

From Intellectual Property to the Economy of Knowledge¹

“If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea”²

Thomas Jefferson, 1813

“The goal of copyright is to encourage the production of, and public access to, cultural works. It has done its job in encouraging production. Now it operates as a fence to discourage access.”³

James Boyle, The Public Domain

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Abstract I. As the value of goods and services is shifting from the material content to that of knowledge embodied in the productive processes, an ideological and economic battle is launched about the right of access to knowledge. Open and practically at no cost, access to knowledge and to culture allowed by the new technologies is a blessing and not a threat. It is a fundamental vector for the decrease of social unbalance and generalization of the technologies demanded for planetary environmental protection. Try to block the course of this process, restrict access to knowledge and criminalize those using it does not make the slightest bit of sense. However, it does make sense to study the new rules of the game assuring a place in the sun to many of the stakeholders. It is worthwhile to be aware of the universe of changes being disclosed as described in the works of Manuel Castells on network society, Alvin Toffler on mega trends of the knowledge society, of Lawrence Lessig on the future of ideas, of Andre Gorz on creative economy, of Jeremy Rifkin on the era of access, of Eric Raymond on the connectivity culture, of Pierre Lévy on collective intelligence, of Joseph Stiglitz on limitations of the patent system, of Hazel Henderson on the “Win-Win” collaborative processes, of James Boyle on articulation of rights and so many of the other innovators. In these proposals we will see that changes are not waiting for the design of utopias, another world is becoming feasible.

Abstract: As the value of goods and services moves from material to knowledge content, the rules of the game are changing. Knowledge can be easily shared, for the benefit of all, and trying to prevent the natural curiosity we all feel in understanding how things happen and the pleasure of creating and sharing cultural innovation, simply make no sense. The

¹ The current article partially relies on the chapter “Economics of Knowledge”, of “Economic Democracy”, L. Dowbor. Ed. Vozes, 2008

² Thomas Jefferson, see original

³ “The Public Domain”, Boyle, pg. 224

different stakeholders of the creative process have a very legitimate right to earn their living, but certainly not by placing tollbooths at every step of innovation. We need more creativity in the rules of innovation. The present paper is an attempt to make good sense of the contributions of Manuel Castells on the network society, of Alvin Toffler on the mega trends of the knowledge society, of Lawrence Lessig on the future of ideas, of André Gorz on the creative economy, of Jeremy Rifkin on the era of access, of Eric Raymond on the connectivity culture, of Pierre Lévy on the concept of collective intelligence, of Joseph Stiglitz on the limitations of the patent system, of Hazel Henderson on the “Win-Win” collaborative process, of James Boyle on the rules of the new game, for it is a new game, and just looking for “pirates” and “criminals” is not helping.

1 – The terms of debate

It is important to make it quite clear from the beginning, that according to the outlook of this article we are not living in normal times of business as usual. We are living in times of climate chaos, of effective exclusion of four billion people from what the World Bank simply calls the “benefits of globalization”, of the end stage of oil and need to change the paradigm energy-production, of a planetary unfairness that has been accumulating and worsening – one billion people going hungry, one third of the world’s population still cooking with wood, ten million children dying every year, of hunger, of lack of access to clean water and so on and half a million mothers that die yearly at childbirth, when cheap and simple elementary procedures are well known, of 25 million people that died from Aids while corporations discuss the advantages of patents, this is just to mention some of our predicaments - and that solutions do not belong to the bucolic past but to the future, impregnated with knowledge and technologies, that we are facing. Technologies and knowledge in general, must above all serve to formulate responses to this challenge.

The issue of access to knowledge, one of the basic vectors of democratization of knowledge and of planetary rebalancing has therefore become essential. To reestablish the balance between remuneration of middlemen, creative conditions for those who innovate and expansion of planetary access to the outcomes – the strategic goal of the entire process – is the challenge that we have to face.

New technologies allow that knowledge acquired by humanity, such as science, works of art, music, motion pictures and other manifestations of creative economics are universally accessible, virtually at zero cost. Obviously, this is an immense benefit, for the educational and cultural progress of all. But for the middlemen of access to creative goods, who controlled the material basis of their availability, a profound change has taken place. Instead of adjusting to the new technologies they feel threatened and seek to thwart use of

access technologies accusing those who use them of piracy and even of being unethical. Thus, two dynamics are generated; one that seeks to use the technologies to disseminate cultural enrichment and the other that strives by means of laws, criminalization and use of the power of State to avert the expansion. Technologies have made cultural goods increasingly available, while laws by organized pressure of middlemen symmetrically evolved towards making access more difficult.

The corporate world is advancing in a tough and organized way: “In September 1995, the contents industry, working with the American Department of Commerce began to devise a strategy to protect the business model in view of digital technologies. In 1997 and 1998 this strategy was implemented by means of a series of new laws intended to extend the copyright validity of the work, increase criminal penalties for copyright infringement and punish use of technologies endeavoring to avoid digital barriers placed in digital content”.⁴ Today, every time we turn on the radio or TV, we hear complaints about piracy and calls for “ethics”.

The practical result is well known: we will only have digital access to a work 70 years after the author’s demise (for instance 2050 for Paulo Freire). This means that 90% of last century’s work remains unavailable for digital research, while making profits on copyrights is limited to five or at most 10 years after publication. There is a huge social loss for small private profits. The solution is not to settle intellectual property rights but to restrict them to five years, renewable for five years or more. The majority of work becomes unavailable because it is almost impossible to identify the owner of the rights, that is to say, for those willing to pay for a re-edition.

The justification is to help struggling musicians to survive by protecting their rights. The image is touching but one look at the size of the corporations that are flying to the side of the humble tends to change the focus. As mentioned by one of the more relevant lawyers in the United States, James Boyle, this is a matter of protecting monopoly rent. And the blame falls on those wanting to access and disseminate culture at no cost. Indeed, the author has little to do with the situation. Copyrights are generally taken over by those who own the copyright or the patent and more often in this case, they are middlemen. The fact is that when enforcing creative economy, the laws coming from ownership of physical goods radically unbalance the creative process that now requires new rules for the game.

A number of researchers in the academic world have shown that the overwhelming majority of students access scientific and cultural production in a way that could be considered illegal. Should we criminalize youth? For a person that has just discovered a nice piece of music on the Internet, to send it to a friend is the immediate reaction, because

⁴ Lawrence Lessig, *Remix*, pg. 39

one does not enjoy these things alone. Should these youths be criminalized?⁵ Lessig has perceived the obvious: a law that seems idiotic is not respected. To induce the young to lose respect for the law may, yes, be a very serious affair. Indeed, we must face this widening breach between that which is permitted by technologies and that which the law forbids, probably in a less ideological or less hysterical manner. Nonprofit educational and scientific use must be made available. Personal and interpersonal non commercial use must be facilitated.

According to James Boyle, “The majority of sound recordings made more than forty years ago are not now commercially available. After fifty years, only a very small percentage is still being sold. It is extremely hard to find the copyright holders of the other works. They might have died, gone out of business, or simply stopped being interested. Even if the composer can be found, or paid through a collection entity, without the consent of the holder of the copyright on the musical recording, the work must stay in the library. These are “orphan works” – a category that probably comprises the majority of twentieth-century cultural endeavors. Yet as I pointed out earlier, without the copyright holder’s permission, it is illegal to copy or redistribute or perform these works, even if for a nonprofit purpose. The goal of a copyright is to encourage the production of, and public access to, cultural work. It has done its job to encourage production. Now it operates as a barrier to discourage access. As the years go by, we continue to lock up our entire recorded culture from each year in order to benefit an ever-dwindling percentage – the lottery winners – in a grotesquely inefficient cultural policy”.⁶

On another level, it is curious to note the weakness of arguments that free availability of books would hamper sale. Paulo Coelho, who recently began to make his books available online, free of charge found out that sales did not drop, but instead increased.⁷ In an excellent article, Cédric Biagini and Guillaume Carnino remind us that “the paper book in its linearity and finitude, in its materiality and presence is a silent refuge which challenges the cult of speed and the loss of critical sense. The book is a haven, an object to register coherent and articulated reasoning apart from the network and endless flow of information and requirements: it continues to be one the ultimate strongholds ”⁸ A person who enjoys a

⁵ “As a recent survey by the market research firm NPD Group indicated, “more than two-thirds of all the music [college students] acquired was obtained illegally” – quoted by Lawrence Lessig, *Remix*, pg. 111; Lessig considers that we should “change laws that criminalize most of what our children do with their computers” (pg. 19).

⁶ James Boyle, *The Public Domain: enclosing the commons of the mind* – Yale University Press, New Haven & London, 2008, pg 224 – See original: (pg. 224)

⁷ See the article by Jorge Machado on Paulo Coelho’s adhesion to the São Paulo Declaration” about intellectual property in <http://www.gpopai.usp.br/boletim/article88.html> - “I thought that this was fantastic. To give the reader the possibility to read our book and chose if he wants to buy it or not”, says Paulo Coelho, who devised the blog www.piratecoelho.wordpress.com ; Paulo Coelho is unquestionably a “lottery winner” however he grasped the process’ absurdity.

⁸ Cédric Biagini and Guillaume Carnino, *Biblioteca de Bolso*, Le Monde Diplomatique Brasil, September 2009, pg. 38.

book after reading a part, probably will feel like buying it. There is room for all, without a monopoly of benefits.

In the case of the music, losses are significant yet limited, corporations estimate how many free downloads are being made, multiply the figure by the price they charge for the records (absolutely exorbitant in view of production and advertising costs) assuming that if there had not been downloads all these people would buy the records. The resultant figure is imaginary, but looks good in the advertising we see every day.

In the case of patents, the issue is even more regretful, and as we shall see below, it increasingly turns out that the maze of legal restrictions has reached such a point that it hinders research much more than encouraging it. A 20 year monopoly over an idea might have been conceivable half a century ago, but not at today's pace of innovation.

The truth is that the context of creative economy changed radically, because, although a creative work may have a production cost, once created, a work may become a source of endowment for humanity as a whole, since availability is practically free. When availability required material support – the printed book, record, and tape – it was natural to charge the incorporated cost. Without the editor, without the TV broadcasting station, people would not be aware of the creation. Availability and generalization of knowledge was not possible without them. Today, these corporations try to prevent availability because in the digital era, we can enjoy a book, music or movie without having to add value, so these corporations seek to block access and criminalize this use.

To give an example of evolution: at the end of the nineteen eighties, IBM tried to stop dissemination of the “clone” (called the “pirate” PC), by means of the micro channel proprietary technology. It was believed that the IBM standard would be the option of all, by its market domination. But it soon noticed that all fled to the “clone”, towards the free technological creation. IBM learned the lesson and began to sell software. With the software it became a free good (the enterprise itself today uses Linux); it began to sell services of information architecture to enterprises, thereby adjusting. To block technological progress with a monopoly does not bring positive results and is not doing so in our case.

What we are facing are less dramatic appeals to law and ethics and more common sense in the redefinition of the rules of the game that will protect authors of innovations and the various middlemen. Above all, the final interest of all creative activity is for cultural and scientific enrichment of the entire population. The fact that cultural and educational content goods now are almost free, thanks to new technologies, must not be a tragedy, but an overwhelming opportunity. At a time when endless resources are directed towards global education, trying to block access, in addition to not being legitimate or ethical is just plain nonsense.

2-The Society of Knowledge

For the large corporations, new technologies imply a taller pyramid with central power extending longer fingers towards more far-away places, thanks to the connective capacity to transmit orders a farther distance. They also imply a strong planetary presence of repressive power aiming to control intellectual property, increasingly appropriated by the transnational corporations themselves. “Telecommunications” corresponds to “telemangement”, global remote management that, for instance, generated the uncontrolled power of large financial middlemen. The information and knowledge corporation that by definition works with immaterial raw material navigates comfortably in this environment. Viewed from this point, the new technologies appear as a major opportunity for control and appropriation.

Seen from another perspective, the same technologies that favor globalization may favor local spaces, participatory dimensions, and democratic connectivity. For us, not corporate users, these technologies allow for a broader more horizontal network with each locality – even if small – recovering its importance when combining the specificity of local interests with the potential of planetary collaboration. Very long fingers of the same corporations do not decentralize anything; they only mean that the same hand has a longer reach and that manipulation is done in a larger scale. Local appropriation of potential connectivity stands for a dynamic of democracy. The technological basis is the same, political materialization is the opposite. That is the reason for the shock, accusations of “piracy” or even peculiar pleas for “ethics” and the repressive forces of the State, on the part of those who always viewed the State as an impediment and lack of ethics as something practiced by others.

Changes in information and communication technologies that disclose new alternatives are, however articulated with broader technological changes raising the knowledge content of all productive processes and reducing the relative weight of material inputs that in the past comprised the main factor of production.

Is knowledge a production factor? How does the theory of what Castells called the “new socio-technical paradigm”, advance? Castells introduces the interesting category of informative factors of production which leads us to a basic question: is knowledge adequately regulated by market mechanisms, such as goods and services, in the framework of an industrial economy?⁹

A shift from value formation of fixed capital goods to that of knowledge forces us to make a profound review of the production mode concept itself. Andre Gorz puts his finger right on the spot when he considers that “production means have become appropriable and susceptible to being shared. The computer appears as the universal instrument for

⁹ M. Castells – *The rise of the network society*, vol. I, pg. 75 – Castells considers that this new factor of production demands public intervention: “Deregulation and privatization may be elements of states’ development strategy, but their impact on economic growth will depend on the actual content of these measures and on their linkage to strategies of positive intervention, such as technological and educational policies to enhance the country’s endowment in informational production factors” (id., *ibid.*, pg. 90).

worldwide accessibility through which all knowledge and all activities may, in principle, be shared”.¹⁰

Yochai Benkler emphatically points to the understanding that in the information society many more people can generate their space for creation, not requiring a “factory” to be productive: “The networked information economy improves the practical capacities of individuals along three dimensions: (1) it improves their capacity to do more for and by themselves; (2) it enhances their capacity to do more in loose commonality with others, without being constrained to organize their relationship through a price system or in traditional hierarchical models of social and economic organization; and (3) it improves the capacity of individuals to do more in formal organizations that operate outside the market sphere.”¹¹

The theory corresponding to the knowledge economy is barely being born. Lawrence Lessig in his “The Future of Ideas” gives us a systemic and balanced analysis of this major challenge that we are facing today: “management of information and knowledge, and balanced distribution of the rights. Focusing in a precise way on how planetary connectivity is developed, the author addresses each issue – that of appropriation of the physical transmission means; that of access code control, and that of content management –at a level ensuring a realistic assessment and formulation of practical proposals. His previous book “Code” was already a sign of the times. “The Future of Ideas” is simply brilliant, in terms of the wealth of sources, simplicity of exposition, and alignment of the arguments around the key issues.¹²

We are all kind of sluggish in the understanding of these new dynamics, wavering between theoretical outlooks of the Big Brother or an idyllic viewpoint of multiplication of ways and means that would lead to an overall democratization of knowledge. Reality, as is often the case, teaches us that simplifications are not sufficient and that we must do our homework to study what is going on.

Let us take as a starting point the fact that today, when we pay for a product, 25% goes to the product and the other 75% pays for research, design, marketing strategies and advertising, lawyers, accountants, public relations, the so-called “intangibles”, that Gorz classified in the broad category of “immaterial”. Nevertheless it is a reasonable figure and we are not concerned here with precision. We are interested in the fact that, the added value of a product increasingly resides in the knowledge incorporated. That is to say, knowledge, organized information, represents a production fact, a stage of the art of economic capital. Therefore, it is not enough to refer in this traditional manner to the land, capital and labor

¹⁰ André Gorz, *O Imaterial: conhecimento, valor e capital*. Ed. Annablume, São Paulo, 2005, pg. 21. The original in French, *L'immatériel*, was published in 2003. Yochai Benkler, in particular, stresses the point that today a person does not need to invest heavily to be productive in the era of knowledge.

¹¹ Yochai Benkler, *The Wealth of Networks: how social production transforms markets and freedom*. Yale University Press, New Haven, London, 2009, pg.8. See the original. It is a significant fact that the author makes his book available for free online in <http://www.benkler.org>

¹² *The Future of Ideas: the Fate of the Commons in a Connected World* – Random House, New York, 2001, pg. 340.

as production factors. More intelligent forms of interpretation and linkage, granted by new technologies are now the main factor of valorization of productive processes. To which theoretical parameters does the value “knowledge” incorporated to the products belong?

The economic logic of knowledge is different from that governing physical production. The physical product delivered by a person no longer belongs to that person, while knowledge passed on to others remains with the person and might stimulate in another thoughts that will generate more knowledge and innovation. Knowledge belongs to what we in economics call “non-rival” goods. Therefore, in general terms, the knowledge society adjusts poorly to private appropriation: it involves a product, that when socialized multiplies. That is why in copyrights and patents one speaks only of temporary ownership. However, the value added to a product by incorporated knowledge only turns into a price and therefore into future profit when dissemination of this knowledge is prevented. When a good is in abundance, only its scarcity will generate a sale value. The battle of the 20th Century focused on ownership of production means is now evolving into the battle of intellectual property of the 21st Century.

Up to a certain point, much tension is produced between a society that really exists, increasingly focused on knowledge and the legal system based upon material products characteristic of the last century. Here it is essential that knowledge, once developed be indefinitely reproducible and hence only acquires a monetary value when somebody appropriates it, hindering access of others without paying toll “rights”. For those who endeavor to control access to knowledge, it only acquires a sales value when scarcity is artificially introduced by law and repression and not by economic mechanisms. By the simple technical nature of the process, access is blocked when laws of reproduction of the industrial era are applied to the era of knowledge. Curiously, to hinder free circulation of ideas and artistic creation has been turned by the corporation into a way of asking for greater intervention by the State. The same interests that led the corporation to globalize the territory to facilitate circulation of goods lead it to fragment and hamper circulation of knowledge. Unquestionably this means economic freedom for the corporation, but at the expense of the user’s rights.

3- Whose rights?

The key issue of how we produce, utilize and publicize knowledge therefore involves a dilemma: on the one side it is fair that those that make an effort to develop new knowledge be remunerated. On the other hand, entitlement of an idea as if it were a material product stifles the innovative effort. Lessig gives the example of film directors in the United States who, today would film with lawyers in the unit: to shoot a street take where, by pure chance, an outdoor billboard is shown would immediately make the advertising agency request payment, to shoot an adolescent’s room demands extensive legal analysis since each banner, poster or picture may involve misuse of the image, causing other disputes. Is there no limit to intellectual property?

In an American university with the purchase of scientific journals by large economic groups, one of the teachers who distributed copies of his own articles to his students was

considered guilty of piracy. At best, he could ask his students to buy the journal with his article. Everybody is familiar with the absurd attempt of Amazon to prohibit use by other enterprises of the one click for online purchases. Common sense is that if the one click is good, it must have been profitable for Amazon, which is how an enterprise is normally compensated for an innovation and not by preventing others to use a process that was already in the public domain. Indeed we are restricting dissemination of progress instead of freeing it.

Lessig starts from the outlook – explicit in the American Constitution - that the effort to develop knowledge must be remunerated, but that knowledge itself does not constitute “ownership” in the common meaning. For instance, enterprises are owners of a number of patents that for some reason they are not interested in using or developing the corresponding knowledge; therefore they remain unused. In other countries the principle of use it or lose it prevails, so that a person or enterprise cannot paralyze a field of knowledge by means of patents or copyrights. Knowledge has a social function. My car does not stop being mine if I forget it in the garage. But ideas are different, they must not be locked away; development by others must not be halted. Thus, the right to intellectual property is not based upon the natural right of ownership, but on its potential to stimulate future creativity.

This argument must be well understood, since notwithstanding that professionals of the area in general, have a clear notion of the differentiated legal referential that intellectual goods represent, others profit from the confusion regarding intellectual property. A physical good, my bicycle for instance, is a property that justifies itself by the fact that I have acquired it, it does not expire after 20 years and it is not conditioned. In the case of intellectual goods, the basic premise is that it is in public domain, that must circulate for the endowment of society and the figure of private appropriation (by copyright or patent) just ensures a temporary right and is only justified because it was considered that granting a temporary ownership would motivate people to produce innovations and therefore, to increase society’s endowment in cultural and scientific terms. As such, the entire concept of intellectual property does not rely on the concept of property itself - that is tentatively used to instill a feeling of guilt in those who “steal” a song to hear it on the internet - but in the usefulness of the control in terms of generating more cultural wealth for all. Today, with copyrights up to 70 years after death of the author (in some cases up to 90 years) and patents of 20 years, indefinitely extended by addendums, is this right helping to produce and disseminate culture and innovations or to the contrary is it holding up the process? That is the big question.

According to the lawyer James Boyle “More property rights, even though they supposedly offer greater incentives, do not necessarily make for more and better production and innovation – sometimes just the opposite is true. It may be that the intellectual property rights *slow down* innovation, by putting multiple roadblocks in the way of subsequent innovation. Using a nice inversion of the idea of the tragedy of the commons, Heller and Eisenberg referred to these effects – the transaction costs caused by myriad property rights

over the necessary components of some subsequent innovation – as the tragedy of the anticommons”.¹³

It must be recalled that the concept of copyright was born to regulate commercial relations of enterprises. If one enterprise prints the book what happens if another prints it too? “In the world of the 1950s, these assumptions make some sense – though we might still disagree with the definition of public interest. It was assumed by many that copyright need not and probably should not regulate private, non-commercial acts. The person who lends a book to a friend or takes a chapter into class is very different from the company with printing presses that chooses to reproduce ten thousand copies and sell them. The photocopier and the VCR make that distinction fuzzier, and the networked computer threatens to erase it altogether. (...) In a networked society, copying is not only easy, it is a necessary part of transmission, storage, caching, and, some would claim, even reading”.¹⁴

The essence of this outlook is that knowledge is not born by itself. All innovation relies on thousands of advances at other times, in other countries and with the endless multiplication and growing legal entanglement in the domains and areas where research also entails so many legal complications that people simply give up or leave it to mega-enterprises with their extensive legal departments. Innovation, the creative work is not only an output it is also an input beginning with the countless efforts by different people and enterprises. It requires an open environment of collaboration. Innovation is a socially constructive process and must have limits to safeguard it from individual appropriation.

When an enterprise develops a process it usually states: this process is mine for the next 20 years no one can use what I have developed. Gar Alperovitz and Lew Daly make an excellent counterpoint to this posture. How do innovation processes develop? This encompasses a broad social construction from creation of an environment backed up with knowledge and research involving our whole education system, huge public investments and an array of infrastructures allowing for generalization of these break through. They range from generation of electric power to modern communication systems and so forth. That is to say, the productive progress we perceive forms a gigantic tide that lifts all boats.

It lifts all boats, nevertheless remuneration goes to some owners that put up a fence and say they have exclusive rights on what has been called the new enclosure movement. Minorities who appropriate themselves of an exorbitant part of the wealth generated by society, introduce themselves as “innovators”, “captains of industry”, “entrepreneurs” and other friendly descriptions, however, the truth is that, during the last century, accumulated knowledge and the general scientific level of society have undergone impressive growth, the percentage of ideas that these elites have contributed to the overall repertoire is scant, while their appropriation has become absolutely huge because they impose a toll on the end product that goes to the market.

¹³ James Boyle - *The Public Domain* -, pg. 49. Italics by the author. The concept of “commons” is difficult to translate; these are the common property chattels, belonging to the community. We have found the concept of “public domain”.

¹⁴ (Boyle, pg. 51)

Appropriation of intangibles takes place in the hands of few corporations, for instance, in the United States as well as a few countries in the world. This process is directly linked to the modern forms of income concentration. The 1% of wealthiest families in the United States appropriate themselves of more income than the 120 million others at the base of society.¹⁵ In the world, 97% of patents are in the hands of enterprises in the rich countries.

This means that there is an immense accrual of wealth at the top of the pyramid, not in terms of what these persons produced but of their appropriation of the accumulation historically constructed by successive generations. This is wealth without the corresponding productive inputs. In the terminology of the book: “Unjust Desserts” it is a matter of appropriations, not deserved, which is increasingly warping economic dynamics and functionality of what we have called the market.¹⁶

An example by Alperovitz and Daly is when Monsanto acquires exclusive control over a given advance in the area of seeds, as if the technological innovation was an input only for them, thereby forgetting the process that supported these advances. “What they do not have to consider – ever – is the huge collective investment that brought genetic science from its isolated beginnings to the point at which the company makes its decision. All of the biological, statistical, and other knowledge without which none of today’s highly productive and disease-resistant seeds could be developed – and all of the publication, research, education, training and related technical devices without which learning and knowledge could not have been communicated and nurtured at each particular stage of development, and then passed on over time and embodied, too, in a trained labor force of technicians and scientists – all of this comes to the company free of charge, a gift of the past.”¹⁷

It is noteworthy that this is neither a matter of criticizing technologies nor the fair remuneration of those who contributed for a breakthrough. Technicians in the most diverse areas are developing impressive instruments of progress in this era of technological revolution. However, neither the technicians nor the scientists, or the artists who developed the laws governing commercialization, appropriation and use of the creative contributions: are the pressure groups, political lobbies, law offices, marketing specialists and other negotiators that dictate the rules of the game, without much concern for the end use in terms of society or as a motivation for creators. And these middlemen, when endeavoring to maximize the interests of a group of stakeholders are not doing a good job.¹⁸

¹⁵ A systemic follow-up of income in the USA can be found in the site www.toomuch.org and in the work of Sam Pizzigati, published there. For the planet see *The Inequality Predicament UN*, New York, 2005.

¹⁶ Joseph Stiglitz owes his Nobel Prize from the Bank of Sweden for the study about impacts of information asymmetry. Open access to knowledge is a much broader subject than the quarrels of publishers and other enterprises that give physical support to cultural goods. The awesome accumulation of fortunes by financial speculators is also directly related to unequal digital access to information. Today, according to *The Economist*, 40% of the United States’ corporate profit comes from financial income: “In America the industry’s share of total corporate profits climbed from 10% in the early 1980s to 40% at its peak in 2007”. *The Economist, A Special Report on the Future of Finance*, January 24th 2009, pg. 20.

¹⁷ Gar Alperovitz and Lew Daly - *Unjust Deserts* - The New Press, London, New York, 2008, pg. 55.

¹⁸ In the most diverse economic areas, there are increasingly less producers – “engineers” of the economic process, let us say, those who develop technological and productive processes that control the corporate world

4 – Freedom of Access

The problem worsens drastically when not only ideas, but also their means of transmission are controlled. When a Hollywood producer not only controls production of content (the movie) but also the different distribution channels and even buys the movie theater, the result radically disturbs free circulation of ideas. Lessig notes that a few years ago, foreign movies in the United States represented 10% of the box office total. Today they represent 0.5% generating a culture dangerously isolated from the rest of the world. What is taking place with progressive control of at the three levels – physical infrastructure, codes and contents – is that free circulation of ideas, also on the internet is quickly becoming restricted. Large enterprises are always prying into our computers, by means of spiders or bots to see, if per chance we are not mentioning without due authorization the name of a protected group of ideas.

A text by Thomas Jefferson of 1813, is very eloquent in this respect: “If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea...That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density at any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement, or exclusive appropriation. Inventions then cannot, in nature, be a subject of property.”¹⁹

An enterprise that installs an optic fiber cable, one of the important infrastructures is the owner of this cable. However, can it set forth who may or may not have access to use this cable? An enterprise may find an economic incentive when it closes agreements with others ensuring exclusiveness, a kind of corral of communication. For instance, Disney waged a hard battle, to have this kind of exclusivity. The bloodiness of an entrepreneurial battle on this level leaves little space for the ultimate purpose of the entire process which is social usefulness of ideas, so well expressed by Thomas Jefferson. A government may even privatize maintenance of a highway and permit charging a toll, but it must guarantee its public character, no administrator can stop free access by any one on this highway. And how does that work on the info way? In many American cities such as Chicago, city government is installing public cables to ensure that users receive and transmit whatever they wish reducing pressures on private enterprises to close agreements of exclusive access for a given type of client. In Canada, the process is becoming generalized as a reaction against controls that enterprises are installing. Just as in the case of highways, info ways must be a part of the so-called commons, that is to say common spaces permitting private spaces to freely communicate and interact.

In this sense, detailed analysis of the use of radio and TV frequencies is quite meaningful. In practice, the American government grants spectrum bands to communication giants, as

and increasingly inter-company holdings, marketers, financial, legal intermediation enterprises and the like. We developed this concept of productive process control by means of the “intangibles” in “Economic Democracy”, *Democracia Econômica* (Vozes, 2008).

¹⁹ Lessig (2001), op. cit, pg. 94, quoting T. Jefferson, see the original, pg. 94. See also Boyle, op. cit., pg. 20.

we do in Brazil, almost eliminating the possibility of any community to have its communication means, something that today is technically feasible and cheap. What they endlessly allege is that the spectrum is limited and therefore must be allocated only to a few, and these few of course seek to monopolize access. In practice, a pathetic “Berlusconi society” is generated.

The first consideration is that emission of low power radio service is quite possible and should not be condemned as piracy. A second more important one is that the spectrum is limited and relied upon as an argument by enterprises however it is true only because spectrum wasting technology is used. Since they hold the monopoly they are not interested, for instance, in the sharing of bands, software defined radios, that permit use of frequencies, just as in other means making use of spectrum “silences” and under utilizations of the spectrum to allow simultaneous communications, such as in any telephone line today. Lessig is rather though on this impressive waste of such an important resource – and a natural one that no one created, so much so that it is conceded as a public license – which is the electromagnetic spectrum. “Pollution is precisely how we should consider these old forms of spectrum use. Huge, stupid towers invade the ether with powerful emissions, making the flourishing of smaller scale less noisy and more effective uses unviable. For instance commercial TV is an extraordinary waste of spectrum, in the majority of contexts; the ideal would be to transfer it from the air to cables.”²⁰

Lessig is pragmatic. In the case of the spectrum, for instance, he proposes that in each segment a band of open access be expanded, to counterbalance private appropriation. In the various areas analyzed, he looks for a solution allowing all to survive, but his concern is clear. Freely stated, “technology, with these laws, promises now an almost perfect control over the content and its distribution. And it is this perfect control that threatens the innovation potential promised by Internet.”²¹

5 - Cost of access

Rifkin analyses the same process from another standpoint, highlighting that the economy of knowledge has changed our relation with the economic process in general. The primary argument is that we are moving from an era of producers and buyers to one of suppliers and users. This change is profound. In practice we no longer buy a telephone (or the purchase is symbolic) but we pay every month for the right to use it, to communicate. We also pay to have access to a little more decent television programs. We no longer pay for a visit to a physician, but we pay monthly for a health insurance plan to have the right to access healthcare service. Our printer costs only a trifle, but it is important to corner us into regular purchase of an exclusive toner.²²

²⁰ Lessig, 2001, pg. 243

²¹ Idem, pg. 249

²² Jeremy Rifkin – *The Age of Access* – Penguin Books, New York, 2001; published in Brazil as “A Era do Acesso, Makron Books, 2001 – This need to pay a toll on everything we do may be oppressive. Many invest their savings in their own home, in the safety of a roof that will not depend upon the unstable ability to meet the rent. Today everything depends on endless “rents”, we cannot see the perspective of living more at ease looming on the horizon. A person that for some reason loses his/her source of income is rigorously excluded

The examples are endless; Rifkin defines this trend as characterizing “the access era”. In our “*A Reprodução Social*” (The Social Reproduction) we already analyzed this trend characterized as the concept of “toll capitalism”. It suffices to see the sum of charges for the right to banking services, or how the beach condominium closes access to a stretch of the sea while in the advertising they “offer” us the marvelous waves as if they had created them. Free access to the sea does not fill anybody’s pocket. So, let us close the beaches.²³

That is how capitalism generates scarcity, since scarcity raises prices. According to this logic of the absurd, when fewer goods are available, they become more expensive and add potential value for those in control. There is nothing like polluting rivers to coerce pay-to-fish” or to induce us to buy “processed” water. Nothing like hindering or stopping our access to Skype to coerce us to spend more on the traditional cell phone.

As such, all free spaces, the commons are disappearing and we are more and more inveigled into a race to increase our monthly income, in order not to be deprived of a series of essential service, including participation in the culture surrounding us. Life is no longer a stroll or a construction that belongs to us, but has turned into an ongoing dash from toll to toll. Where previously people enjoyed playing an instrument, today they pay for the right to access the music, where before people played football in the streets, today they watch a sports show while munching snacks on a sofa, all thanks to the pay-per-view. What we are building is permanent “pay-per-life”.

The theoretical shift is significant. Owners of the production means had the key to the factory, a physical good that meant a concrete property, today they own a process and charges for use. And as processes become increasingly dense with information and knowledge, the intellectual property, patents and copyrights grow in importance. Knowledge constitutes a good that still belongs to someone even after it is passed on to others – and we are in the era of technology of connectivity. Thus, ease of dissemination becomes immense and private appropriation generates barriers. Therefore, we perceive the full weight of the Gorz finding, noted above that “production means become appropriable and susceptible to being shared”. In technical terms, knowledge is a good whose consumption does not reduce the stock. No wonder that the TRIPs (Trade Related Intellectual Property) negotiation was the main debate of the World Trade Organization and is the core of the struggle for a free society. While in the last century the battle was over ownership of production goods, today it has shifted towards the area of creativity economics.

from a set of services that require regular payments. The most dramatic situation of the low income retirees has also to be seen from this perspective, but the truth is that we are all feeling increasingly trapped. There is a toll at every step of our lives. Those were good times when we complained only about public taxes. The concept of free public access is returning with full strength due to the common good sense of consumers and the understanding of the discriminatory dimensions generated by private appropriation.

²³ Ladislau Dowbor – *A Reprodução Social* – Ed. Vozes, Petrópolis, 2003.

6. Unequal access

“Innovation” writes Stiglitz “is the heart of success of a modern economy. The question is how best to promote it. The developed world carefully devised laws that give innovators exclusive right to their innovations and the profits derived. But at what price? There is a growing feeling that something is wrong with the system that governs intellectual property. The fear is that the focus on profit for the wealthy corporations represents a death sentence for the many poor in the developing world.”²⁴

For instance, explains Stiglitz “this is particularly true when patents take what previously was of public domain and privatize it” – what attorneys of the Intellectual Property have called, as we saw, the new enclosure movement. Patents on Basmati rice (that the Hindustanis thought they knew for hundreds of years) or healing properties of *turmeric* (ginger) are good examples”.

According to the author, “developing countries are poorer, not only because they have less resources, but because there is a knowledge gap. That is why access to knowledge is so important. But when strengthening the stranglehold on intellectual property, the PI rules (called TRIPS) of the Uruguay Round reduced access to knowledge on the part of the developing countries. TRIPS imposed a system that was not ideally designed for an advanced industrial country, but it was even less adequate for a poor country. I was a member of the Economic Council of President Clinton when negotiations of the Uruguay Round were coming to an end. We and the Office of Science and Technology Policy opposed TRIPS. We believed that it was bad for American science, bad for the world of science, bad for the developing countries”. (Stiglitz, 2006)

The issue assumed more dramatic proportions with the worldwide climate collapse; the entire world had to be provided access to the more advanced technologies that would allow substitution of practices involving intensive emission of greenhouse gases. The recommendation of the United Nations report *World Economic and Social Survey 2009*, considers that to reduce pressure of environmental disasters in the Third World it is essential to seek “a balanced intellectual property regime for technology transfer: Options such as allowing developing countries to exclude critical sectors from patenting, as well as a global technology pool for climate change, merit serious consideration, as these options would provide certainty and predictability in accessing technologies and further enable much-needed research and development for local adaptation and diffusion, which would further reduce the cost of the technologies. In addition, modalities for access to publicly funded technologies by developing-country firms need to be explored”.²⁵ In a report of major international significance we find the need to go beyond protectionism of patents explicitly stated. It is equally curious to find that this is not a barrier but an encouragement for “the much needed research and development” in addition to a reduction of costs.

It is an important attitude, at this time when it is fitting to respect intellectual property without people perceiving that we are essentially respecting its monopolization and control

²⁴ Joseph Stiglitz - *A Better Way to Crack it* – New Scientist, September 15, 2006, pg. 20

²⁵ See the original. UN – *World Economic and Social Survey 2009*, Overview, pg. 21

by middlemen. We need more flexible and more intelligent rules and foremost to reduce the absurd decade long time delays that radically extrapolate the time an enterprise needs to recover an investment in new technologies. Regarding patents of goods native to poor countries and then charge royalties on traditional production, is simply extortion. In this case piracy comes from above.²⁶

As such the economy of knowledge outlines a new international division of labor between the countries that concentrate on intangibles – international finances, research and development, design, advocacy, accounting, advertising, control systems – and those that continue with tasks centered on physical production. Where formerly we had production of raw materials in one place and industrial products in another, today we have a division more strongly centered on partition between material production and immaterial production.

Of special interest on this subject is the book by Chang “Kicking Away the Ladder” that shows how countries developed today have appropriated knowledge generated in any part of the world by means of copy, theft or spying, without concern at the time, with intellectual property. They used the ladder to go up and then kicked it aside, stopping others from following. Where would Japan or Korea be now, if they had been forced to honestly close their eyes on innovations in the rest of the world or to pay all the royalties? Chang’s book is extremely well documented and shows how, before the Asians, the United States had already adopted the same practices in relation to Britain, as well as Britain who had adopted them regarding the Netherlands. Open access of poor countries to knowledge, an essential condition for their progress and for planetary rebalancing is currently systematically blocked instead of being favored and subsidized to reduce burgeoning social and environmental tragedies.²⁷

7- Input Remuneration

Just as a stone thrown into a lake makes waves that spread, new technologies of knowledge are going to displace traditional forms of social and economic organization in various spheres. It is not only the “creator” and remuneration that are at stake or the holder of the copyright or patent. The change in production content generates new production rapport and shifts the issue of work remuneration. To measure work by hours worked, the so very

²⁶ In the case of “cupuaçu”, the fruit of the cabbage palm and of the familiar solid brown sugar, for instance, Brazil had to engage in international legal battles to recover the rights appropriated by patents in Germany, the United States and Japan. Weaker countries do not even have the know-how to face such issues. Biopiracy is a very ample problem, but the blue eyed pirates do not get the same coverage in the media.

²⁷ Ha-Joon Chang – *Kicking Away the Ladder: Development Strategy in Historical Perspective*, Anthem Press, London, 2002; In Brazil, edition by Unesp, 2003; in another book, *Globalization, Economic Development and the Role of the State*, Chang presents results of various surveys about the impact of protectionism generated by developed countries and concludes: “we demonstrated that there is no theoretical nor empirical support to endorse the argument that strong protection of private rights of intellectual property is needed for technological progress and therefore for economic development, particularly in developing countries.” The “who takes advantage” here is clear: 97% of the world’s patents belong to developed countries. (pg. 293) Increased scope of patents and copyrights coverage is indeed a new form of protectionism, adapted to the economy of knowledge, such as customs duties on physical goods, so denounced by those in favor of globalization.

central way in our societies, in this sphere of activities, makes less and less sense. Insofar fair remuneration of effort has become increasingly more complex.

A creative contribution with innovative ideas is not going to rely on the time we spend sitting in the office. Gorz cites a report from the Daimler-Chrysler director of human resources, the contribution of “collaborators,” as he kindly calls them, “will not be calculated by the number of hours present but based upon the targets met and the quality of results. They are entrepreneurs”.²⁸ Thus, workers are promoted to entrepreneurs and why not, according to Gorz, to businessmen: “ Instead of one who depends on the salary, there should be the entrepreneur of the labor force, who provides his own qualification, improvement, health plan, etc. ‘The person is an enterprise. Instead of exploitation come self-exploitation and self-trading of ‘I Inc.’ that brings profits to the large enterprises that are the clients of the self-entrepreneur”.²⁹ Today those who work in this area often take home a laptop and continue to work at night and on week-ends. Does anyone pay for that?

The central issue is that in the era of knowledge, fragmentation of tasks and artificial isolation of productive processes are self-defeating. Tapscott, who studies the problems in the entrepreneurial area, gives an example of how useless it is for researchers to work by themselves, each with a small stock of knowledge: “a decade ago, astronomy was still a synonym of groups that kept exclusive data and published individual results. Today it is organized around large aggregates of data shared, codified and made available to the entire community”. (Tapscott, 198) How are innovations of this kind of collaboration remunerated?

Technological advance does not operate isolated on an island. In an advanced area, such as robotics, researchers became aware of how much they were investing separately, to develop the same systems, instead of sharing the already known, to make progress.” The Robot Operational System – ROS is a set of programs written in open source for the purpose of serving as a common platform for a wide range of robotics researchers. It is being used by teams of Stanford University in California, MIT and the Technical University of Munich, in Germany among others (Campbell, 2009). Where would we be if everyone would expect remuneration for the fragments of innovation generated in a collaborative sense, and to boot, with open software?

The “www” has become an essential element of our lives, a revolution by means of the overall open access that is proliferating. Many believe that it was invented by Americans and references are seldom found about the author of this true revolution in planetary connectivity. It was the Englishman Tim Berners-Lee, who developed the system at the Center of Nuclear Research (CERN) on the French-Swiss border. We also ignore that the system is controlled by a nongovernmental organization, a non-profit consortium. Moreover, the entire entrepreneurial world has become more productive thanks to this collaborative process. And what if we had to pay each time we contact the credit card company, etc.? Furthermore, the W3C, as the consortium that coordinates our planetary

²⁸ A. Gorz, *O Imaterial*, op. cit. pg. 17

²⁹ A. Gorz, op. cit., pg. 10

connectivity is known, asks for donations shamelessly just as any other NGO engaged in protecting the climate. It has been calculated that Berners-Lee would be wealthier than other tycoons but he preferred instead to be more useful. How is he remunerated? Consultancy, research, books, lectures, - there is no shortage of means. Moreover, these are ways that do not affect the products rationale.³⁰

Preparation, availability and appropriation of online knowledge generate an organizational earthquake just as extensive as was the emergence of factories in the era of industrial revolution. To mass produce material goods we had powerful machines located in plants, salaried workers, eight hour shifts, infrastructure for transporting tons goods. In the knowledge economy what will we have?

Eric S. Raymond's book, "The Cathedral and the Bazaar", is a small classic in this area and presents concrete ways for organization of spontaneous and collaborative contribution in network for construction of information technology innovations. It is natural that large private groups, whose fortune is tied to limitation of access to knowledge - since only strict control averts that it becomes open to use and therefore without commercial value - seek demonization of this entire area of activity. Thus the hackers, collaborative community of technological innovations, are thrown together with the crackers, who implant viruses, seeking to break open access to bank accounts and so forth.

The issue here is to explain the collaborative logic implicit in technological breakthroughs based upon the standpoint that numerous ideas, spontaneously brought together for an innovative construction may form differentiated production processes. At the base are the positive network externalities that overcome the separation between producer and client, since the client has also become a collaborator in the process (Raymond, 144). Where is the threat? "A key factor is that the distinction between use value and sales value allows us to perceive that only the sales value is threatened by the shift from closed sources to open sources, not the use value." (Raymond, 129) On the contrary, use value is reinforced by generalized access as well as by distinctive users bringing to the production process an outlook of those who effectively face the many and varied problems that arise.

Raymond stresses this point very well: processes related to knowledge are interactive. Acquisition of software itself is less important, support, maintenance, services and updating are the essential. "If (as is usually accepted) more than 75% of costs of the life cycle of a typical software project are in maintenance and debugging and extensions, then the basic policy to charge a high purchase price and relatively low or zero support tariffs may bring about results that are not good for all parts." Here we return to the shift of the point in the production chain where remuneration takes place. The attempt to charge at all points merely makes the process unfeasible.³¹

³⁰ In the Wikipedia's vignette on the author: "Berners-Lee made his idea available freely, with no patent or royalties due. The World Wide Web Consortium decided that standards should be based on royalty-free technology, so that they could easily be adopted by anyone."

³¹ A very interesting innovation is development of the Brazilian Public Software, a project of the Planning Ministry that developed a set of management software - for instance school management - where school managers may introduce improvements or adjustments in agreement with online advisers who help in the support services and registered software developers, all in a collaborative environment, where remuneration

Raymond, who particularly studies limits of off-the-shelf software, highlights this difference of an economy of knowledge to which an effort is made to apply manufacturing rules. “In the world of the free code, the largest possible base of users is sought, to achieve the maximum return and the most vigorous secondary market possible: in the ownership code, a maximum of buyers is sought, but a minimum of users. Therefore the logic of the factory model better awards the salesmen that produce off-the-shelf software goods - that is sufficiently marketed to assure sales, but in truth is useless in practice. The other side of this coin is that most salesmen who follow this factory model over the long term will not be successful. To indefinitely finance support expenses based upon a fixed price is only viable in a market that expands quickly enough to cover the support and costs of the life cycle implicit in yesterday’s sale with tomorrow’s sales. When the market becomes mature and sales drop, most salesmen will have no other choice than to cut expenses making their products orphans”. (Raymond, 120- 121)

In other words says Raymond: “software is predominantly a service industry operating with the persistent but false illusion of being a manufacturing industry!” There is little interest in purchasing a nice box with software, a box that gives us the impression of buying a tangible “thing” when in reality we are buying a product that will be outdated in a few months. The most important is the access and support system.

Here we are in the middle of the discussion about the new economic and organizational logics that encompasses the transition towards an economy of knowledge. Another currency for instance, or another form of remuneration, show up with increasing frequency: acknowledgment by peers, a reputation of acquired competence, where people find other ways to balance their budgets. The thrill of innovation, discovery of new mechanisms, writing beautiful music tend to be, in general, a fundamental motivation. It is hard to image Pasteur losing his scientific curiosity because he could not patent the vaccine.

Anyway, an array of new relationships is being developed. We have to look at them with tolerance and calmness looking for solutions along the line of “win-win” and of a true balance of the interests for all involved in the process. The simplicity of the editor who publishes and sells, and of the entrepreneur who buys and reads, need no longer reflect the modern world. And to criminalize does not resolve anything. We need to warrant the balance of remuneration for commercial use and the free use from non-profit purposes. The entrepreneurial world itself is discovering this.

8- Entrepreneurial potential

Wikinomics means economics of collaboration by the simple association of ideas: everybody knows the collaborative process that brought about the Wikipedia encyclopedia built by means of open and free collaboration between an endless number of people for the simple pleasure of doing something useful. We said “simple pleasure” but this is an

is flexible according to the inputs. But all the inputs are immediately available to everyone. See details in www.infobrasil.inf.br and projeto-spb@cti.gov.br.

immense and underestimated motivation. Bringing together economics and Wikipedia, the *Wikinomics* surfaces as a book that explores how the entrepreneurial world is discovering that collaboration may be more proficuous than competition.³²

“We are changing the closed and hierarchical work places with strict job relations to progressively more self-organized, distributed and collaborative networks of human capital, that offer knowledge and resources from inside and outside the enterprise.” (Tapscott, 292) Behind this shift of outlook there is clearly a major aspect that is shaking up our society in a profound and still poorly outlined form: connectivity, the fact that any person may communicate with any other in any part of the planet. That is to say the more we collaborate and share our knowledge the richer we all become. Profits of the middlemen and remuneration of innovators must be confronted with this potential.

In the jungle of registries, copyrights and patents, resound shouts against violations of intellectual property, against piracy, against the monstrous conspiracy that would comprise the fact that people do useful things for pleasure, in a collaborative way and with better results technically. For those who want to impose a toll on each step of our daily life, this is an offense in a society where people collaborate. The significant input of the book by Don Tapscott and Anthony Williams shows that enterprises instead of applying to immaterial goods the rules of the game related to manufactured goods such as in the last century, will have a better future if they learn to collaborate by adopting innovative rules of the game.

“Having rapidly matured in the last three years, these weapons of mass collaboration allow employees to interact and create with more people in more regions of the world using a more versatile repertoire of capacities with fewer problems, more pleasurably than with any other generation of technologies for the working place. They may also act globally – stepping over organizational towers and connecting with clients, partners and suppliers and others who add value to the ecosystem of the enterprise. Further, the increasingly open nature of these tools means that this new infrastructure for collaboration is accessible to a much wider base of people and enterprises– indeed so wide that there are almost no barriers to their adoption by the organizations, notwithstanding their attitudes”. (Tapscott, 300).

Here, the obsession to lock and control everything is disclosed. It generates more costs than it fosters ideas through the bureaucratic obstruction of open and collaborative research which is how ideas are created. This is obvious in the most diverse areas, including the traditional industrial sector, where technological content is expanding, requiring more collaborative processes. “While patents proliferate, R&D budgets escalate to more inefficient levels and biotechnology, also pharmaceuticals, universities, governmental bodies, buyers of medical care and the legal system were waging expensive and nefarious battles for economic benefits from these patents”. (Tapscott, 205)

In the case of the pharmaceuticals notwithstanding scant progress such as British GlaxoSmithKline, the situation remains tragic and to speak of intellectual property ethics is to put everything we may understand as values upside down. The organization “*Médicos sem Fronteira*” (Doctors Without Boundaries) asked for the creation of a common fund of

³² Don Tapscott and Anthony Williams – *Wikinomics* – Ed. Nova Fronteira, Rio de Janeiro, 2007

patents of drugs against HIV/AIDS that would permit each country to produce the drugs. According to Margaret Chan, Director of the WHO, “at least five million people with HIV do not receive needed treatment!” Involved are Abbot Laboratories, Boehringer Ingelheim, Bristol-Meyers Squibb, Johnson & Johnson, V Gilead Sciences, GlaxoSmithKline, Merck & Co., Pfizer and Sequoia Pharmaceuticals. Twenty five million people have already died of Aids.³³

In truth, knowledge is a major asset and since its dissemination is virtually free, open access increases everyone’s stock of wealth. The era of knowledge of course leads to the economy of collaboration and this increases the chances of democratization of an economy that today is blocked by systems increasingly more complex as well as useless tolls. Tapscott and Williams analyze experiences about how this is being creatively applied in the entrepreneurial domain. It is a step forward showing more and more opportunity for intelligent life. However, it is neither interesting nor viable to simply abolish current systems by charging rights on creative economy. However, progressive reduction and simplification of this maze of charges must be undertaken, to liberate the immense creative potential now dormant in society.

9 - Universalization of access

The right to access is not sufficient; we need infrastructures that bring this about. Wi-Fi is the technology that allows from a relay point, wireless access to the internet in any part of the house, office, airport or city region. This means comfortable work or entertainment using a laptop on the sofa, without being tied down by wires. The Wi-Fi ambient is bathed by the broadband internet signal. During recent years, cities with Wi-Fi have multiplied, that is to say, cities where a person can sit down in a park and work at ease. Let us say that it is the computer version of the mobile phone that can be used anywhere in the urban space.

Currently, cities are racing to implement retransmission, where the entire urban space is covered by the signal. We call this the “municipal mesh Wi-Fi networking”. According to an article by Paul Marks “the public Wi-Fi networks will also have an impact on introduction of Wi-Fi in households, schools, book stores and coffee shops... Systems that connect an entire city through clusters of Wi-Fi points to form a mesh where radio input signals received at one point are relayed from one antenna to another until they reach someone who is connected to the net”.

Technology allowing connectivity of this entire urban space is already attractively priced. For instance in the city of Philadelphia in the United States, “about 4000 points in the 320 square kilometers of the city will have Wi-Fi antennas that will cover the city with wireless

³³ See Andréa Borde, IPS, 02/10/2009, in <http://envolverde.ig.com.br/materia.php?cod=63975&edt=1> ; how pharmaceutical companies allege that overpricing and forbiddance to manufacture in other countries is due to the need to finance research that generates a good image. It is worthwhile reading the excellent study by Marcia Angell, *A verdade sobre os laboratórios farmacêuticos* (The truth about pharmaceutical laboratories), ed. Record, São Paulo, 2007 http://dowbor.org/resenhas_det.asp?itemId=83fdcf1e-27d9-4c3f-a478-be64be3becfb

broadband signals. The promise is for an internet access of 1 megabyte/second at less than 10 dollars a month, compared with the 45 dollars for a cable connection today”. The city of Taipei in Taiwan is installing the system for a monthly charge of 12 dollars.

According to the article, there are difficulties in terms of interoperability and standard definitions, especially of opposition by the largest telecommunication enterprises who seek to bar the system. “In the United States, municipal Wi-Fi faced significant opposition from large telecommunication groups such as Verizon, BellSouth and Cox Communications. They have already supported enforcement of legislation in 12 states that makes it illegal for a city to set up a wireless network that would compete with a local telecommunication enterprise”.

The importance of warranting digital inclusion is quite evident, above all from the very real current perspective of access to low-priced basic computers (100 dollars). The city of Philadelphia in its project of digital inclusion is organizing connection for the 1,4 million people who live under the line of poverty. With the relatively low cost – 12 dollars per month is the price of a booklet – and the immense increases of territorial systemic productivity that connectivity permits, in addition to the obvious usefulness in schools, this is a fundamental advance in territorial systemic productivity.

In Brazil this technology is spreading quickly based upon the pioneer example of Piraiá, in the state of Rio de Janeiro, already in operation for several years. Everyone becomes more productive from the store owner who buys and sells better, to the school that begins to use the internet with a laptop for each child. Generalization of broadband access is taking place in Brazil in the whole network of public schools, as well as in Uruguay and in other countries. Open access to knowledge may become one of the main thrusts to reduce inequalities on the planet. Is it worthwhile to sabotage this process to protect the income of a few middlemen?³⁴

The community has a basic right to have its own means of communication. As so well stated by Lessig, we are striding towards a civilization of read only, of passively receiving contents to a R-W, Read -Write civilization in which any group or individual may post contents on the internet, correct contents from Wikipedia, comment on articles published, even communicate the unexpected effect of a drug to the manufacturers. Communication starts to be interactive and the major media itself that through the ABERT (Brazilian Association of Radio and TV Broadcasting Stations) combats any effort to democratize access by criminalizing community radios, will have to start thinking, in a creative way, about its future.

Lia Ribeiro Dias makes a strong point about “the people’s media” that is worth a brief transcription: “One does not know its size nor its scope, but the popular media is becoming muscular. They are newspapers, magazines, videos and radios produced by teams from low income communities or from the peripheries of big cities. Instead of conventional media people, in general portrayed for what they do not have and not for what they are, communities rescue their identity, creating their own channels of expression... By self-

³⁴ For the experience of Uruguay see the technical video <http://vimeo.com/2465202>

expression and by going from a target public to a participative one, the community entitles itself of its representation, acquires self-esteem and gains power.” (Dias, 2006)

“The phenomenon of community communication has already brought about popular communication schools in various states and attracts followers, especially among the young. They are the reporters, editors, spokesmen, video producers and photographers. A legion of new authors that continues to grow, living proof that legislation restricting performance of these functions to graduated newspapermen is an antidemocratic anachronism, jeopardizing the right of expression and, if applied, bars empowerment of the communities.”³⁵

We are all accustomed to the media being a relevant subject and preferably of consequence. Community media seems to be a minor subject. In the interactive R-W era, changes are profound. Generation of open software is a different tendency striving to avoid that information systems continued to be tied to a planetary monopoly albeit, the fight here will rougher and tougher.

In the area of conflict for the right to communication, we are still toddlers. Just like IBM in the era of mainframes, the media giants want to block effective freedom of community communication. In technical terms this is absurd, because just as there had been a radical price reduction of personal computers whereupon they became domestic appliances, a broadcasting station today is quite simple and inexpensive to implement. A mega-enterprise that controls contents is no longer justifiable. Each school, each community should have its own community radio or TV, supporting community organization. An attempt to oppose this democratization is part of the old centralizing traditions.

This is the crusade of the National Conference on Culture that encompasses precisely the rights discussed here. According to the basic text of NCC, changes brought about by the new technologies for reproduction of texts, sounds and images easier, make “renewal of copyright” mandatory for compatibility “with the right to participate in the cultural life so that open access and exclusivity to use works - principles respectively, of the information society and of the copyright may coexist and balance the public and private interests involved.”³⁶

10 – The absurd in the university

In our university environment instead of locking up our knowledge mimicking the outdated behavior of private enterprise we must become the vectors of multiplication and dissemination of knowledge. When analyzing the advantages of making articles available free of charge , on line, Tapscott and Williams cite Paul Camp: “What we want is valid

³⁵ This legislation was recently changed to allow participation of those without a journalism degree. (LD)

³⁶ The National Conference for Culture, Brasília, March 11 to 14, 2010, “will address the integration of cultural and communication policies, the strengthening of public TVs and radios and the renewal of copyrights. With the general subject of “Culture, Diversity, Citizenship and Development”, the Conference is divided into five sections: symbolic production and cultural diversity; culture, city and citizenship; culture and sustainable development and, culture and creative economy, management and institutionalization of culture.” Access <http://www.cultura.gov.br/site/categoria/encontros-e-foruns/conferencia-nacional-da-cultura/>

information analyzed by peering. What does it matter if this takes place because an editor sent an article to be analyzed by somebody or if it was analyzed by e-mail, by a community of people interested in that subject, in reply to preliminary publication in the X file? Results are the same.” (Tapscott, 199)

How does our prehistoric culture of making Xerox copies of a chapter of a book stand when they are the basis for a scientific work by the students in the larger universities of the country? The team from USP-Leste that worked with intellectual property (GPOPAI – Group for Research in Public Policies for Access to Information) carried out a basic survey by school year. Students should spend 3800 reais on books when 80% come from families with up to 5 minimum wages which means that the books simply are not bought. Furthermore, 30% of the books are not reprinted nor can they be xeroxed. The publishers like best-sellers, and are not interested in long-sellers (Craveiro, 2008). They neither print them nor allow them be used because they retain the copyrights. It would be correct if the publisher’s copyrights lapsed automatically when the books are sold out and not reprinted in five years.

Here we are not dealing only with the access right to books. Quick and practical access, the “here and now” permitted by technology is vital, and students do not understand why they cannot use it. More important yet, availability in digital means discloses the perspective of the innovative interchange of knowledge, a key aspect for learning any science. A person may compare statistic analyses on unemployment with analyses of the psychological impact on youth and perceive how these processes relate to criminality and so forth; correlating authors from different scientific areas and different political standpoints. The fantastic possibility of discovering linkages in the dynamics studied requires that the materials be available online and free, since the profit is in scientific breakthrough by society and only marginally in the remuneration of the author or middleman.

This led MIT- – Massachusetts Institute of Technology –to radically change its attitude and make available all of its courses, each complete, free, online, in the so-called Open Course Ware (OCW), making “open course” analogous to “open source” that is the Linux open source system. MIT’s initiative as a main research center in the United States, opens the way for the university in general to elect the Creative Commons standard warranting that non-commercial use of scientific production is free.³⁷

Allow me to submit here my personal experience as holder of a site that works with clients along the line of Creative Commons. When, at a meeting of the Managing Committee of Internet in Brazil, after I submitted how I make available my texts for free, online, a colleague commented with me: but your example is not sustainable, you don’t make any money from it. I asked him how much he earned publishing scientific papers in university journals, the most advanced form of burying our scientific production. I will not mention his reply here. Publishing without charge has never curbed my enthusiasm for research, it makes me feel freer. And at least those who read what I write, comment, criticize and in any part of the world because internet is planetary, whereas the library is local. And because they read I become better known, give lectures to balance my budget in an indirect

³⁷ MIT production may be accessed in www.ocw.mit.edu

way. Furthermore, I am paid as a university professor. I do not need to make money on everything I do. Also, publishers are beginning to notice that publishing on line actually increases sales because reading on the screen is tiresome.³⁸

According to Peter Eckersley, “When technology provided a new wealth of knowledge, politicians, lawyers, corporations and university managements became increasingly determined to ensure its scarcity”. Logic is explained by an example:” Water is abundant and essential: diamonds are scarce and useless. But diamonds are much more expensive than water because they are scarce. People who are in the business of selling information have good reasons to wish for a future where knowledge will be valued like diamonds and not like water. Here, pharmaceutical giants, Hollywood, Microsoft, and even The Wall Street Journal are unisonant: ‘continue expanding the copyright and patent laws so that our products continue to be expensive and profitable.’ And they pay lobbyists all over the world to ensure that this message reaches the governments.” (Eckersley. 2009)

The difficulty of access to knowledge developed with public money is remarkably absurd: ”Consider the open access movement that campaigns to ensure scientific articles have open access to the public ,who after all supported the research by paying taxes. Historically most scientific texts remain restricted to expensive publications, mostly available only to university people. Some publishers resisted the movement of open access, but the tendency is the contrary. For instance, in March of this year, the American Congress enforced the requirement that all research funded by the National Institute for Health be openly accessible and other countries are following suit. It is easily foreseeable that within one or two decades scientific literature will be online, free and available for research”. (Eckersley, 2009)

Just as other researchers interested in widespread scientific and cultural knowledge, Eckersley does not suggest absence of remuneration to those who produce science but its displacement:” Journal publishers will still be paid, but at a different point in the chain” .It is worthwhile to explore this outlook. We saw the example of IBM that knew how to readjust, that is to say, it began to make money “at another point in the chain”. To make efforts to hinder progress of the modern dissemination means does not make much sense and the major middlemen, publishers as well as important music labels must think about how they can best contribute in the framework of the new technological referential instead of always using the State and the police to guarantee intermediation revenues.

Indeed, instead of entering into an ideological war we have to search for new economic rules to balance the first interest, that is scientific-cultural advance of society, next that of the authors who create and innovate and third, the middlemen who provide only the physical support and tend to consider themselves “owners”. Physical support is important, books and records will continue to sell but there is no need for a monopoly nor to call the police and much less to try to jeopardize access to current universal technologies.

An open process

³⁸ See technical video about the discussion at the CGI in <http://video.google.com/videoplay?docid=-6923667992809558538&q=dowbor&total=33&start=10&num=10&so=0&type=search&plindex=7#>

What we are trying to portray here is not a neat set of answers but a range of theoretical issues that challenge us and that are the direct outcome of this extensive evolution towards what we call economics of knowledge. The axis of added value appropriation shifts from control of the factory to that of intellectual property, the production relations change, content and remuneration are altered in international exchanges. In a modern and complex society, economic relations demand more flexible and differentiated solutions. Those are axes of reflection that demand new instruments of analysis and the authors cited are pointing to spaces worth exploring.

In the words of Lawrence Lessig on the future of ideas, of James Boyle on legal dynamics of André Gorz on economics of the immaterial, of Jeremy Rifkin the economy of culture, of Eric Raymond on the connectivity culture of Joseph Stiglitz on the boundaries of the patent system, of Manuel Castells on the network society of Alvin Toffler on the third wave, of Pierre Lévy on collective intelligence of Hazel Henderson, on collective processes are not extremist outlooks. They are just common sense and many researchers, authors and publishers are already rethinking their standpoints. The new dynamics are underway and positioned on the technological frontline not in the trenches of outdated dynamics. Research institutions such as the MIT, scientific authors like Lester Brown, publishers as the “Fundação Perseu Abramo”, composers as Gilberto Gil, even writers of enormous commercial success like Paulo Coelho - are pointing towards a more balanced universe. This is not a utopia but a change of course and those who know how to readjust will find their place.

In economic terms, in the information era, transition costs from the proprietary systems are generally higher – time, money, bureaucratic messes, loss of collaborative potential, sterilization of the net effect - than the benefits. And the profit of the groups who control access to knowledge and to culture, although large, is quite limited in relation to the losses resulting from barriers of creative processes and use of innovations on the planet. And when facing the dramas that today require democratization of knowledge to reduce inequalities, wider use of clean technologies to reduce climatic impact, sanctioning of decentralized production of pharmaceuticals to face tragedies that involve tens of millions of people and other tensions, to put tolls on everything to maximize profits has become irresponsible. Open access is economically more viable and productive and brings forth more and not less creative activities.

In this respect Brazil, faces a peculiar situation, since it inherited an inequality that that marginalized a large part of the population. The knowledge economy and its potentials remained essentially restricted to the upper third of the population. This is a country where the informal sector stands for half of the economically active population. We cannot afford to ignore the best of the huge potential offered by new technologies. And today, to avoid

exclusion, the extent of knowledge must be much greater than that of the alphabetizing fought for by Paulo Freire. Today, his Pedagogy of the Oppressed has digital expression.³⁹

The challenge of democratizing the economy here acquires a significant dimension because access to knowledge as the new production factor, may become a privileged vector of productive insertion for the masses of those who were wronged in the access to social opportunities. As we have seen, once produced, knowledge may be disseminated and multiplied at extremely low costs. Contrary to physical goods, those who pass on knowledge do not lose it. The right to access knowledge thereby becomes a central axis of economic democratization of our societies.

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³⁹ This can assume highly practical dimensions. The “Fund for Universalization of Telecommunications, for instance, could guarantee generalization of broadband access to the whole population along the lines of a “Brasil Digital”.

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