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Strategic Management of Intellectual Property: New Stakes and New Perspectives
La gestión estratégica de la propiedad intelectual: nuevas problemáticas y nuevas perspectivas

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Résumé de l'article

La propriété intellectuelle (PI) joue un rôle stratégique dans les industries créatives où la créativité est un processus collectif impliquant des acteurs aux intérêts contradictoires, conduisant à un “dilemne de la PI”. Les firmes veulent s’approprier le travail créatif et lutter contre l’imitation; les communautés créatives souhaitent un régime de PI souple pour recombiner les créations passées et générer des nouveautés; les individus sont entre ces deux extrêmes. Des arrangements spécifiques sont alors développés (comme des pratiques d’open source ou de creative commons) pour concilier appropriation et création. Les industries de la musique et des jeux vidéo illustrent ces phénomènes.

Creative industries and the IPR dilemma between appropriation and creation: some insights from the videogame and music industries

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Résumé

La propriété intellectuelle (PI) joue un rôle stratégique dans les industries créatives où la créativité est un processus collectif impliquant des acteurs aux intérêts contradictoires, conduisant à un "dilemne de la PI". Les firmes veulent s'approprier le travail créatif et lutter contre l'imitation; les communautés créatives souhaitent un régime de PI souple pour recombiner les créations passées et générer des nouveautés; les individus sont entre ces deux extrêmes. Des arrangements spécifiques sont alors développés (comme des pratiques d'open source ou de creative commons) pour concilier appropriation et création. Les industries de la musique et des jeux vidéo illustrent ces phénomènes.

Mots clés : créativité, propriété intellectuelle, communautés, jeux vidéo, industrie de la musique, industries créatives

Abstract

Intellectual property rights (IPR) play a strategic role in creative industries. Defined as a collective process, creativity involves actors with contradictory IPR needs. This leads to an "IPR dilemna". Firms are looking into appropriating creative work and prevent imitation; whereas creative communities need a weak IPR to combine past work and generate novelty. It becomes problematic for individuals to find themselves between these two. As a result, actors are developing specific IPR arrangements (e.g. open source and creative commons practices) to preserve the balance between appropriation and openness allowing creation. Two creative industries are used as illustrations: music and video-games.

Keywords: creativity, intellectual property rights, communities, videogames, music industry, creative industries

Resumen

Los derechos propiedad intelectual (DPI) juegan un rol estratégico en las industrias creativas definidas por un proceso colectivo que involucra diferentes actores cuyos intereses en los DPI son contradictorios. Mientras las firmas buscan apropiarse su trabajo creativo y prevenir la imitación, las comunidades creativas necesitan DPI débiles para poder combinar trabajos pasados y generar novedades. Por lo tanto actores encuentran dificultades para identificarse con una de estas categorías. En consecuencia, estos desarrollan acuerdos específicos de DPI para preservar un equilibrio entre apropiación y apertura que les permita crear. Dos industrias creativas ilustran un ejemplo: la música y los video juegos.

Palabras claves: creatividad, derechos de propiedad intelectual, comunidades, videojuegos, industria de la música, industrias creativas

In the domain of intellectual property rights (IPR), a clear distinction was initially made between *copyrights* covering artistic activities, and *patents* covering industrial activities. However, nowadays the boundary tends to be blurred[5]. This can be explained, inter alia, by the emergence of the *creative industries* as one of the main drivers of growth in the knowledge based economy. Creative industries (DCMS 2001, p. 04) typically include industries that focus on: creating and exploiting intellectual property products such as music, books, film and games; or providing business-to-business creative services including advertising, public relations and direct marketing[6]. To a large extent, these creative industries integrate artistic as well as industrial dimensions, thus narrowing the gap between the use of patents and copyrights.

However, if the boundary between the main *tools* of property right is now blurred, our aim in this contribution is to show that the *modes of formation and usage* of IPR still differ between creative industries and the two archetypal visions that are often associated to "traditional industries" and "arts". Our view is that, when compared with the analysis of the formation and use of IPR in those two archetypes,

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5. As Foray (2004, p. 131) wrote: "surprisingly, these two categories have moved closer together. Initially they were far apart, […] the boundary was then somewhere between the beautiful and the useful. But with the development of scientific and technical knowledge, these different rights now serve the same purpose. This merger is due essentially to the fact that copyright has conquered new ground. By becoming the right most frequently used by the information technology, culture and multimedia industries, copyright has "entered the corporate world".

6. The current DCMS definition recognizes eleven *creative sectors*: Advertising; Architecture; Arts and antique markets; Crafts Design; Communication design; Designer Fashion; Film, video and photography; Software, computer games and electronic publishing; Music and the visual and performing arts; Publishing; Television and radio.

the formation and use of IPR in creative highlights some very specific traits.

In traditional industries, the economic theoretical approach focuses on the determination of property rights as a means of protecting innovative efforts in a *given* firm (Arrow, 1962). The fact that many individuals within the firm have participated in the innovative process does not really matter since they are supposed to be employees of the firm: the firm is analysed as a representative agent that will claim the property right in its entirety. Rewarding the individuals within the firm who contributed the most to the innovative process is a distinct and different issue, which is generally treated through incentive mechanisms such as prizes, stock options or other financial and non financial rewards. A second characteristic of the traditional approach is that the analysis focuses on the sole universe of applied research (within a given firm). What happened "before", that is the emergence of new ideas, is the concern of a related but distinct universe: the world of *open science*. The latter is governed by different reward mechanisms such as publication, peer recognition, etc. (Dasgupta and David, 1994; Stephan, 1996). Of course, the interactions between the two universes, the domain of open science and the one of applied research, are complex and have warranted an intense in-depth analysis by economists (Foray; 2004; David, 2006; etc.). However, whatever the analysis, one must emphasise that the related universes are clearly regulated with well identified and specific institutions.

Similarly, in a traditional vision of arts (cultural industries), property rights are thought of as a means of reward and protection of *The Artist*, basically again a *given* individual. The creative process is then seen as an individual process, which can possibly be influenced by various environmental factors. What happens before the appearance of a piece of art is a matter of psychological, historical, or social features of the artist.

In creative industries, the process of creation is generally a collective effort that necessitates the interaction and coordination of a multitude of heterogeneous economic actors. For instance, the production of a videogame requires the participation of hundreds, sometimes thousands of different contributors: artists, musicians, game designers, etc.[7]. Basically, we argue that stakeholders of the creative process are creative communities, talented individuals and firms. Hence, while in traditional industries and in arts the determination of IPR is viewed through a focused angle, in creative industries it has to be examined as a fundamentally dispersed phenomenon.

A second characteristic of the analysis of IPR in creative industries is that the creative firms are not backed by a regulated and institutionalized universe which could be compared to the *open science*, nor is it the result of a single individual process. Creative ideas emerge and develop in an informal universe, that is sometimes called *underground*, but, contrary to the world of science, this universe is not organized and institutionalized with specific norms and rules. We argue in this contribution that the key mechanism that channels the creative ideas emitted by talented individuals in the underground to bring them progressively to market is played by informal collectives or *creative communities*. The role played by these communities in the creative process is essential: they achieve the progressive building of a common base of knowledge, a model and a "grammar" (a "codebook", according to Cowan et al., 2000), allowing the creative idea to be equipped with sufficient shared understanding and codes to become economically viable[8].

The emergence of creative industries thus raises new questions, and two paradoxes are notably at stake. A first one, analyzed by Cohendet and Simon (2007), puts forward the issue of the compatibility between traditional rules of corporate governance and creative communities. In short, is it possible to manage and drive creative communities without sterilising them? As emphasised by Cohendet and Simon (2007, p. 588): management in creative industries "is the result of a delicate balance. On the one side, there is an artistic mode relying on flexible and decentralised expertise held by distinct creative communities of specialists; on the other side, is a strict managerial attitude looking for the advantages of tight integration of these activities within time, cost and market constraints. The need to fine tune the level of integration in such an industry is high: too strong an integration could lead to permanent reduction in diversity and creativity; too loose an integration could lead to divergence, chaos and inefficiencies".

This paper deals with a second paradox: how can we reconcile the different wants and needs of three basic stakeholders (firms, individuals, and creative communities), which are equally important in the dynamics of creative industries and which have contradictory interests. Basically, we argue that individuals desire strong individual IPR, firms aim at strong "corporate" IPR, whereas creative communities require weak IPR, or even not IPR at all, in

7. Of course, in the domains of film making as well as in the domain of videogames or music performance, some large (major) companies have emerged and tend to concentrate (as in traditional industries) all the property rights related to their creative products. However, their position is fragile: in particular, the technological revolution in information technologies constantly redistributes the mode of production of creative products and reshuffles relationships between creative ideas and the tangible objects in which they are fixed (Andersen, 2008).

8. One could argue that some groups of artists may play the same role in the arts, and that the creative process involves complex interactions between the artist and its environment, especially other individuals, groups and communities of artists. However, the more or less formal institutions that are ruling those interactions have their own properties and modes of regulations, but are not directly concerned by IPR issues, rather by personal conflicts, jealousy, temporary cooperation, mutual influence, etc. In addition, in creative industries, these creative communities keep on playing a role all through the processes of creation, exploitation, recombination or renewal of the creative ideas. They assure a constant interplay between the underground and the market.

order to easily use and recombine existing art, which is the raw material of the activity of creation. These different logics that drive individuals, firms and communities are what we call the "IPR dilemma" in creative industries. Hence, we explore how actors of the creative process in such industries manage to implement specific arrangements in order to deal with this paradox between creation and appropriation.

To illustrate our point, the present contribution relies on two well-known examples of creative industries: music and video games. These two industries present similarities, but also some significant divergences. Originally, music was closer to art than to traditional industries and, conversely, video-games closer to traditional industries than to arts. Yet, the rise of new information and communication techniques tends to narrow this gap. Hence, in the case of music, it will in particular be argued that one of the consequences of digitalisation is the increasing variety of communities that participate to develop a piece of music and that contribute to the emergence of a new usage of IPR. In the case of videogames, our contribution will also focus on a growing tendency in the domain, namely community based videogames, which induce a specific distribution of IPR across the various participants in the creative process.

The paper contains four sections. First, we present the collective nature of the creative process that is the outcome of the dynamics of interactions among three types of actors: individuals, firms and communities (section 2). Then, in section 3 we introduce the IPR dilemma in creative industries and we explore how specific usages of IPR may contribute to reconcile the different IPR needs of each actor involved in the creation process. Sections 4 and 5 display respectively the examples of the music and the video-game industries. It is worth noting that these two industries are not treated through case studies *stricto sensu*, but rather as illustrations of the main arguments developed in the previous parts. Section 6 provides a short recap of these two examples.

The collective nature of the dynamics of creation between individuals, firms and knowing communities.

Recent studies have highlighted two dimensions of creativity which can be considered as central in our perspective. First, following Amabile (1983; 1997), if we agree on the fact that creativity is the production of new and relevant ideas, product or response that are novel and useful, correct or valuable responses to the task at hand and derived from heuristic process, then whatever human activities, such ideas, product and response, can range from radically new or entailing only incremental novelty. This last case is generally considered as more frequent in creative industries, bringing more emphasis on IPR issues. It also supposes a higher number of potential contributors. A second key result from recent studies stresses that creativity can only emerge through interactions and exchanges between the individual and its cultural and societal environment, as well as among as many and as different as possible social entities (Csikszentmihalyi, 1996; Wolff, 1993; Uzzi and Spiro, 2005; Cohendet and Simon, 2007)[9]. It is only through such a complex and interactive process that existing ideas and materials can be enriched and combined to give birth to radically new trends, styles and fashions.

In particular, the process of creation in most creative industries should not be restricted to the sole role of talented individuals, or to the sole control of the strategic vision of institutions (such as firms or labs in standard industries). On the one hand, we consider that institutions are structures where contracts are signed, where people are hired or fired, where broad competences are managed, but they are not the active units of elaboration of this common base indispensable for the development of creation. Firms are necessary to put new creations on the market, to organise their mass production and distribution. They can take in charge the industrial steps that bring novelties on the market, but they cannot be the sole source of production of the creative ideas. To remain at the forefront of creation, firms must rely on elements that are located outside their frontiers. On the other hand, we also consider that the activity of creation should not be reduced to the sole work of some rare genius. Although relevant in some cases, this traditional picture does not reflect the complexity of the creative act. If a new piece of art very often comes from one single creator, the process that has led to this creation is unambiguously a collective process, contrary to what is often assumed. This is especially true in creative industries where the "products" are often pieces of arts mingled with more standardized products and services, and are sold on mass markets. Creation is the outcome of the interaction among heterogeneous individuals, and the richer the interaction, the more fruitful the creative process. To underline only the individual who is at the end of this chain of creation is equivalent to missing the most important and interesting part of the story.

These reasons call for considering the fundamental collective nature of the creative process, and in particular the role of *creative communities*: the locus of creation is rooted within the diverse informal communities with which firms and individuals must somehow maintain links in order to keep introducing novelties. By creative communities, we refer here to informal groups of individuals who accept to exchange voluntarily and on a regular basis in order to create knowledge in a given field. This can be assimilated to "epistemic" communities (Cowan et al., 2000) in the academic literature which underlines the increasing role

9. Notably, some analysis based on social network approaches shed light on these aspects (Grandadam, 2008).

of these communities in society. As the knowledge-based economy expands, such communities take in charge some significant parts of the *sunk costs* associated with the process of generation or accumulation of specialized parcels of knowledge. These costs correspond for instance to the progressive construction of languages and models of action (a "grammar") and interpretation that are required for the implementation of new knowledge. Usually these costs cannot be covered through the classical signals of hierarchies (or markets).

By progressively codifying the available knowledge, these communities provide the necessary cognitive platform to make creative material economically viable. As a result, these communities are the places for the accumulation of innovative micro-ideas, which may be potential sources of future creativity. They are the main constituents of the "underground" from which creative industries extract their innovative efforts. In order to be widely diffused, creative ideas must then rely on the interaction between different communities, as suggested by the translation/enrolment principle (Callon and Latour, 1991). In fact, each community must draw the attention of and convince other communities of the value of their creation. This is not achieved without difficulty, as talented individuals are not always well understood and sometimes have a hard time persuading others of the validity of their activity. This is the reason why the first stages in the creative process may be fairly long and complicated. However, once the construction of a common knowledge base is realized and the system is percolated (Willinger and Zuscovitch, 1988), the creative process accelerates. The novelty can then become a potentially viable economic application that may enter the market for creative goods.

The main (and indispensable) role of creative communities is thus to codify and equip creative ideas with common norms and principles. In this sense, firms rely on the work of informal communities, as it is impossible for them to allocate the sufficient amount of time necessary for creative material to blossom, and because the cost constraint is often incompatible with the constant need to nourish new ideas with past experiences. Once a codebook is implemented, creativity can be assimilated to a quasi-public good. The language being perfectly stabilized, and the procedures being easily replicated, market opportunities can become predictable (Cohendet et al., 2006). The creation will therefore be economically identified. In this context, knowledge will no longer be tacit, but on the contrary will be treated as information, as a pure public good. Imitation can therefore easily take place without any compensation for the producers of the novelty. At this step, firms can relay communities and undertake the industrialization and commercialization of artwork. In such a "stabilized universe" (Callon, 1999) which is the result of the interactive work of communities, firms face the classical need of being protected from imitation and may look for strong IPR.

We thus propose to interpret the creative activity as a collective process in which various social forms (the individual, knowledge communities and organizations) frequently interact with one another, each one of them complementing the work and correcting the eventual failures of others. No single economic device could efficiently allocate, support, associate and renew creative ideas alone. The power of the creative process requires that new ideas be continuously shared, appropriated, reinterpreted, enriched and diffused again by heterogeneous economic entities. The image of a bazaar mode of creation as opposed to a cathedral one as they were analysed by Raymond (1999) in the creation and development of software appears to be highly relevant in the case of creative industries.

IPR dilemma in creative industries: IPR to exclude vs. IPR to secure openness

The multiplicity of stakeholders in the process of creation suggests that the different parties involved should be rewarded with a complex bundle of diverse IPR, not with a single IPR device. However, IPR in creative ventures must also take into account the collective dimension of the dynamics of creation that has just been exposed as the result of a delicate balance between firms, individuals and communities. More precisely two antagonist forces are opposed: on the one side, all the arrangements and related instruments that intend to protect authors and creators by restricting the access to their creation, on the other side, all the arrangements and related instruments designed to keep the artwork open, to make it available to all, in particular to assure the indispensable functioning of creative communities. The tensions between these two opposed forces are intense and tend to be aggravated by the evolution of ICT. The way to ease it will consist in combining IPR in various ways and/or creating new usages of existing ones and/or creating new ones.

First, firms need strong IPR to exclude imitators, prevent copying and therefore secure some market power. The main instruments to do so are copyrights, trademarks, patents, trade secrets, or some combination of the above. In the Internet Era, where most artwork can be digitalized and exchanged for almost nothing on the web, those IPR are of primary importance to ensure remuneration to actors that participated in the creative process and that invested money in it. Without such IPR, consumers could enjoy art almost for free, which may decrease the production of new pieces of art. This link between IPR and incentives to create is nevertheless often exaggerated. In many sectors, creation would probably continue even in the absence of strong protection. But this does not affect the fact that actors of the creative process deserve to be remunerated and that IPR are part of the instruments that help to do so.

Yet, if on the one hand firms need to rely on strong IPR, on the other hand they also need to extract the creative

potential of the creators. And, *a priori*, these firms can use a classical mechanism to harness the rights of creators: the "work for hire" contracts. Indeed, if under traditional principles of intellectual property law, the creator of a "work" owns copyrights associated with that work, in case that work was done while being paid as an employee or under a "work for hire contract", the creative idea is owned by the employer instead[10]. However a systematic abuse of work for hire contracts can lead to a risk of erosion of creativity.

Indeed, communities can only flourish under weak IPR. Creative projects entail integrating, cutting and pasting, assembling creative elements dispersed among a vast array of technical and cultural activities carried out by diverse and distinct actors. Thus, in order to foster the production of novelty, firms, individuals and communities must rely on some kind of open spaces. In particular, it is important for firms to moderate their use of exclusive IPR in order to preserve privileged links with creative communities, whose role was explained in the previous section. Firms need a certain form of openness in order to get access to and to be in a position to mobilise, in a coherent supply system, the pool of competences and ideas developed by informal communities (Koenig, 2004). It is not always in the interest of the firm to own these resources or to exert too strict a control on them. For instance, in the case of cinema, a movie company can no longer employ all the individual talents (artists, designers, musicians, composers, etc.) it needs. Even if it could afford doing so, this would not be in its best interest, since it would oblige them pay for these artists and other creative people to cultivate and enhance their creative potential within their communities of origin, rather than within the walls of a large company[11].

This open space can sometimes be secured by the slight adaptation of standard IPR. Typically, as for patents, length and coverage of copyright can be modified, copyright may be divided, or copyright can be distinguished from moral rights. At the other extreme, the very absence of property can be seen *a priori* as a solution securing free access. The hypothesis here is that both solutions are not always viable in the creative industries, and that other solutions are currently being developed. The importance of preserving openness in the cultural world was recently emphasized by Lawrence Lessig in two books "The future of ideas" (2001) and "Free culture" (2004) in which he explains that creativity can hardly occur in a world of permission, and that the production of novelty requires the preservation of a free platform on which creators can freely draw to feed their creativity:

"A free culture supports and protects creators and innovators. It does this directly by granting intellectual property rights. But it does so indirectly by limiting the reach of those rights, to guarantee that follow-on creators and innovators remain as free as possible from the control of the past. A free culture is not a culture without property, just as a free market is not a market in which everything is free. The opposite of a free culture is a permission culture, a culture in which creators get to create only with the permission of the powerful, or of the creators from the past" (Lessig, 2004, p. xiv).

A minimum of openness (and not an absence of property) is thus necessary to foster the emergence of novelty and to enable creative communities to work properly. Openness is fundamental, for instance, in cases where the ownership is complex and cannot be attributed to one or a limited number of individuals. In these cases strong IPR surely lead to conflicts, thus reducing trust and exchanges. It is also central in cases where the creative process is highly cumulative, when artists are producing new things by mixing and combining existing pieces of art. In such cases, it is usually not feasible for new creators to ask for the permission of all the creators of the past. And when it is possible, it is obviously so expensive that it deters creators from undertaking artworks. It is thus likely that an open or free mode of creation performs better than a permission mode, where IPR would be devoted solely to exclusive purposes.

The solutions that are proposed to generate a minimum of openness are best illustrated by the pioneer case of the software industry. In reaction to a surge of appropriation through copyrights and patents at the end of the 70s, communities of developers founded the free software or open source software movement (Lessig, 2001; Dalle and Jullien, 2003; Lerner and Tirole, 2001). The purpose of these communities was to preserve the freedom to software source code, so that everybody could access this source code and modify and improve software without having to ask for permission from an "owner". To preserve the openness of source code was considered as highly important since it was a necessary condition to favour collaborations and interactions among software developers. An important lesson that can be learnt from the software story is thus the opposition among communities of developers, who require software to be free in order to continuously build on them, and corporations, such as Microsoft or Apple, that rely on strong IPR in order to protect their software.

10. The nomenclature «work for hire» refers to the principles through which IPR transfer within a corporate enterprise or between a purchaser and contractor. The US Copyright Act defines «work made for hire» as «(1) a work prepared by an employee within the scope of his or her employment; or (2) a work specially ordered or commissioned for use as a part of a creative work».

11. However, in some period of time the access has been more feasible through integration, such as in the 20s to the 40s with the example of large studies such as MGM or Columbia (Malone and Laubacher, 1998). But disintegration was then provoked by the rising willingness of some categories of creators (in particular directors, actors, authors and scriptwriters) to have more control, either on their IPR, or on their possibility to express their creativity for different projects not necessarily for a unique company. The balance was too much desequilibrated in favor of appropriation and for the sole benefit of the firms.

Ironically, if overly exclusive IPR can run against openness and creative communities, they can also sustain them when used in a specific manner. IPR can indeed be powerful devices to appropriate a creation and exclude imitators but, on the other hand, they can also be used in such a way as to preserve the open access to a piece of art, i.e. to prevent its appropriation. It can be done by using IPR in a specific way, in a copyleft style. This possibility has the advantage of controlling the use of the released work and therefore of ensuring the freedom not only of the piece of art itself but of all its improvements, variants, etc. By doing a "legal jujitsu" (Benkler, 2006), authors can use copyrights or patents to ensure that nobody can appropriate their work and its subsequent modifications (Pénin and Wack, 2008). This original use of IPR finds its roots in the software industry again where, as we have seen above, communities of developers rapidly understood the need to preserve openness.

It is important to stress here that openness and free culture do not always prevent creators from making important benefits. First, it must be noted that technically, a piece of art "protected" by a copyleft is not automatically free. It can be sold. Yet, the copyleft means that nobody can prevent someone from distributing it for free, which seriously undermines the incentives to sell it. In practice therefore, copylefted pieces of art are usually distributed for free. Second, creators by copylefting their creation do not usually abandon all their rights over it. Very often they keep at least their name associated to their creation. It is the case, for instance, under the label of *creative commons*, which proposes some more or less permissive licences, but under which it is always very important to mention the name of the creator. Third, new business models can be designed around free and open pieces of art. It is possible for artists not to sell directly their copylefted work but to make money out of complementary services, for instance. Keeping a resource free has been shown to be a coherent strategy when one can earn money from complementary assets (Teece, 2002).

To summarize, we have discussed here the IPR dilemma in creative industries. How can firms deal with their two apparent opposite needs: the need of creative communities, on the one hand, in order to raise radical new concepts, and the need of strong IPR, on the other hand, in order to protect their market. Communities of creators can only evolve in an open world with weak or no IPR at all, in order to easily use and recombine existing art, which is the raw material of the activity of creation. But this creative requirement is permanently facing a contradictory force: the massification of creative industries, the distribution of art on a world wide scale relies on firms that need strong IPR to protect their products.

Building an ongoing creative dynamics requires the preservation of this fragile equilibrium between exclusion and openness, which ensures the co-evolution of individuals, firms and a creative underground. In this sense, firms must accept to some extent this new use of IPR, in particular those based on copyleft strategies, creative commons, etc. In the next two sections we present the two examples of the music industry and of the video-game industry. With those two examples of industries exhibiting quite different features[12], we aim at illustrating how the actors of the creative process might develop specific arrangements in order to preserve this delicate balance between appropriation and creation.

The case of the music industry[13]

The music industry includes many actors playing various roles from the artists to the publisher, producer or record companies (Hull, 2004; Caves, 2002). It combines individuals, firms (typically all recording companies), institutions (copyright collective organizations, music training schools, unions…), and communities that frequently go beyond the boundaries of the firms and of the networks of actors linked by contracts. Artists are frequently individuals under contract with (but not employees of) companies (sometimes of a "work of hire" type), whereas producers, managers, A&R (Artists and Repertoire), etc., also often set up very small companies or single-person companies, blurring the boundary between individuals and firms.

Among the IPR listed above, mainly copyrights are included, and sometimes also moral rights, allowing its owner to control the usage made of his/her music work independently from the commercial exploitation (Andersen et al. 2007). Most of the rights on music (to the notable exception of the moral right) can be "cut into slices" and traded, especially when different versions of the same music work are translated under different recorded forms and are exploited in different countries through different channels of diffusion. The music industry can then be seen as organized around the creation, the transactions and the exploitation of a bundle of rights.

The use of the traditional copyright system is mainly justified on the grounds of the standard «public good» argument and its corollaries. Companies are seeking to use IPR in order to exploit scale effects and reach the largest possible market size by concentrating efforts on Top sellers ("stardom syndrome", see Adler, 2005 or Giles, 2006), to spread risk over a variety of artists and music genres, and to maximize the combined ways of diffusion for instance by

12. These are neither meant to be detailed and in-depth case study nor assumed to be an exhaustive and fully representative coverage of the overall creative industries, but rather overviews of two emblematic industries highlighting the specific uses of IPR.

13. This overview relies on desk study and materials collected for the purpose of a communication at the Dime Workshop The Creative Industries and Intellectual Property, Birkbeck, University of London, 22-23 May, 2008, a series of lectures at the University of Strasbourg and a project on « La culture d'innovation en Alsace » for the Alsace region local authorities.

exploiting possibility of discrimination strategies such as bundling (best of, compilations…) or versioning (different versions of the same piece of music at different date, quality or available quantity). As in other sectors, IPR strategies of firms and individuals (artists and agents in the first place) also allow for the coordination of the specialized but complementary activities that are required to produce music: "Here commercial music value-added is maximized by putting together joint effort to create a joint product between the music authors and a range of complementary musical resources that are not freely available but need incentives" (Andersen et al., 2007). Transactions on copyrights can thus also be seen as a way to share the risks, through a multiplicity of agreements often organizing mutual interdependence between the actors (Connolly and Krueger, 2005; Crain and Tollison, 1997). There is a mutual interest to support all the ways of diffusion and to secure the enforcement of all copyrights, because all ways of diffusion frequently reinforce each others.

How then can actors leave some free "creative space", in order to make mature, to renew, and to enrich the creative potential? Copyright claim assumes that the creativity has materialized into a specific and tangible form (the music work, for example a song). Then it is neither the idea of a song or of its components nor a musical style that can be protected, but only their manifestation into a musical composition. It means that many "creative bricks" that compose a music work or a recorded music are not protected (formal structure, rhythm pattern, guitar solos, string or brass arrangements, etc.). Artists are "creating around" by copying some elements of the creative bunch and are collectively constructing their reputation, with moral rights being part of an even more complex process of recognition (live performance, sessions, newspaper critics, word of mouth…). The interplay with communities (musicians, fans, DJs, bookers, tour operators, bar and small club landlords, music critics, local authorities, etc) is crucial to both circulate and combine new ideas (Grandadam, 2008; Brown et al., 2000; de Lima e Silva, 2004; Lena, 2004; Watson, 2007). These communities take care of the coordination, and they are at the same time the locus of progressive codification of knowledge and creation of the codebook and grammar of a music style. Key players are also the single-person firms set up by independent producers or managers (creating labels such as in the case of Jazz, Grandadam, 2008). They can be seen as a hybrid form between individuals and firms, and in close contact with the communities, and allow for a mutualization of IPRs. However, they are attracted, on the one side, by the exclusion world and the tendency to become classical firms to fully exploit a privatization of IPR, and on the other side, by the need to nurture the open world to feed the creative process. As the copyright does not refrain from sharing some of the creative content of music, these exchanges along the creative process and the related "creative slack" can be maintained.

Technological changes largely influence the effective set up and enforcing of the IPR system, and the possibility for the actors to use it strategically (Tschmuck, 2006; Lampel et al., 2008). The digital revolution is the most recent of these changes. Beyond the issue of illegal exchange of music and its impact on the revenues of the actors (see for instance Andersen and Frenz, 2007), mainly due to the combination of digitalization with the generalization of broadband Internet connections since 2002-2003, digitalization more broadly induces a technological convergence between creation, recording and diffusion, and an access to the technicalities of those activities for almost anybody at low prices. It has also allowed or induced the massive and commercial development of new musical styles now almost fully relying on digital instruments (e.g., techno or electro music), although partly based on a quite long tradition of creative activities pre-existing the digitalization rise (see for instance the work of Kraftwerk in the late 60s, or various artists in Detroit in the early 80s, to name a few examples of early diffusion of those styles towards a large audience).

Creation seems to increasingly rely on the recombination of existing pieces of music (e.g., sampling), sounds (e.g., drums machine or sound base, imitating or reproducing "real" sounds or proposing completely artificial ones) and patterns of rhythms and/or orchestration (loops) which is facilitated by digital technology (although again they have been "invented" earlier, for instance with Pierre Schaeffer or Luciano Berio 1950s works, original Rap from the early 80s or even mid70s, or American minimal music in the 60s). These are creative bricks potentially highly dependent on IPR: sampling because of copyrights, "sounds" because they are related to IPR on software, loops potentially for both reasons. This may have some consequences on the capacity of the IPR system to leave room for future creation, and also confers to the music creation another collective dimension (apart from the role of communities), putting again in question the "romantic" view of the individual author implicit to the standard copyright system (Moureau and Sagot-Duvauroux, 2002).

One key and often understated consequence of digitalization is the growing importance of communities and the diversification of their activities. Communities now enter into activities that were previously carried out almost exclusively by firms. Typical examples are (Beuscart, 2007 and Martin, 2004) relations between artists and consumers (Baym, 2007), who often share the same "internet" culture, using Myspace, Napster or the similar P2P services, etc., (Ebare, 2004), for instance artists offering users the possibility to make their own mixes of their existing music, communities of users of software instruments (Doloswala, 2006), internet users sustaining publishing, production and/or distribution of new artists (from simple on-line labels to more community-like initiatives).

With a potentially more massive diffusion of music directly by the artists, "social" rewards can be fully

dissociated from monetary rewards and from distribution by majors (one frequently talks about "number of downloads" rather than ""number of CDs sold"). The coordination role could be partly achieved through internet, rather than by the use of various specialists (producers, A&R, marketing man…) whose interests are organized around the exploitation of copyrights.

The relations between actors of the creative process then seem to be drastically modified by digitalization. Correspondingly, it is questionable whether the copyright-based IPR system can still allow for a balance between exclusion and openness, as it does in the "old" music industry. Of course, record companies try various strategies to compensate for the decreasing revenues from CD sales, presumably not compensated (yet) by "digital sales" (IFPI, 2007; IFPI, 2008)[14]. As regards IPR, three types of IPR strategies are presently emerging without any clearly dominant model.

A first one is to try to «re-create» the old system. Individuals and firms try to restore excludability and/or rivalry of their music, and then the basis for enforcing the standard exclusion-type of IPR system: development of technical systems (such as DRM); set up of new forms of diffusion and associated payments such as subscriptions to music sites, on-line one song purchase …; new types of bundling and versioning; increasing attractiveness of "old" CD for instance by higher sound quality than computer files or by adding booklets; creation (by artists) of unique and personally signed units of "piece-of-art-like" CD at very high price; diversification of channels of diffusion, such as phone rings, commercials. There are also attempts to reproduce the dual system of majors vs. independent producers with the role of the latter now played by internet social sites and related communities.

A second strategy consists in diversifying the scope of the old IPR devices, for instance by adding copyright on music to other copyright or brand names, and developing derivative products, videogames etc. Part of this trend is the development of the live performance activity which has sharply risen in the last years and is now subject to a movement of integration and transnational acquisition. It represents the major source of revenues of many artists, re-emphasizing the stardom characteristics of the music industry. Here again, the interests of individuals and firms seem to coincide to a certain extent. The so-called 360° strategy developed by some firms precisely aims at offering the artists to manage all IPR related to him/her and to his/her music, be they images, music works, derivative products, etc.

A third strategy (adopted by a lot of communities' initiatives evoked above) is based on the use of rules set up for a free and legal diffusion under the Creative Commons model. Different possibilities are offered to the artists beyond the baselines authorizing sampling, reproduction and non commercial diffusion, and imposing to keep trace of the paternity of the music work (to authorize commercial diffusion or not, to authorize modifications or not, to have the possibility of earning revenues from donation of the internet users and/or for advertisements, etc.). In the backdrop, the objective is also to develop communities of musicians, producers, auditors etc, by the use of various fora, blogs, tag system, rooms for critics of songs, etc. It is important to emphasize that such an open regime is proposed both in the creation activities and in the diffusion activities.

The case of the video-game industry[15]

A video-game is a complex "multimedia" artefact, resulting from the expert integration of software-based, computer-generated animated interactive pictures with sound effects, background music, and sometimes voices. It is generally structured around and supported by a background narrative, original, or inspired from popular culture (comics, cartoons, movies...).

In fact, intellectual property laws offer a large array of tools to protect the creative inputs of a videogame. For example, as IDGA (2003) underlines: "all games, regardless of their type, content, country of origin, target platform or supporting media, comprise some combination of copyrights, trademarks, patented technology and trade secrets. A finished game often contains many different intellectual properties, owned by many different parties. Within each category, some assets are created "from scratch" while others are licensed from others, whether for reasons of efficiency or publicity".

As a creative product, a video-game develops in stages. The earliest stage of game development, pre-production, includes ideation, design, research, prototyping, proposal-writing, and tool acquisition. The middle, or production, stage involves asset development, feature implementation, and integration. The final post-production stage requires testing, debugging, quality-assessment, balancing, final modifications, and all of the activities that get a game into the distribution channel: package design, technical and user documentation, release coordination, replication, and shipping. The developer of the game as a legal entity enters into numerous business agreements with employees, suppliers,

14. We will not address here the very debated issue of the effects of pirating and illegal exchanges of music files on the sales of music and on the revenues of actors of the music industry (see for instance: Andersen and Frentz, 2007; FAD Research, 2004; Frost, 2007; OECD, 2005; Peitz and Waelbroeck, 2006).

15. This overview extensively relies on the deep knowledge of the development around the Canadian-based Ubisoft company, where one of the co-authors of the proposed contribution has spent three years for his Ph.D).

contractors, investors, and publishers over the course of this life cycle.

Each stage requires the integration of creative processes (code, art, sound, and imagination) with associated IPR. One of the main creative activities of a videogame is the *game design*.

Game design is the art and science of creating the game itself: the ideas, stories, worlds, characters, gameplay mechanics and so on. In other words, it bears the interactive sets of rules, and their evolution, which are at the very heart of the game as it is experienced by the player: a challenging experience which requires a progressive learning and mastery. However, the code is also a key creative element of the game. For the gamer, the *code* is the invisible heart of the game; for the developer, it is the beating heart of the business. Without the code, a game is little more than a great design document and a lot of individual art pieces. Besides the game design and the code, there are a myriad of other creative activities involved in a game such as audio, sound design, graphic design, etc.

The IPR agreements in the game development lifecycle will help the developer to acquire ownership of the game assets, license the tools and technology necessary to make the game, acquire licensed IPR to make the game and convey ownership of the game, or license the game to the publisher who takes it to market. The main IPR agreement that a developer may sign is that with its publisher. But the developer/publisher relationship actually has several contracts that comprise IPR agreements associated with it. The first in the process is normally a mutual Non-Disclosure Agreement (NDA) that should be executed by both the developer and the publisher prior to the developer presenting its project to the publisher for consideration. This agreement determines the scope of the proprietary information to be exchanged and the responsibilities of each party with respect to not disclosing that proprietary information.

Copyright is generally the main option for the developer to acquire ownership of creative inputs, such as in game design or game code which is made up of many parts, with different authors and different companies to which those copyrights are assigned. However, licencing is also a frequent option. For example, most console manufacturers require the developer to sign a license in order to have access to the proprietary information (API, etc) needed to develop games on that platform. These licenses identify proprietary information (trade secrets) and control the dissemination of such information.

However, looking at the sole agreements between the game developer and the entities (individuals or firms) holding licences or claiming copyrights, would be misleading if we aim at understanding the governance of creativity in videogames. The creative activities involved (game design, production of codes, etc.) in a game require the continuous building of theories, models, styles, trends, and which result from collective interactions between individuals belonging to creative communities. For example, Cohendet and Simon (2007) underline that in the case of Ubisoft, the game designers who are involved in different projects carried out by the company remain connected to their community on a daily basis. They continue to exchange and interact with the other members of the community (some members working within the same firm, but many others working in different institutions) and even tend to enrich the knowledge of their community by bringing the experience gained during the project they are assigned to. In this dynamic process, they clearly cope with a dual identity, as members of a given project in the firm and as members of a given community.

One of the advantages of this permanent connection is that it provides opportunities for feedback between the micro creativity that emerges from the daily activities during the project, and the macro-creativity that is the expected output of the creative communities. The creativity of a project should not be confined to the macro-creativity set up at the beginning of the project by the project managers. A creative project should be able to incorporate new ideas and innovative suggestions, and all the micro-creative inputs that emerge from the day to day activities during a project. This micro-creativity compensates one of the main drawbacks of the hierarchical conduct of any project: there is the risk if the hierarchy strictly controls the timing of a project that this constraint excludes any significant feedback in terms of conception, and thus may imply a loss of creativity by killing the micro-creative inputs. The dual identity mitigates this risk, by allowing permanent interactions between micro and macro creativity. In practice, this permanent interaction may lead to two main effects. First, it may happen that if a micro-creative idea that has emerged during a project appears to be relevant, it can quickly circulate within the communities through regular exchanges, be improved and validated through these exchanges, and be introduced directly into the project, i.e. be enacted. Second, micro-creative ideas that emerge during a project can be absorbed in the active memory of some creative communities, as a *creative slack* that could be used in other projects.

The key role of creative communities in the development of videogames has a consequence in terms of IPR. Creative communities will claim weak IPR devices to maintain their collective endeavour of building the quasi public goods that offer codebooks and grammars of usage to the creative activities. The spectacular development of open source based videogames, copyleft systems, or creative commons in the domain, offers clear evidences of the presence and claims of creative communities. There are myriads of examples supporting this fact. In many games the game source code is released as public domain along with the shareware-released media files, in *Adventure* the original text adventure game, source code is public domain; *Wesnoth* is an open-source strategy game, *FreeDoom* is a set of open source graphics files for open source versions of

the Doom engine, *GNU Go* is a free program that plays the game of Go, *Rocks'n'Diamonds* is an open-source, cross-platform, arcade game that contains clones of *Boulder Dash, Emerald Mine, Supaplex and Sokoban. Ur-Quan Masters* is the classic *Star Control 2* game, re-released under the GPL license, etc.

On the one hand, the exploitation modes of intellectual property rights are typical of the cultural industries and aims at ensuring returns either to the firms or the individuals through appropriation via negotiated contracts. The licensing business, translating IP from the movies, media, or sport business seems to be closer to this exploitation mode, and is often criticized as limiting the creativity of the video game industry.

On the other hand, exploration is allowed through "lighter", more open rights that fuel knowledge circulation, sharing, and discussion of the ideas among communities of developers. Traditionally, these communities would interact through face-to-face relationships in personal networks, often on university campuses or even in video-game firms, or online through virtual forums. Developers and wannabe developers would share knowledge and early prototypes of games in a rather informal way. In general, a programmer would act as a designer for his own project, but would also look for graphic and sound artists to enhance his project. The developer would disclose early developments of his work to try to attract new partners to work with him. At this step, community spirit rules, and IP rights are rarely invoked. Two examples illustrate how those communities feed the creativity of the video game industry.

Kongregate[16] is an online platform dedicated to the diffusion of mini, independent, online games. Its business model is based on pay-per-hits, online advertising: each time a page is loaded and that an ad is viewed, the firm advertising its service or product is invoiced. With many visitors visiting the site to play or to get inspiration from some of the over 17 000 online games, the site is self-sufficient. The site activities are backed by a very active community of developers, interacting through multiple forums. To support this community, Kongregate partnered with Aviary[17], a firm developing a suite of light video game development tools, and also a strong advocate of independent, community-based development as a source of inspiration for its products. Thus, the Kongregate community can freely use Aviary tools, with no license fee, to feed its creative process. The community is also encouraged to showcase and share its creations online to foster partnerships with other independent developers[18]. This very open process allows the site to offer very innovative and inspiring games, constantly renewed by this creative pipeline. As a further step, it is getting normal practice for more institutionalized video-game development firms or publishers to monitor the Kongregate site or its online equivalent, and sometimes to acquire the right for a game to include it in its development portfolio, where the game could be expanded and/or adapted for commercial release on PC or consoles.

On the same wavelength, top publishers in the industry rely more and more on the involvement of independent creators. Significantly, even the largest firms in the industry tend to connect to informal, unstructured communities of creators and developers through beta-testing (early, pre-release testing of the game, open to registered users, selected on their proven interest/expertise), and also through open competitions, like "independent games festivals"[19]. As an illustration, in 2007 Ubisoft Montreal launched a competition[20] to bring developers to submit their concepts and early development to the appreciation of industry experts and professionals. Such a competition literally «pulls» creativity from the underground. Competitors would then gladly show their projects but also how they developed them. Based on the professional and experts assessment, the firm then decides either to support the development and publishing of some projects through IP acquisition, or to hire some developers, based on their ideas, skills, and creativity.

Contrary to what some experts argue, our view is that the claim of creative communities does not threaten the industry of videogames. It is quite the opposite: the reward of weak IPR to creative communities through copyleft, open source or creative commons is the guarantee of building of the fertile soil of creativity which favours the interests of talented individuals as well as active companies in the field.

Conclusion

This contribution is a first step of an ongoing exploration of the creative industries and the role played by intellectual property rights to foster creation. Traditionally, IPR are considered as instruments to protect creators, to enable them to earn a remuneration and therefore to increase incentives to create. We argued that this view presents only half of the story. IPR also fulfil an important role of coordination of creative activities. This latter role is especially relevant when numerous and heterogeneous actors are part of the creative process.

We first emphasised the fact that creation is a collective process that involves interactions among three main types of actors: firms, single individuals and communities. Yet, each of these actors may need different and sometimes contradictory types of IPR. For instance, firms usually need strong IPR to prevent free-riding and to be able to commercialise art. But, on the other hand, creative communities

16. http://www.kongregate.com/

17. http://aviary.com/

18. http://www.kongregate.com/collabs

19. For instance: http://www.igf.com/
It is the most important festival, parallel to the more official, institutionalized Games Developers Conference, in the US.

20. http://www.toomuchimagination.ca/

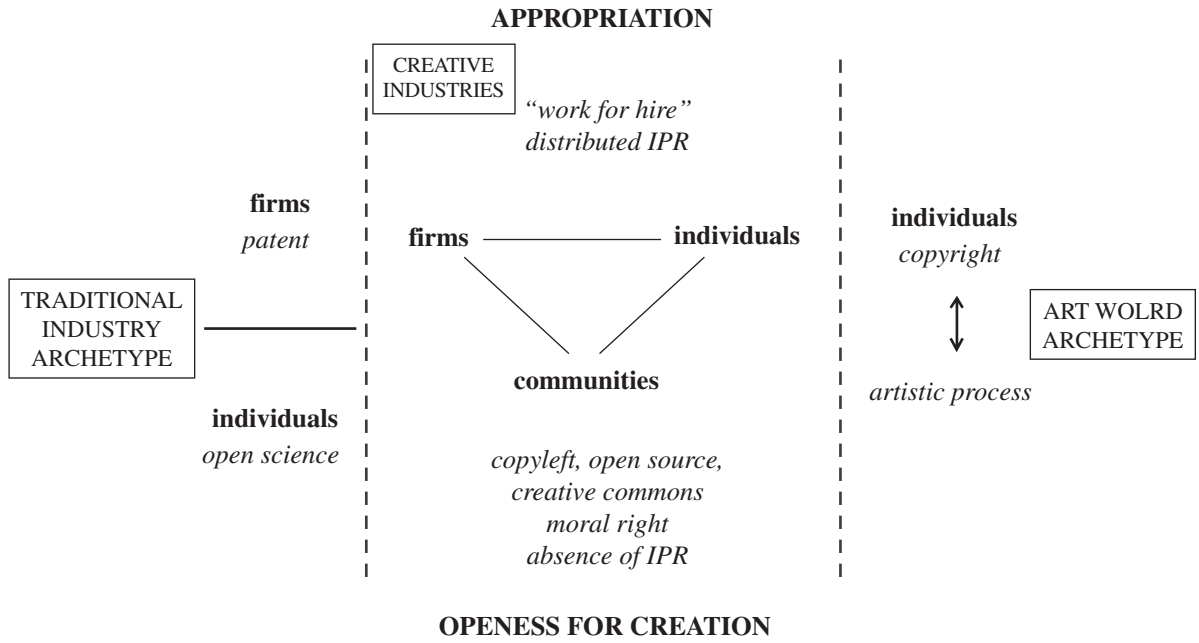
usually need weak IPR to be able to reuse without control existing pieces of art that is the raw material to create new things. At the intersection between firms and communities lies therefore a potential IPR dilemma: firms need creative communities to provide them with a continuous stream of new creation. But firms, and sometimes individuals, also need strong IPR to make money out of new pieces of art. To analyse this dilemma we selected two creative industries with different features: music and video games. The first one has been existing for more than a hundred years, the second one is far much younger. The first one has evolved and had to adapt to a lot of technological (as well as artistic) revolutions out of which the digital rise is the most recent one, while the other is "born" in the digital age. Video games industry has to manage creative inputs of very different nature with corresponding IPR arrangements, while music industry, at least up to recently, is mainly focused on music and on IPR on music only. Video games develops in stage, with a need of managing the IPR dilemma all the way long, while most frequently the creation of a piece of music is more limited in time as well as in number of "go/no go" decisions and in number and variety of actors involved in these decisions.

The overview of the music industry clearly illustrates the interplay of the three types of actors in the dynamics of creation. The standard IPR system based on copyright has been more or less able (even with adaptation phases, for instance with the emergence of radio) to reconcile appropriation and openness for creation, thanks to the possibility to divide it in pieces, to the intrinsic (potential or actual) distinction between monetary and social recognition that it conveys, and to its limited coverage as regards the "creative bricks". In addition, it is argued that the pervasive spread of digital technologies has changed and increased the role of communities, enriched the scope of IPR used to secure economic revenues and brought about changes in the way they are used, and encouraged the emergence of new IPR tools.

The case of videogames illustrates that the tensions that exist between using standard IPR system generally based on copyright, and developing "weak" collective IPR through copyleft, open source or creative commons. In this perspective, our view is that the growing claim of creative communities does not threat the industry of videogames, but tends to reinforce its development through guaranteeing the conditions of creativity.

Both examples illustrate that, between the two archetypal models of "traditional industries" and "art world" in which appropriation and creation are supposed to be analytically well separated and can be ruled by straightforward tools, the creative industries have to design complex institutional settings allowing firms, communities and individuals to interact with each other while maintaining a good balance between appropriation and creation. The range of

FIGURE 1



IPR tools, from no IPR at all to for instance "work for hire contract" is precisely mobilized for that purpose, with a need of constant re-adjustments for dealing with this permanent tension. IPR in creative activities can then contribute to organizing and regulating a fertile and informal world of "open creativity". Creative firms have a deep interest to "invest and pay" for the existence of the informal universe. Thus, we show that the IPR dilemma in creative industries may lead to the elaboration of an original use of IPR, in particular based on open source practices imported from the software industry, and that allow reconciling to some extent the contradictory needs of the actors involved in the dynamics of creative industries.

However, locate the creative industries in such intermediate position, as showed in Figure 1, does not mean that these modes of usage of IPR are specific to the creative industries. For instance, there are many examples of companies using open source solutions developed by virtual communities, in the case of software for electronic consumer goods (TV decoders) of for data analysis module of a NASA probe towards Mars (Norris and Kamp, 2004). But as illustrated by the cases of music and video games industries, the role played by communities in creative industries make the search for these IPR solutions more central for the creativity and the viability of the activities.

As compared with more traditional studies, this work then places emphasis on underground creative communities, which play a fundamental role in introducing radical novelty, new fashions, styles, etc. Increasingly, firms acknowledge the importance of these communities and the necessity to establish links with them. Yet, since the two modes of functioning (firms vs. communities) are radically different, it is not easy to make these two worlds co-exist. Creativity needs openness, while mass distribution requires a degree of appropriation, of control. We find here the traditional tradeoff that IPR must help to solve. Putting the cursor too far on one side either stops creativity or prevents a large distribution of art.

This contribution strongly suggests that firms, although they feel threatened by underground creative communities, do need them. Moreover, we have argued that successful firms in the future will be those who implemented the best strategy to harness the creative potential of communities. And among those strategies, relaxing some control over their IP is likely to be one of the concessions.

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