eastern Europe although this country is known for its very gifted and very active hackers and crackers (the rate in Russia, was of 64% in 2015.)

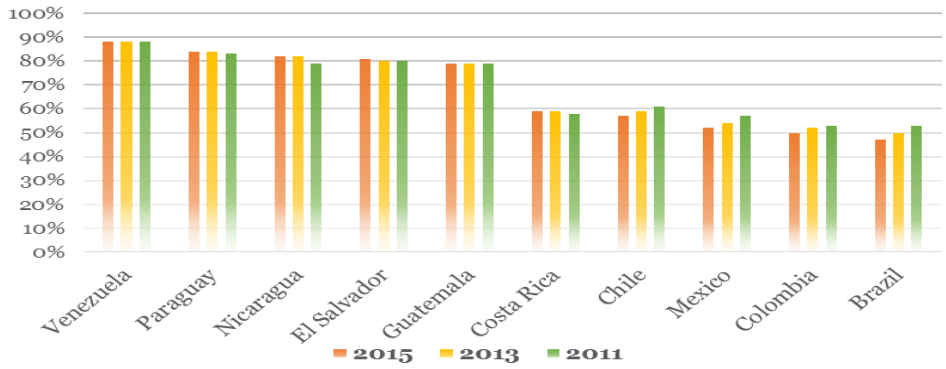


Fig 4. Rates of unlicensed software installation in some countries of Latin America

Source: Ibid.

In South America, the top of ranking is held by countries with rates approaching 80%. However, Venezuela which comes at the top with regard to the rate of unlicensed software installation, has a per capita GDP of $15.000 (Venezuela), which is triple of Nicaragua ($5,200) or the two fold of Guatemala ($7,722). It is quite the same in as that of Mexico ($16,988) and even superior of that of Latin America Colombia ($13,829).

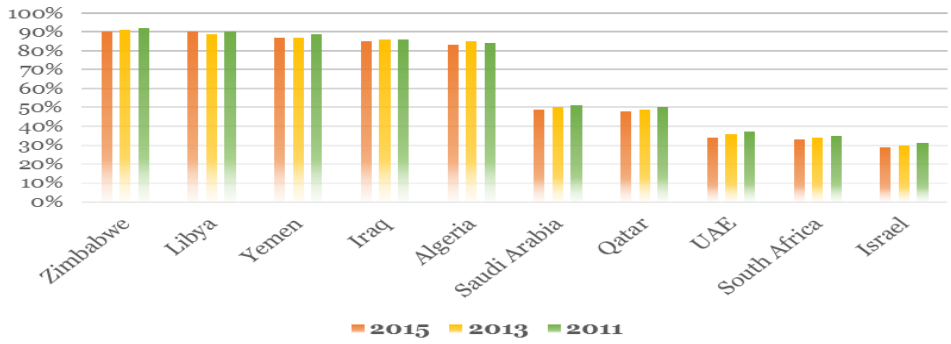


Fig 5. Rates of unlicensed software installation in some countries of Middle East and Africa

Source: Ibid, p7.

Africa and the Middle East are also hit by the phenomenon as the three other areas exposed higher. However, we notice two interesting aspects that are: first, we find at the right, countries with high rates but with a low per capita GDP like Zimbabwe ($1,787) and Yemen ($2,821), with others where per capita GDP are higher than $14,000 like Iraq and Algeria. The second aspect, among the 'lower' affected countries, as Saudi Arabia and Qatar, which in spite of high GDP per capita ($53,539 for the first one and $141,543 for the second, the highest of the world), the rates are too high comparatively to the other 'low rate countries' in the other regions of the world: it's approaching 50%, nearly 20 points higher than the least affected countries in the group (Israel and South Africa.)

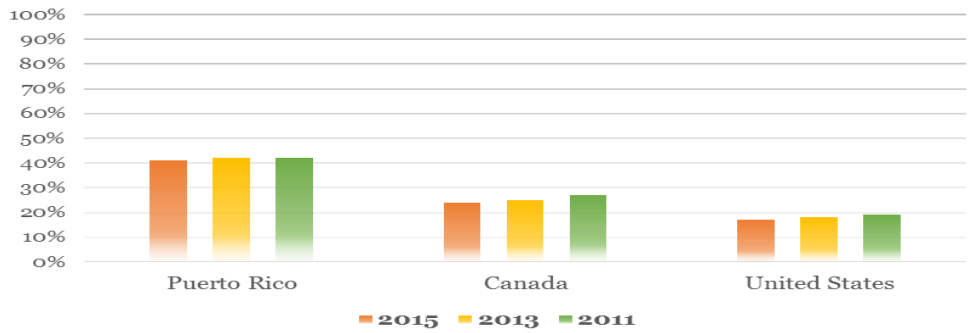


Fig 6. Rates of unlicensed software installation in some countries of North America

Source: Ibid.

In North America, the rates of unlicensed softwares are relatively very low, e.g. in the United States, the rate of installed warez was 17% in 2015, the lower rate of the world. The case of Puerto Rico (41%) is different: since this state, although attached to the USA, has economic, social, political, and even cultural conditions, rather different from those of United States.

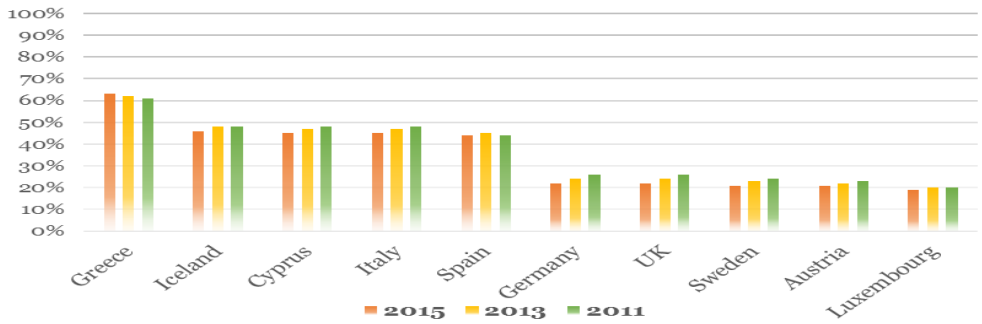


Fig 7. Rates of unlicensed software installation in some countries of Western Europe

Source: Ibid.

Western Europe know as well, a relatively weaker ratio of software piracy compared to other areas. The more affected countries are Greece (46%) and Iceland (23 %). This may be linked to the financial crises that these two countries underwent, and in particular in Iceland, where a distrust to the established order was identified and that translated (with other behaviours) by a resurgence of the use of warez (Stephens, 2017). Note that in left of the figure, we find Italy and Spain, which are far from being poor (respectively $37,217 and $34,727 $ per capita GDP.) This is maybe related to cultural aspects, or to specifications of Mediterranean mentality. Other countries with low rates follow the trends observed above.

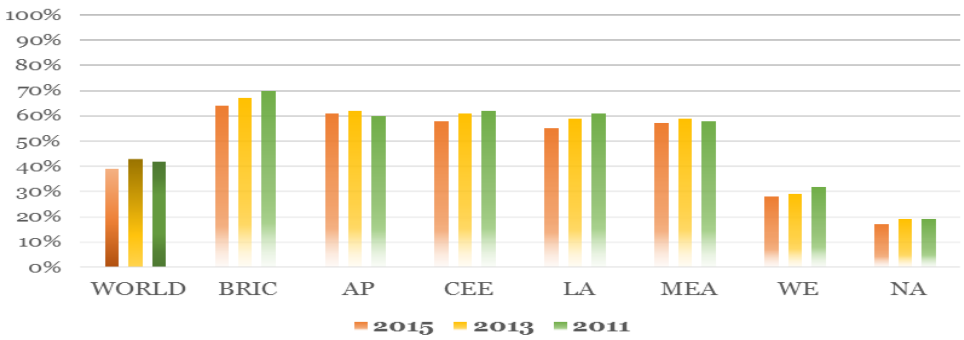


Fig 8. Rates of unlicensed software installation in the world

Source: Ibid.

BRIC= Brazil, Russia, India, China
AP= Asia-Pacific
CEE= Central & Eastern Europe
LA= Latin America
MEA= Middle East & Africa
WE= Western Europe
NA= North America

More generally, the means of unlicensed softwares installation in the world was about 39% in 2015. Most regions have higher rates than this average (BRIC countries, Asia-Pacific, Eastern Europe, Latin America and Africa-Middle East), and for little others it's below (Western Europe and North of America). These are regions designated by a high prevalence of poverty versus more

prosperous countries. However, and as mentioned above, even if there is a close relationship between GDP per capita and software piracy, it is not always obvious; and it's confirms the existence of factors other than economic or pecuniary ones.

4.3 Main causes of the software piracy:

Some of the factors promoting downloading cracked softwares, the use of illegal copies and other forms of unlicensed softwares, could be explained by the level of GDP per capita, but it was shown that this fact doesn't explain the case of some developed or rich countries where software piracy abounds.

It is also interesting to highlight the mechanisms or underlying modes of action of this phenomenon. But, let us start by trying to check if there is a positive correlation between the number of PC's and the use of unlicensed softwares rate. The map below illustrates the world map with the top ten countries with the largest number of PC's:

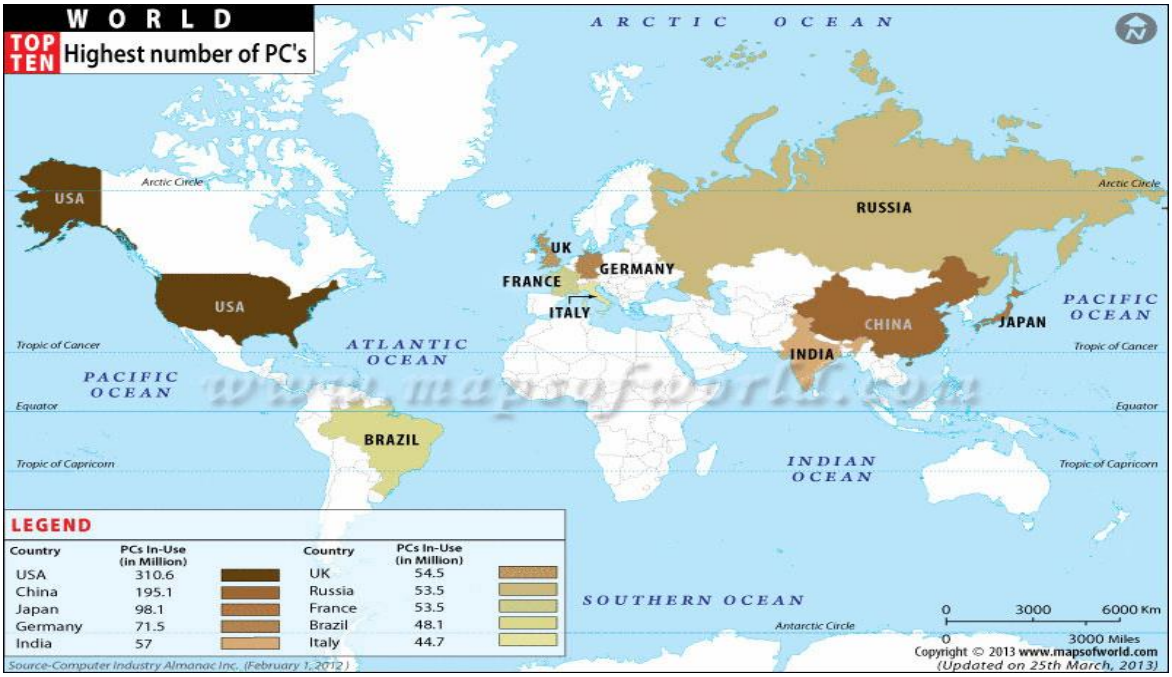


Fig 9. World Top Ten of highest number of PC's in March 2013

Source: https://www.mapsofworld.com/world-top-ten/world-top-ten-personal-computers-users-map.html

PC's and softwares are complementary goods, but a simple look at this map and a comparison with the data given before, and related to the prevalence of piracy, are sufficient to conclude that the presence of PC'S in large number, is apparently not correlated with the prevalence of pirated softwares .In this top ten, there are countries with low rate of installed warez, like United States (18% in 2013), Japan (19%), United Kingdom (24%) and Germany (24%); at the same time, other countries where the use of piracy have a rate higher than 50% of the PC'S in 2013: China (74%), Russia (62%), India (60%) and Brazil (50%).

Regarding the factors fostering the phenomenon, first, we distinguish affecting offer factors from demand affecting factors of pirated softwares; in other words, separate the motivations that encourage some to cracking softwares, from the other factors that push peoples to use pirated softwares.

a. Factors favouring the offer:

The typology used to distinguish different types of hackers, is actually based on the motivations that prompt them to act. Thus we find:

- The Script-Kiddie: denigrating term, used to designate lambda users without extensive computer knowledge and who use tools created by others in order to harm peoples. Sometimes referred to as 'Lamers', they are very dangerous by their incompetence (ACC, 2012). Their main motivations are often a search of belongingness and recognition.
- The Hackers: This is perhaps the name most used to refer to computer hackers, except that this word is really just a part of the pirate population: the origin of the word hacker goes back to the arrival of the first computer to the MIT (The IBM 704), which becomes a sort of Guinea pig for passionate students, fiddling in detail, without worrying about the use of IBM protocols. At the time, it described their work with the term hacking who were using a machine or technology for purposes that were not planned. According to their own definitions, hackers are 'passionates of networks' (Dejour & Souville , 2006), which have a very high level in computing, wishing to understand the information systems functioning mechanisms in every detail, in search of knowledge, but also to identify vulnerabilities and eventually exploit them (ACC, 2012). However, we find among the hackers some sub-types: the 'White Hats', innovators who use their knowledge the service of society (networks, specialists, administrators, security consultants open source...); the 'Black Hats', without scruples and who use their knowledge to circumvent or infect by viruses and malware, systems and information networks, and who are the archetype of the pejorative sense of computer hackers; As for the Grey Hats, they have no harmful intent, but do not hesitate to illegally infiltrate networks and systems, and seek more achievement and fame. There a last kind of hackers, called 'Hacktivists', whose objectives are political, and employ their knowledge to disseminate and promulgate their own opinions or political leaders ideology or their Governments policies. Their targets are often the most visited sites (the sites of news for example channels) or the governmental websites of "enemies".

These two categories of pirates are Lamers and Hackers, and even if they use any warez, they are not like the main creators or broadcasters... This is more the niche of Crackers.

- The Crackers : are computer specialists (in assembler-disassembler, programming languages, etc.), working mainly in the breaking of the softwares protection, neutralizing or bypassing the protection measures of softwares by creating a 'Patch' (or 'Crack') or a 'Keys generator' in the case of softwares protected by keys. Sometimes, the crackers act in groups, called into the piratosphere "Warez Groups", involved in creating and/or distributing warez such as movies, music or softwares, Their exploit is the breaking of the 'DENUVO' protection[6] (deemed infallible) of some games, they assure for themselves a worldwide reputation. Among the best known of these warez groups: 'DEVIANCE', 'CPY' or even 'CODEX', very appreciated by gamers around the world, as they have regularly cracked games and free downloadable online, they act more by altruism or what may be referred to by 'Robin Hood effect'[7] : they give without expecting anything in exchange, if not recognition.
  There exist also, the fact that the crackers, often, put the emphasis on the technical difficulty of their exploits, provide information on some of their major motivations: the challenge, the excitement that accompanies the transgression of the rules and the competition between developers of softwares and crackers or between warez groups to prove who the better are.

  Some other crackers are motivated by purely monetary considerations, and even more are those who take advantage of warez by offering compressed files to download for free, but which require for their opening, password to pay or that you can get only by overcharged SMS or after

[6] Denuvo Anti-Tamper, or Denuvo, is an anti-tamper technology and digital rights management (DRM) scheme developed by the Austrian company Denuvo Software Solutions GmbH (Wikipedia, 2016). It's reputed like the most secure anti-piracy technology in the world.

[7] It's exist an economic occurrence called "*The Robin Hood effect*", a phenomenon where the less well-off gain at the expense of the better-off. The Robin Hood effect gets its name from the folkloric outlaw Robin Hood, who, according to legend, stole from the rich to give to the poor (Investopedia, 2006). But the effect that we talked about here, concern another type of acts, which consist to give without waiting for anything in return.

clicking on a number of banners, It is the case of the site torentzzz.com or torrents.me for example.

b. Factors favouring the demand of warez:

- Price of legal softwares: This is one of the mains arguments of the users of warez. In countries where the purchasing power is low or fluctuating because of inflation, users have everything to gain by downloading and using unlicensed softwares. Regarding inflation, a positive correlation was found between it and the rate of use of warez, while this may be negative with income. Generally speaking, economic development is negatively and significantly related to software piracy rates. For example, a 10% increase in per capita GDP is associated with nearly 3% point decrease in software piracy rates.

  The table below takes the average wages in some countries and prices of 'Office Home and Student 2016', sold on the 'Microsoft store', in June 2017:

Table 1. Comparison between wages and Office price in some countries

Country	Average Monthly Wage (in 2016)	Price of "*Office Home & Student*", on Microsoft store (June 2017)	Share of Price from Average wage
United States	$5,013	$149.99	3,0%
Canada	$4,034	$149	3,7%
Germany	$3,866	$166.92	4,3%
France	$3,583	$166.87	4,7%
United Kingdom	$3,570	$152.73	4,3%
Italy	$2,950	$149	5,1%
Greece	$2,094	$149	7,1%
Mexico	$1,276	$94.19	7,4%
China	$656	$109.56	16,7%
Russia	$549*	$149	27,1%
Algeria	$359	$119.18	33,2%
Paraguay	$356**	$100.71	28,3%
Zimbabwe	$353***	$119.99	34,0%
Bangladesh	$328***	$120.17	36,6%

* In 2015 **Mean from May 2016 to December 2016 ***In 2017

Source: Established by authors from different sources.

For example, in Algeria the GMI ('Guaranteed Minimum Income' is 18,000DA / month ($165 at the exchange rate of May 2017) and the average salary of 39,200DA per month ($359), while the price of a legal version Of MS Office Home & Student 2016, costs about 12,999DA ($119.18), approximately 33% of the average wage or 72% of the Guaranteed Minimum Income, so what about professional softwares such as AutoCAD or Adobe After Effect? It is clear that even for those who earn double or triple the average wage, download a pirated version is more profitable, mostly that the cost of the 4Mbps internet connection is only around 3,100DA ($28) per month. The behaviours are not different for Western populations in rich nations (as was

showed in the section relative to the prevalence of the use of warez): The 'free' has an irresistible attraction, in front of which fade many inhibitions!

- Laxness of the authorities and/or weaknesses of anti-counterfeiting legislation: In several countries developers, sellers, distributors and even warez or illegal copies of softwares or multimedia content, are subject to quite severe fines and even imprisonment. For example in the United States, if any business organization or individual is found guilty in copyright infringement, they will be sentenced to jail terms of up to 5 years along with $250,000 as fines. In France, and under the HADOPI law [8], any guilty person of downloading softwares or multimedia content without a license, is punishable up to a prison sentence of 3 years and a fine of 300,000€. Of course, it's too dissuasive actions: a negative correlation was found between IPR enforcement, piracy practices and uses (Chua & Villasor, 2016), a result confirmed by Shoirahon: "…Countries with British legal origins tend to have lower software piracy rates by nearly 8 percentage points" (Shoirahon, 2017, p. 5).

  However, countries like Algeria have a whole arsenal of legislation protecting intellectual property along with an official institutions operating in this affair: INAPI, Institut National de la Propriété Industrielle (in English: National Institute of the Intellectual Property), put under the supervision of the Ministry of Industry and ONDA, Office National des Droits d'Auteurs (English: National Office of Authors Rights). Anyone found guilty of infringement of a work, is liable to a term of imprisonment of 6 months to 3 years and/or a fine of 500,000DA 1,000,000DA ($4,579 to $9,152). But despite this punishment, the warez are present on almost every PC's in the country, even on computers of top executives of the state.

  As a result, the application of the law is as important as the existence of laws, so if laxness there is in some countries like Algeria, it is often not because of deficiencies in legislation, but because it suits everyone even to the State, which finds itself unloaded to offer payed services to the population, while they can serve themselves and free of charges.

- Ignorance of the concept of property rights: Even if nobody is supposed to ignore the law, several studies have shown that millions of users around the world and during the process of installation of softwares, few are those who take the trouble to read pages and pages of terms of the license, and click the button 'I agree to terms' mechanically. This ignorance, contribute widely to the increasement of the prevalence of warez use (Fang & Lee, 2016). In the case of warez, they do not even realize that what they are doing is a perjure, then punishable by the law, because they had agree, by clicking, to respect the property rights and use a genuine product.
- Social and cultural factors: It has been found that there is a strong correlation between social or cultural factors and software piracy. These factors refers to the prevailing social structure of a country and the attitudes shared by the members of that society. Several previous studies have shown that collectivist-individualist aspects of the society affect the piracy rate in any country. For example, software piracy is most popular in collectivistic societies where software is purchased by an individual and is shared among other members of the society (Khadka, 2015, p. 7).

  Otherwise, Labandji says about the piracy of movies, music or satellite TV packages, illegal access to the images of foreign countries is not only sought for the entertainment it provides, it is a means of 'getting away' from a daily life made of economic difficulties and insufficiencies democracy (Labandji, 2011).

[8] The French HADOPI law or Creation and Internet law (French: *Haute Autorité pour la Diffusion des Œuvres et la Protection des droits d'auteur sur Internet*, "High authority for the distribution and protection of creativity on the internet") was introduced during 2009, providing what is known as a graduated response as a means to encourage compliance with copyright laws. HADOPI is the acronym of the government agency created to administer it (Wikipedia, 2011).

Finally, other studies have identified other factors that may affect the use of warez and illegal downloading, like the gender effect, where males commit more software piracy acts than females (Fang & Lee, 2016), unavailability of legal softwares in local markets (Fossbytes, 2017) and (Peace, Galletta , & James , 2003), who proposed a behavioural model about the motivations of individuals and the use of warez. It also provides information on the types of correlations that exists between the different factors and the use of pirated softwares:

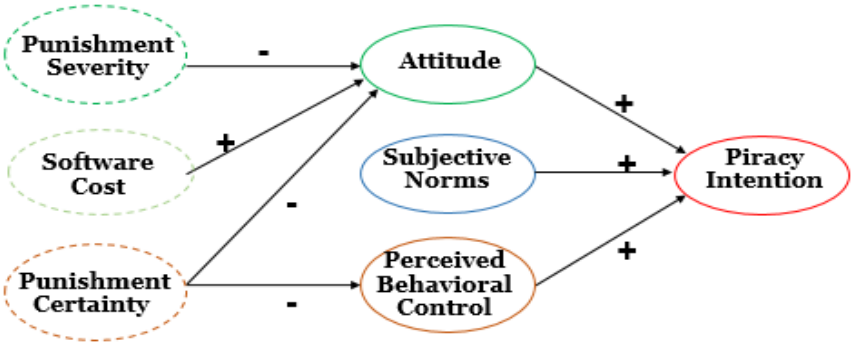


Fig 10. Model of Software Piracy Behaviour by Pearce & al.

Source: Peace, G., Galletta , D., & James , T. (2003). Software Piracy in the Workplace: A Model and Empirical Test . Journal of Management Information Systems, 20 (01) Summer, p162.

4.4 The impacts of software piracy:

The impact of software piracy can be positive or negative, depending on which side we are: for a softwares vendor, piracy allows a profit margin that is close to or exceeds the 90%: it supports only the cost of a blank CD to 30DA ($0.27) in Algeria, for example, which he sold to 300DA ($2,7). As for the cost of the connection for the duration of the download and the electricity, they are paltry in comparison and are quickly amortized due to economies of scale. For users, and despite the risks of infecting their machines with viruses and malware, for each illegal download, they saves the equivalent of the legal copy. But the profits of some are the losses of others. In what follows, we will list only the "negative" effects of software piracy, which nevertheless remains an illegal activity despite the benefits it brings to users:

- A lack a win for companies and developers: in March 2017, more than 3,739 millions of people uses internet (IWS, 2017) and in 2015, consumers spent $444 billion on softwares around the world (Frontier-Economics, 2017). Then the software piracy takes industries in direct competition with counterfeiters suffer a direct loss in sales. Losses are proportional to the prevalence of warez: For the year 2015, if we calculate losses due to software piracy at the cost of used illegal softwares, we get by order descending the following losses: $19,067 million for the Asia-Pacific region; $10, 543 M for Western Europe; $10, 016 M in North America; $5, 787 M for Latin America; $3, 696 M in Africa-Middle East and $3, 136 M for Central and Eastern Europe region. In total, the aggregate value of illegal copies of softwares used worldwide is estimated at $52.24 billion (BSA, 2016), so that the ‘International Chamber of Commerce’ (ICC) estimate the overall value of digital piracy in movies, music and softwares in 2015 to $213 billion: $160 bn in films, $29 bn in music and $24 bn in softwares (Frontier-Economics, 2017).
- The increase of the expenditures: related to the protection of rights property (OECD, 1998), additional costs which increase the prices of softwares, and the first sufferers are the purchasers of legal copies.
- The deterioration of the enterprise reputation: Often illegal copies have bugs and the users can wrongly believe that the malfunctions come from the creators. This situation could be seriously harmful for the companies’ reputation producing softwares, and may negatively overflows the future products.
- The slowdown in innovation: The proliferation of pirated softwares, discourages investment and therefore hinders innovation. This last is also hampered by the discouragement of the creators of

softwares or multimedia works, who see much of their efforts transferred without consideration of any kind.

- A tax shortfall for States: counterfeiting in general represents a considerable tax shortfall through VAT, corporate excise tax and the income tax. In the field of softwares, it was estimated that if the software piracy rate declines by only 10%, for the period (2010-2014), and only in the United States, it is then $7 trillion of tax revenue that could be recovered (UNIFAB & IRPI, 2010). However, it is very difficult to quantify the amount of these losses in detail, because of the wide variety of tax regimes in the world, among other things.
- Link between unlicensed softwares and cyber security threats: malware can be embedded in the softwares, in the sites and sources from which the malware is obtained and in the reluctance of users of unlicensed softwares to install security updates (Gantz & Pavel , 2015, p. 5). The resulting costs are huge: In March 2013 it was estimated that during the year consumers would waste 1.5 billion hours dealing with malware from counterfeit softwares; direct costs to enterprises would amount to $114 billion (Frontier-Economics, 2017, p. 35).

5. Confrontation of the arguments of the pro and anti-piracy, and some propositions:

This confrontation results from some drawn deductions shown in the following schema:

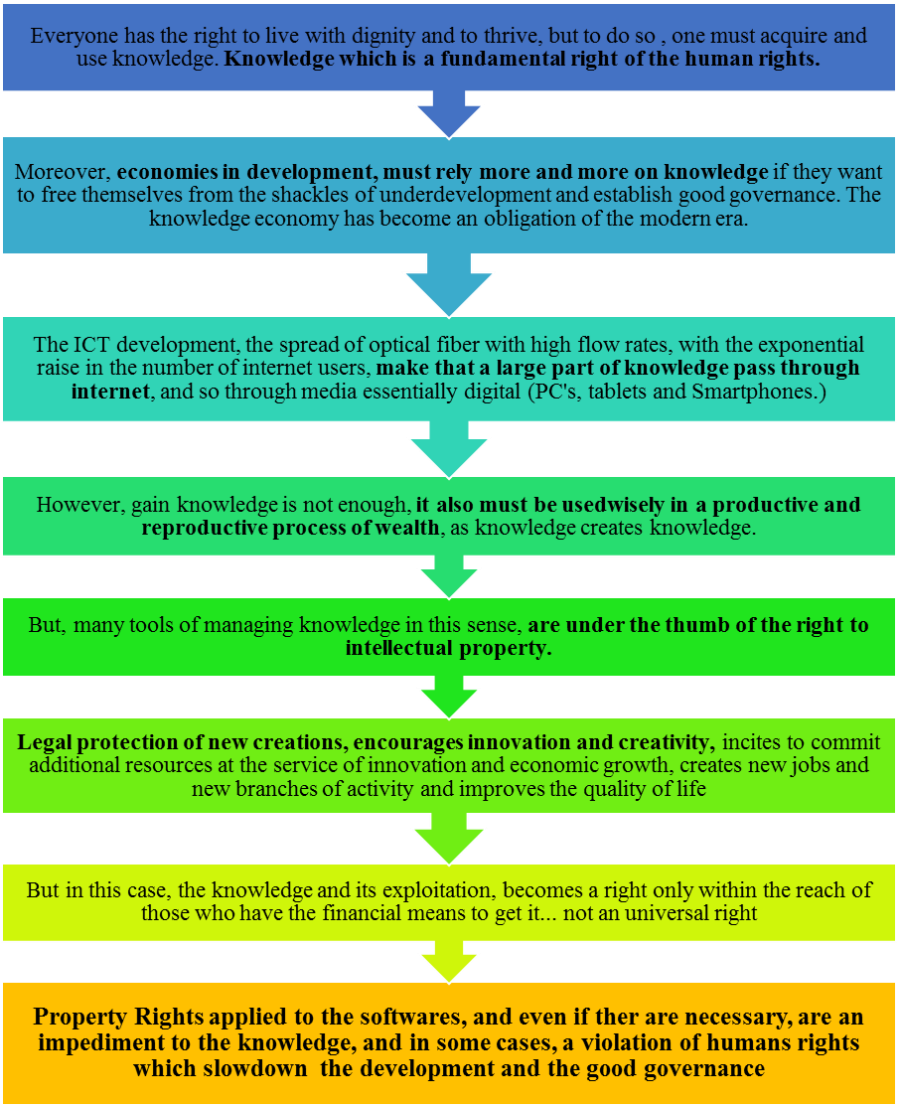
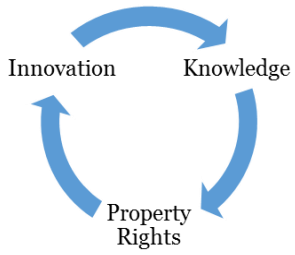


Fig 11. The dilemma 'Property Rights–Knowledge Right'

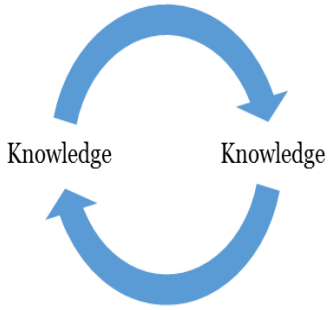
Source: Established by authors

In simple terms, the positions of the two group can be reduced to this schemes:

For the anti-Software piracy camp:



For the Pro-Software Piracy camp:



But…

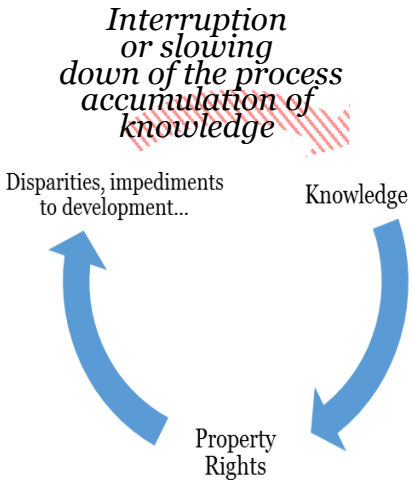


Fig.12: "Positions against property rights of pro and anti-software piracy"

Sources: Established by authors

It is a paradoxical situation, as each of the two sides (in favour of software piracy and those who are against), has more or less strong arguments, but justifying half-truths sometimes:

- For the anti-piracy software camp, it's the cause of losses close to $24 billion (valued at the market value of illegal copies circulating around the world), and the loss of thousands job opportunities, noting that it is a shortfall and not a loss .There is no guarantees that warez users will change their behaviours immediately and buy legal copies, in the unlikely event that a trick is found to eliminate software piracy. On the other hand, vendors of illegal copies are more noxious: they do a handling of stolen goods, because they sell what has been acquired illegally, and they pay no even taxes on their sales.

Concerning the impact on employment: it's difficult to evaluate, since the piracy of a game or a softwares will, in theory, harm the designers and distributors rather than others; then, the huge impact of software piracy on employment, related by the software companies and authorities, seems to be exaggerated. In 2016, there are 1,114,000 software developers employed in United States (estimating), with incomes evaluated at $49,17 per hour or $102,280 per year, and an increase of 186,000 jobs from 2014 to 2024 (BLS, 2015). These statistics proof that this sector is far from crisis.

- In addition, many people claim falsely that the use of warez is exclusive for poor people without resources. Certainly, it is more common in less developed countries, but the BSA statistics shows that no country is away from that. In the case of developing countries, imposing outdated, iniquitous, inadequate and sometimes contradictory rules and setting prices of the softwares on these bases, lead to exorbitant prices and responsibility sharing of that, pushes many PC's users to the "dark side", in other words, the remedy is partly the cause of evil.

- As to the negative impact of software piracy and the spread of warez on innovation, it is true that those who cry wolf do not hesitate hack and copy, not even to evolve knowledge, but for purposes purely mercantilist. Samsung the Korean giant, was in open conflict with Apple for several years in the field of intellectual property. Samsung has managed to appeal to overturn the ruling that had sentenced it in 2014 to pay $ 119.6 million to Apple for violating three patents. These three titles of industrial property relate to the software part of the iPhone, namely the iOS operating system. There is a method of automatic correction of the text, a system for the identification of a number appearing in a message and the famous 'Slide to Unlock' feature. In 1988, Apple filed a historic lawsuit against Microsoft. The trial has asserted that Microsoft Windows used GUI (Graphical User Interface[9]) parts too similar to those of Apple products such as the Macintosh operating system. However, Bill Gates had stated at the time: "We're saying that these graphic interface techniques, the ideas, are not copyrightable"… trials brought by Steve jobs, the Apple icon, then that he even expressed strong agreement in a TV interview, with the following aphorism which he ascribed to Picasso "…Good artists copy; Great artists steal" (Farber, 2014)…as the saying goes "This is the pot calling the kettle black". Moreover, does this facts not proofs that the property rights that are supposed to encourage innovation, are sometimes an impediment to innovation?

What to do to solve this dilemma? Here are some propositions:

- By means of the table data1, it is shown that the software was generally sold at nearly the same in different countries. In the USA for example, the average income is 15 times higher than that in Bangladesh, but the price of the MS Office is just 1.25 more expensive in United States than in Bangladesh… it is thus a question of selling the software at more accessible prices and more or less in keeping with the purchasing power of each country. The pricing by using relative prices is perhaps an option to take into consideration :

  To avoid complication due to the numbers of hours worked in each country, the numbers of days per month, the numbers of public holidays paid, etc., hence we use the following formula:

  Months of work necessary to acquire a good Z= (Price of Good Z/Monthly wage)

  To obtain the volume of work in hours, it is necessary to multiply the result by 24 (hours) and then by 30 (days). In the USA for example, we have:

  149.99/5013 = 0.03 months

  = 0.03 x 24 x 30= 21.54H

[9] Stands for "Graphical User Interface" and is pronounced "gooey." It is a user interface that includes graphical elements, such as windows, icons and buttons (Techterms, 2015).

Then, it takes 21.54 work hours to buy MS Office Home and Student Edition. If we carry out calculations starting from the data of the tab.1, we will find that in the countries of G7 (except Russia), it is necessary to accomplish between 21 and 36 work hours to acquire the product of Microsoft, that is to say 30 hours approximately on average or 4.17% of the Monthly wage. Let us put this value of 30H as standard to evaluate the prices of the software in the developing countries, that is by calculating the wages per hour of each country (average Monthly wage / (24h x30j)) and by multiplying it by 30. If we do it, we obtain more equitable prices:

Table 2. Prices of MS Office in some countries after Indexation

Country	Normal price of MS Office H&S	Indexed Price of MS Office H&S	Share of Indexed Price from Average wage
China	$109.56	$27.32	4.17% (=30h of work)
Russia	$149	$22.87	
Algeria	$119.18	$14.95	
Paraguay	$100.71	$14.83	
Zimbabwe	$119.99	$14.70	
Bangladesh	$120.17	$13.66	

Source: Established by authors

This is obviously only one example which may seem utopian, but it is always within the advantage of so many users who obtain products of better quality and without viruses nor malwares, and also of the companies, Microsoft in fact, which nevertheless obtains something of the use of its softwares.

- On another hand, to adopt the industry business plans of the gaming on Android and iOS platforms seems a good track to reduce piracy and prevalence of warez. Let us take two examples, the Free to Play and the Freemium :

Free to Play (F2P), "…refers to a business model for online games in which the game designers do not charge the user or player in order to join the game. Instead, they hope to bring in revenue from advertisements or in-game sales, such as payment for upgrades, special abilities, special items, and expansion packs" (Techopedia, 2011). Many applications on tablets are based on this principle, and they make it possible to their owner to earn millions of dollars, like Candy Cush Saga with his $569 millions sales turnover in 2015 (Takahashi, 2015) or Angry Birds and its owner, Supercell, that realized, in 2014, more than $2.4 millions incomes per day (Bonvin, 2014). Certain softwares adopts also this principle,like the Avast antivirus , which can be downloaded free in basic version, but which becomes paying if one wants to go to the Premier version ($79.99 a year). Youtube has adopted an alternative way: before October 2015, all the contents were free, but now advertisements often precede the videos you want to see, however, if you subscribe to YoutubeRed and pay $9.99 per month, the inopportune advertisings are removed.

Concerning the Freemium, it "is a business strategy or model implemented by business owners or service providers to allow a user to use the basic features of a service or product free of charge for a limited time period. The service providers normally charge a premium for additional or advanced features. The term freemium is a blend of the two words free and premium." (Techopedia, 2011). This practice is found in Sharewares, however, the freemium softwares continuous to function after the fateful time, whereas the shareware are blocked automatically (which is invitation to the crackers to show their talents). An example among others of freemium

is a statistic software called 'XLSTAT'. Its offers more than 200 very useful tools and features in its temporary version of 30 days of test, but at the end of this period it is retrogressed in free version and only with 13 tools available.

Obviously it is not claimed that the these measures are the panacea to the software piracy, and it will always have vicious people who will try; and may be succeed to crack a freemium or free to play softwares, but at least, these businesses plans can reconcile the Robins Hood, defensors of the 'all free', and the Kings John, bugles of the 'all paid'.

6.Conclusion:

"More evil gets done in the name of righteousness than any other way"

(Glen Cook, The Fifth Chronicles of the Black Company, 1990)

It is in the name of human rights to knowledge that pirates divert the labour of others, and it is with the name of copyrights and property rights where multinationals block the propagation of knowledge. For many warez groups, property rights on softwares, under their present form, are a shovel that further digs the digital divide and piracy another serves to bridge the gap.

So what to do? Continue with the actual regime of rights on softwares? Support pirates and the users of warez? Classic control (strengthening of legislation, developing more systems of protection, etc.), have their limits and software piracy has good days ahead. So, claiming to eradicate the phenomenon is purely fanciful but it's possible to be contained, by making an effort on prices and index them according to average purchasing power for example, or by the adoption of certain techniques like business plans used by many creators of games for tablets and smartphones; all we need to do, is a little more of will and a little less egotism from each part.

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