

Singapore Management University Institutional Knowledge at Singapore Management University

Research Collection School Of Information Systems

School of Information Systems

9-2007

Taking Stock of the Creative Commons Experiment: Monitoring the Use of Creative Commons Licenses and Evaluating Its Implications for the Future of Creative Commons and for Copyright Law

Giorgos Cheliotis

Singapore Management University, giorgos@smu.edu.sg

Kam Wai, Warren Bartholomew Chik

Singapore Management University, warrenchik@smu.edu.sg

Ankit Guglani

Giri Kumar Tayi

SUNY at Albany

Follow this and additional works at: https://ink.library.smu.edu.sg/sis_research

 Part of the [Computer Sciences Commons](#)

Citation

Cheliotis, Giorgos; Chik, Kam Wai, Warren Bartholomew; Guglani, Ankit; and Tayi, Giri Kumar. Taking Stock of the Creative Commons Experiment: Monitoring the Use of Creative Commons Licenses and Evaluating Its Implications for the Future of Creative Commons and for Copyright Law. (2007). *35th Research Conference on Communication, Information and Internet Policy (TPRC)*. Research Collection School Of Information Systems.

Available at: https://ink.library.smu.edu.sg/sis_research/281

This Conference Paper is brought to you for free and open access by the School of Information Systems at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection School Of Information Systems by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email libIR@smu.edu.sg.

Taking Stock of the Creative Commons Experiment
Monitoring the Use of Creative Commons Licenses and Evaluating Its Implications for the Future of Creative Commons and for Copyright Law

Giorgos Cheliotis¹, Warren Chik², Ankit Guglani¹ and Giri Kumar Tayi³

¹School of Information Systems
Singapore Management University
80 Stamford Road
Singapore 178902
giorgos@smu.edu.sg
ankitg.2005@sis.smu.edu.sg

²School of Law
Singapore Management University
60 Stamford Road #04-11
Singapore 178900
warrenchik@smu.edu.sg

³Department of ITM/MSIS
School of Business
SUNY at Albany
1400 Washington Avenue
Albany, NY 12222
g.tayi@albany.edu

**35th Research Conference on Communication, Information and Internet Policy
(TPRC), Sep 28—30, National Center for Technology & Law
George Mason University School of Law**

August 15, 2007

Abstract

We provide an analysis of the use of Creative Commons (CC) licenses, an approach to licensing creative works which has become very popular among authors who wish to promote more liberal sharing and use of their work. We provide data demonstrating the popularity of CC, examine which specific license types within the CC framework are most popular, and then identify contributing factors for the relative popularity of some of the license types. This includes individual author incentives, the consistency and aims of the online communities which adopt CC as a licensing model, the underlying medium (text, photography, audio, video or interactive content), the intended use of the work, as well as the sociopolitical, legal and economic background of the jurisdictions where the works are being produced. We show that the spread of the licenses is global and encompasses both developed and developing nations with varied cultural and historical backgrounds, which we claim is indicative of a general social shift towards more open collaboration and the rise of a new global consciousness of sharing and participation across national borders. By examining the relationship between piracy rates and license adoption we find only weak support for the common assumption that a relatively lax or critical view on the part of the population towards intellectual property law is providing fertile ground for licenses like CC which offer a more liberal legal alternative. Only an analysis of the

complex legal, economic and geopolitical background of each jurisdiction seems to yield plausible explanations for the observed differences in licensing across jurisdictions. In conclusion we examine to what extent copyright law and policy should be informed by the needs and choices of this new generation of authors adopting CC licenses, also taking into consideration the changing interests of society in the digital age.

Introduction

With the development of the Internet and particularly with the newest breed of collaboration and communication technologies commonly labeled as Web 2.0, we have been witnessing the rapid growth of 'participatory media', whereby both professional and amateur authors create and share digital content with greater ease than ever before. This has led to the development of hugely popular online content production and sharing communities such as Flickr, Youtube and Wikipedia. Besides these oft-quoted examples there exists a large number of less publicized, 'long-tail' communities and content repositories (e.g., the Internet Archive, Revver, ccMixter, OpenSound, deviantArt, blip.tv) as well as several similar communities with a local geographical focus (e.g., Sony's eyeVio for Japan). Some music labels with novel business models have also started making all their content freely available online for streaming and/or download (e.g., Magnatune, Jamendo). If we add to this all the content users post on blogs hosted either on popular sites (e.g., Blogger, Wordpress, Typepad) or on individually hosted blogs, and the content posted by users on social networking sites such as Myspace, Orkut, Friendster or Facebook, it becomes clear that we have embarked on an irreversible trend towards more open sharing of digital content in very large numbers.

Although the total size of the pool of content made available online is hard to estimate, it is safe to assume that it is in the order of at least hundreds of millions, if not in the order of billions of digital files. Apart from the cases where copyrighted content is published by third parties on sites such as YouTube, a large share of user-submitted content (e.g., in Flickr, Wikipedia and the Internet Archive) is created by the people who post it. Like all creative works, this content is automatically protected by Copyright Law in all countries that have signed the Berne Convention for the Protection of Artistic and Literary Works of 1886 (which includes almost all nations in the world). Under this regime all rights associated with the content are automatically and exclusively reserved for the respective authors.

However, sharing, participation and collaborative production have led to a shift in the mindset of some authors who choose to waive¹ some of the exclusive rights granted to them automatically by Copyright Law. Even if this trend towards more liberal licensing of digital content has been preceded by the successful employment of Free Software and Open Source licenses, for digital media (text, audio, pictures, video and interactive content) it is witnessed most clearly in the popularity of Creative Commons (CC) licenses.² Some of the content on several of the websites we have already mentioned and on individual user websites/blogs is licensed today under CC. We will show that the size of the CC-licensed content pool is significant and therefore the use of CC licenses warrants our attention as an object of study and as an indicator of the preferences of the large number of authors who choose to license their creative output under more liberal terms.

¹ This waiving of exclusive rights need not be permanent. It can be revoked by the author at a later point in time, although the new set of restrictions cannot be applied retroactively.

² For more information on CC visit the CC homepage: <http://creativecommons.org> and in particular the description of the licenses at <http://creativecommons.org/licenses/>. Lawrence Lessig's book *Free Culture*, Penguin Press, 2004, also available at <http://www.free-culture.cc/> provides more background on the reasoning behind the introduction of CC and the importance of keeping cultural production free to share and build upon. The licenses were first introduced in December 2002.

Unlike the Free Software Foundation licenses which offer two licensing options (GPL and LGPL), CC offers more options in order to address the diverse needs and requirements of a population of authors which is much larger than that of software developers. There is also a difference in mind-set: Free Software licenses are designed specifically with the aim of preserving and growing a pool of freely available software and thus force developers who build upon Free Software to also license their derivative software components under the same licenses (thus ensuring that these derivative works will also be 'free'). CC on the other hand offers this restriction only as an option, called "share-alike". Generally, the spirit of CC is to offer options rather than dictate a specific licensing approach³. This 'design feature' of CC adds to the value of studying the use of the licenses, as for the first time in history we can publicly observe very large numbers of people making licensing decisions across a well-defined spectrum of options. Therefore, we argue that even if most of the creative output of society is not CC-licensed, the fact that CC is popular and CC user decisions can be observed and span a range of options makes the use of CC a prime subject of study for anyone interested in how authors value the rights that Copyright Law seeks to protect.

We cannot know how many of the CC users are professionals versus amateurs, or represent for-profit organizations versus non-profits. However, based on the types of online communities that have adopted CC so far it is fair to assume that a large share of CC-licensed content today is produced by amateurs, in the sense that the activity which has led to the production of the content is not the authors' main source of income. This is not to say that this content does not have any social value nor any commercial potential, as it may be of high quality or generate great interest, as evidenced by the popularity of some user-submitted text, music, photos and videos on sites which predominantly host amateur content (e.g., Flickr, Revver) and which are also not coincidentally among the first adopters of CC as a licensing model⁴. For most of these authors the Internet is their main publication and promotion medium, as opposed to professionals for whom the Internet is typically just one of several distribution and promotion channels. As the Internet and electronic commerce continuously grow in importance it is likely that more authors will use the Internet as their main distribution channel and this may lead to more professional authors using CC.

The licenses

The Creative Commons is a set of licenses which anyone can use when publishing content online by adding a hyperlink or an icon with a hyperlink to the page on the Creative Commons website hosting the license description. In response to various requests by a broad community of authors CC has introduced a number of license types to suit different needs. By far the most popular licenses are:

- **[BY]** By Attribution: this is the most liberal license in the framework. All uses of the original work are permitted, with the only constraint that in every use the original work must be attributed to the original author. The same constraint is present in all licenses below.
- **[BY-SA]** By Attribution – Share Alike: same as BY, with the additional constraint that any derivative works will also have to be licensed under BY-SA.

³ Free Software licensing, also sometimes called 'copyleft' licensing, shares some of the same aims with Creative Commons, most importantly they both aim to build a 'commons' of information. The main difference is that copyleft supporters maintain an 'ethical'/political stance which dictates that content and software should be free and everyone benefiting from this free pool should give back to it by licensing in the same manner. For a critical view on the political motivations behind copyleft and a comparison to CC see *Info-communism? A Critique of the Emerging Discourse on Property Rights in Information*, by Martin Mueller, available at: <http://web.si.umich.edu/tprc/papers/2005/403/Info-Communism-Mueller.pdf>

⁴ Creative Commons licenses can be applied to any creative work that is not bound by other licensing and/or contractual obligations, irrespective of the format and distribution medium. Our data is limited to content posted on the Internet, though this is not limiting the scope of our analysis in any way as the Internet has been the main distribution channel for CC-licensed works.

- **[BY-ND]** By Attribution – No Derivatives: same as BY, but not permitting the creation of derivative works. Note that ND and SA are mutually exclusive
- **[BY-NC]** By Attribution – Non-Commercial: same as BY, but not permitting commercial use.
- **[BY-NC-SA]** By Attribution – Non-commercial – Share Alike: same as BY-SA, but not permitting commercial use.
- **[BY-NC-ND]** By Attribution – Non-Commercial – No Derivatives: same as BY-ND, but not permitting commercial use. This is the most restrictive license in the framework and its only difference to full copyright protection is that (like all CC licenses) it allows for non-commercial copying and distribution of the work (i.e. it allows for legal ‘file-sharing’ of the content)

Creative Commons licenses must be understood in the context of the existing copyright regime. Copyright law emerged from the advent of the printing press (an early form of copying) in the U.K. in the 17th Century. It was not until the 19th Century that the first international treaty was established in the form of the Berne Convention, when the recognition of a common copyright among signatory states was established. Since then most, if not all domestic copyright laws around the world as well as a series of international treaties proliferated thereby establishing a worldwide copyright regime. National copyright laws are substantially similar, partly due to transposition of laws and the harmonizing nature of treaties, particularly their scope of protection and the nature of copyright.⁵

Generally, copyrights for creative works do not have to be registered, asserted or even declared, and owners automatically enjoy copyright protection as soon as an original work is expressed in tangible form (such as written or recorded onto a medium). Copyright protection is thus automatic or reserved by default, unless specifically ‘opted-out’ of by the owner of the creation (which may not be the original author). Notably, the international regime currently includes treaties produced by the World Intellectual Property Organization Copyright (WIPO) such as the WIPO Copyright Treaty of 1996 and the WIPO Performances and Phonograms Treaty of 1996 as well as the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), an international treaty setting down minimum standards for many forms of intellectual property, which is administered by the World Trade Organization (WTO) and that forms part of its package of agreements under the General Agreement on Tariffs and Trade (GATT).

Since the advent of the digital age and the changes in the context in which it operates, there have been varying levels of legal and policy responses to the challenges that are posed to the copyright regime. Figure 1 provides an overview of all the types of measures in place for the protection (i.e. restrictions on the use) of creative works and the ways in which some rights can be waived, by exemptions in the law itself and by authors voluntarily waiving these rights, with or without supportive policy measures.

⁵ On why default IP law is slanted towards over-protection and the industry interests, see e.g., *Lastowka* at 49-51 (explaining the lack of legal responses to “open copyright” and how public choice theory explains the way regulations will tend toward “industry capture” and away from public interest); Christina Bohannon, *Reclaiming Copyright*, 23 *Cardozo Arts & Ent. L.J.* 567, 568 (2006) (As a result of “special-interest capture”, the U.S. Copyright Act confers overly broad rights to copyright holders at the expense of public interest in access and dissemination); Niva Elkin-Koren, *What Contracts Cannot Do: The Limits of Private Ordering in Facilitating a Creative Commons*, 74 *Fordham L. Rev.* 375, 375-76 (2005) (describing the CC movement as a response to the problems caused by industry capture of copyright); Mark A. Lemley, *The Constitutionalization of Technology Law*, 15 *Berkeley Tech. L.J.* 529, 531-32 (2000) (arguing that the problems predicted by public choice theory are particularly acute in the context of IP law). On the overextension of copyright laws and the increasing protractionism and protectionism, see generally, Irene Segal Ayers, *The Future of Global Copyright Protection: Has Copyright Law Gone Too Far?*, 62 *U. Pitt. L. Rev.* 49 (2000).

Objective and organization of paper

In this paper we utilize the findings of the CC-Monitor project at Singapore Management University, which has produced perhaps the most comprehensive dataset to date⁶ on the global popularity and use of CC licenses, to analyze the factors influencing licensing decisions, the lessons that can be learnt from CC adoption patterns, and the signals that they provide on how a new generation of authors view creative works and intellectual property.

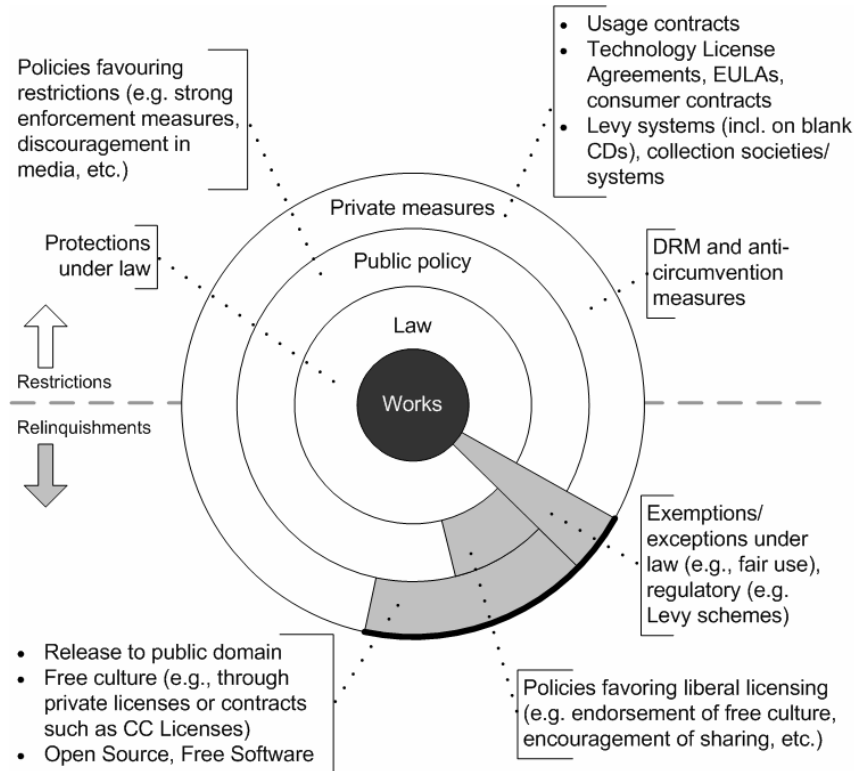


Figure 1: Regime of control of creative works

We first establish that even if the majority of the content published today is still governed by the basic provisions of Copyright Law, and this is unlikely to change in the near-term due to the automatic application of the law on the birth of a work, the use of CC licenses has reached the kind of critical mass and global appeal that warrant treating this use as an indicator of a new trend in intellectual property. We will then examine factors which could account for the global and local popularity of these licenses in different jurisdictions, as well as factors which could be influencing the relative popularity of the various license types within the CC framework, as the framework provides several options to authors, from more liberal to more restrictive.

We will also discuss whether current policy and Copyright law are aligned with the needs and desires of this new generation of authors who embrace CC as a licensing model. We will con-

⁶ Some data points on CC license growth and overall license mix have been published on the CC Wiki by Mike Linksvayer: http://wiki.creativecommons.org/License_statistics. Also, a tool is available on the open-business website where the user can select a jurisdiction and the license mix for that jurisdiction is displayed in a pie chart: http://www.openbusiness.cc/cc_stat/. Recently some of our early findings were published together with data collected by Mike Linksvayer on CC growth on the CC homepage: <http://creativecommons.org/weblog/entry/7551>. Some authors have embarked on jurisdiction-specific data collection efforts, for example see *Finding and Quantifying Australia's Online Commons*, by Ben Bildstein, available at <http://www.law.ed.ac.uk/ahrc/script-ed/vol4-1/bildstein.asp>.

clude by suggesting potential corrective measures which will take into consideration and promote the interests of this new global community of authors who value open sharing and participation while still accommodating for authors who will continue to prefer the full protection granted by current practice. In this sense, our proposals should contribute towards an increase in total social welfare.

We recognize that at this stage we cannot yet make any definitive claims as to what would be a socially optimal approach towards balancing the benefits of sharing and collaboration based on liberal licensing and the concerns of copyright holders who favor the more restrictive terms of Copyright Law. Nevertheless, we do aim to contribute to the ongoing discussion on the role of copyright in the information age by bringing to light the choices made by a growing population of authors and copyright holders who voluntarily waive some of their legal rights. Many commentators write mainly from the public policy and enforcement perspective. In our paper, we seek to analyze the issues from the social and people's perspective through looking at their behavior by interpreting CC data.

The size of CC

In earlier work⁷ we measured the adoption of CC licenses and the relative popularity of each license type using 3 methods (backlink search, CC-search and dictionary search) and 2 search engines, Yahoo and Google. We also collected limited CC usage data from online communities, including Flickr, which is known to host many photographs licensed under CC. Our results using Yahoo and Google search placed the total size of the CC-licensed content pool within a wide range of about 1 (based on a Google backlink search) to 37 million (based on a Yahoo backlink search) items. These are estimates of the search engines and depend on the engines' ability to index CC pages correctly and on the engine's search algorithms. Moreover, not only do these estimates vary greatly in size, but an unknown quantity of CC-licensed content will not even appear in these estimates as both Yahoo and Google do not index the entire Internet. However, by combining several data sources we have been able to come to a total estimate of the size of the CC-licensed content pool.

Flickr data is particularly useful as it is an actual count of the CC-licensed photos hosted by Flickr (i.e., it is not an estimate), and we can therefore assume that it is precise. On the day of our measurement Flickr was hosting about 36 million CC-licensed photos. This immediately casts doubts on the Google estimate of little over 1 million items. Interestingly however, the relative popularity of each license type within the CC framework was the same (with little variation) for both Yahoo and Google results with all the methods we employed, but Flickr exhibited a somewhat different picture on this relative popularity. Knowing that even the Yahoo estimate of almost 37 million items did not include all CC-licensed content, we used the Flickr count as a basis from which to estimate the total size of the CC pool. We did this by computing the minimum number of CC-licensed items which must exist outside Flickr for the license mix (i.e. the relative popularity of each CC license type) observed in Flickr to be consistent with the license mix observed with Yahoo search. This led to a conservative estimate of 60 million for the total size of CC content on the Internet. Based on this estimate we can state that even if most of the content on the Internet today is not CC-licensed, the appeal of CC licenses is significant and it is fair to say that CC is currently the *de facto* alternative for any author wishing to license his/her output under more liberal terms⁸.

⁷ Our measurement methodology is documented in detail in *Measuring the Commons*, by Cheliotis, Gugliani and Tayi, presented at the 3rd Symposium on Statistical Challenges in E-Commerce Research, at the University of Connecticut, May 2007. This paper is currently being revised for journal submission. The same material was presented at the 2007 iCommons Summit in Dubrovnik, Croatia, and the presentation slides are available at <http://creativecommons.org/weblog/entry/7551>.

⁸ CC licenses are not suitable for software, and CC proponents usually recommend the use of FSF licenses (GPL, LGPL) instead. Similarly, the FSF is recommending CC licenses (specifically BY and BY-SA) for art, entertainment and education works: <http://www.fsf.org/licensing/licenses/>.

Factors affecting licensing behavior

As already noted, with Creative Commons we can observe for the first time large numbers of users making licensing decisions. Given the relatively recent introduction of such licenses there is no established body of literature describing the process of making such decisions and the trade-offs involved (we can contrast this to the field of consumer choice which has matured over time and has developed theoretical and observable mathematical constructs describing product choice). As a starting point it is reasonable to assume that, like all other aspects of human behavior, licensing choice is affected by both endogenous and exogenous factors, that is to say both the author's individual incentives and the environment must play a role in the decision.

Given our earlier discussion of the differences underlying copyleft/FSF and CC licenses, it is clear that some of the license users are not driven by purely utilitarian objectives, but rather by an ideological conviction that information should be free and open sharing should be the norm, not the exception. We can therefore assume that the average user of such licensing approaches will be driven partly by personal utilitarian objectives and partly by personal conviction. Altruism may also play a role. Moreover, as these users typically function as members of online communities, the aims of the community and the beliefs of the other members of the same community likely influence the decisions of the individual. Finally, since the concepts of copyright and authors' rights are not unique to the cyber-realm, it is also possible that the geopolitical, legal and economic background of a user's offline community (i.e. of the country or jurisdiction the user belongs to) also play a role.

Figure 2 depicts a nested model showing how the various factors may influence licensing decisions, assuming that every author is a member of at least one online community and that each community is mainly concerned with one medium type.⁹ Specifically, it shows that individual author choices, which the author would make if isolated from the influence of other members, must be combined with influences from the community (or communities) that he/she is a member of, and with more macro-level influences from the author's background. It is important to note that, like any model, this is a simplified depiction of reality. In practice some of the branches of the nested model may in fact influence each other. This becomes clear if we observe that the author's expectation of the work's reuse value (as well as the market value of the original work) depends on the use that other members of a community will make of the work. So even at the level of individual author choice, exogenous factors do play a role.

The nested model of Figure 2 contains some factors which are hard, if not impossible, to quantify, such as the historical reliance of a society on shared property. We therefore do not propose using this as a basis for quantitative analysis (although simplified versions could be valuable for that purpose), but rather as a map to guide us through the various factors which may be influencing the licensing patterns we observe in the collected data. In the rest of the paper we will use this as a reference model when discussing individual factors, starting from individual author incentives and trade-offs, then moving to the influence of the community, and finally to the influence of the environment. The reasons for including each factor in Figure 2 and the nature of the depicted relationships will become clearer in the respective sections of the paper which deal with these factors.

⁹ This assumption is consistent with observation, where most communities (unlike content repositories such as the Internet Archive) are built around one medium type (e.g., Flickr: photography, Youtube, blip.tv: video, ccmixer, Jamendo, Magnatune: audio). Social networking sites are different as users incorporate multiple media types in their profiles, but the aims of these communities are also different and are mostly driven by personal interaction rather than content sharing and production. In such communities the media placed on a user's profile is usually not the main subject of interest; it is rather used to tell a story about the user's own character and background.

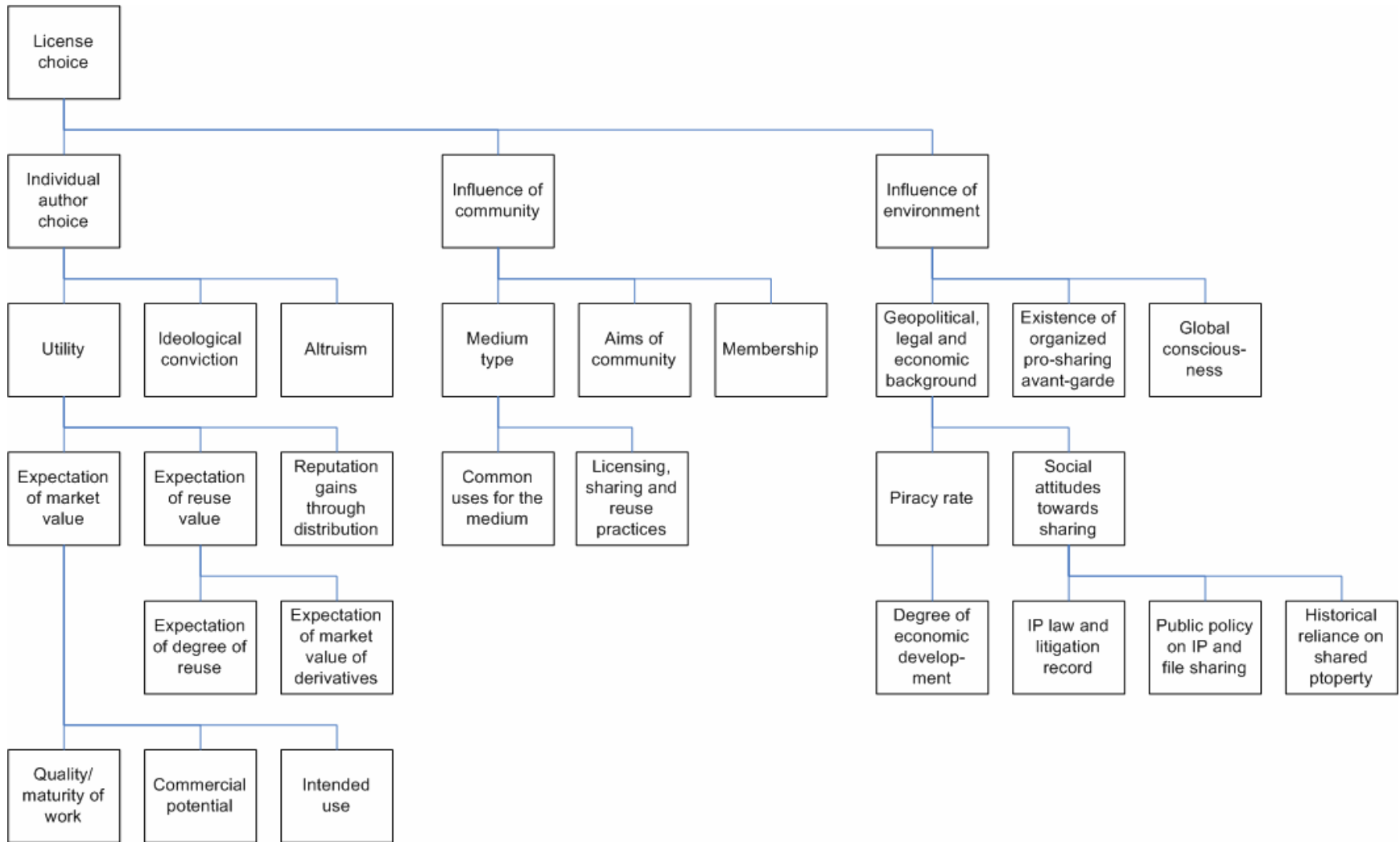


Figure 2: Nested model of license choice incorporating micro-level incentives and macro-level influencing factors

Individual author choice

As we have already discussed, search engine results may have differed in estimates of the total size of the CC pool, but they provide a very consistent view on the relative popularity of each license type in the CC framework. Based on the structure inherent in the license definitions and the observed license mix we deconstruct the licensing decisions that any author will face and estimate the probability of each decision based on the search data we have collected. Specifically, a rational author who is not bound by prior licensing or contractual obligations and who has full knowledge of the meaning and implications of each CC license type will choose a license based on the following decisions:

Table 1: Decisions

Decision	Description
D ₁	Do you permit non-commercial copying and distribution of your work?
D ₂	Do you permit commercial uses of your work? ¹⁰
D ₃	Do you permit the creation of derivative works?
D ₄	Do you want derivative works to be licensed in the same way as your work?

Based on a simple yes/no answer to each of these questions, an author is able to choose an appropriate CC license (or stay with the full automatic protection of Copyright Law, if the answer to D₁ is negative). Note that D₂-D₄ are only relevant if the answer to D₁ is affirmative. Note also that if the answer to D₂ is affirmative, then D₃ refers to the creation of commercial and non-commercial derivative works, as both will be allowed in this case. When the answer to D₂ is negative, D₃ has a more limited scope: it refers only to non-commercial derivative works, as the creation of commercial derivatives has already been excluded in D₂. Let us first examine some of the potential motivations for an author to give an affirmative or negative answer to each of the questions and the trade-offs involved, and then we will present some estimates of the probabilities of occurrence for each decision.

Non-commercial distribution

An affirmative answer to D₁ can be motivated by three factors:

1. an intention to use the Internet as a free distribution channel to enhance one's reputation
2. an ideological conviction that (at least) non-commercial sharing is beneficial to society

The trade-off for such a decision is that the author's ability to sell copies of this work for profit will be diminished, because if the work is popular other users will be keen to distribute it non-commercially, creating an abundance of freely available copies. However, the author will still be able to charge a fee when licensing the work for commercial uses. Commercial distribution of the work by third parties is not likely to be of interest as, with the same reasoning, if the work is popular, non-commercial distribution will dominate, at least in markets where distribution costs are very low (as is the case with Web/peer-to-peer distribution in markets with high broadband penetration). It therefore follows that the main way in which the author may seek to profit from the work is by licensing the work for the creation of commercial derivative works. The only exception to this is where the work has significant value in markets with relatively high distribution costs. This is the case with books where most people today still prefer reading a hardcopy of a book and licens-

¹⁰ There exist some issues relating to the definition and scope of 'commercial' versus 'non-commercial' use, as some uses may or may not be considered commercial in nature depending on the interpretation of the legal code of a license. We will not concern ourselves with these issues in this paper, as from a user standpoint 'non-commercial use' will generally be interpreted as any use which does not generate revenue. Other definitions of 'non-commercial' are possible, but this does not influence our analysis.

ing the text under CC does not diminish the publisher's profits, as the free distribution of the text in electronic form is not a very good substitute for the hardcopy version.

Commercial use

An affirmative answer to D_2 is motivated by similar factors:

1. an expectation that by allowing commercial use the incentive of third parties to promote the work will be higher, with potentially higher reputation gains
2. an ideological conviction that sharing is beneficial to society, irrespective of whether it is done for profit
3. altruistic motivations¹¹

By allowing commercial copying and distribution of the work the author essentially encourages third parties to distribute his/her work for profit and without a requirement for compensation. This is meaningful if the author desires to achieve maximum exposure for the work to maximize potential reputation gains, without seeking any immediate financial compensation (although reputation gains can translate to future indirect rewards), as the market for the work will become quickly saturated by a combination of commercial and non-commercial distribution by third parties. The decision to permit the creation of commercial derivatives of the work is deferred to the next stage in the decision process, D_3 .

Derivative works

For decision D_3 we need to distinguish between two cases, depending on the outcome of D_2 . An affirmative answer to D_3 if the answer to D_2 has been negative can be motivated by:

1. an expectation of additional reputation gains through reference to the original work and attribution to the original author in non-commercial derivative works (which may also be improving on or developing further the original work)
2. an ideological conviction that non-commercial creative re-use is beneficial to society

The creation of non-commercial derivative works does not exclude but can be detrimental to expectations of financial gains through licensing the work for commercial derivatives. This is because non-commercial derivatives may become (imperfect) substitutes for the commercial derivatives and thus compete with them for the attention of consumers (we can imagine a scenario where a large number of non-commercial remixes of a song compete for attention with a commercial remix). Also, through the act of non-commercial creative re-use of the original material other authors may be able to boost their reputation and it is possible that some of them will utilize this to compete in the marketplace with the original author. In this sense the original author may feel that by permitting derivative works, even if under the non-commercial restriction, he/she is essentially allowing potential competitors to 'piggy-back' on his/her creative output. Nevertheless, *the author will preserve the right to license his/her work for use in commercial derivatives*, so these detrimental effects may be of only marginal significance after all.

An affirmative answer to D_3 if the answer to D_2 has also been affirmative can be motivated by:

1. a desire to maximize reputation gains through reference to the original work and attribution to the original author in commercial *and* non-commercial derivative works¹²
2. an ideological conviction that creative re-use is beneficial to society, irrespective of whether it is done for profit

¹¹ Note that we only consider altruistic motivations in cases where both commercial and non-commercial uses are permitted by the author, because an author motivated by altruism would likely not make the commercial/non-commercial distinction.

¹² Where commercial derivatives may be produced by professionals and thus improve upon the original work even more than non-commercial derivatives would have.

3. altruistic motivations

The detrimental effects to commercial exploitation of the original work when allowing both commercial and non-commercial derivatives to exist will be direct and significant. Gains from commercial distribution have already been diminished by the author permitting commercial uses. By also allowing commercial derivatives the author foregoes commercial licensing opportunities (such as the licensing of a music piece to be used as a soundtrack for a movie). It follows that *such an author must be motivated by the expectation of strong reputation gains, altruism, or ideological conviction, without the expectation of any immediate financial rewards.*

The share-alike constraint

Behind the 'share-alike' constraint available in CC licenses lies a deeply rooted perception of fairness which has its strongest proponent in the Free Software Movement, although the concept does enjoy broader appeal. The underlying justification for this constraint is that if an author chooses to license his/her work under more liberal terms, then it is only fair that whoever is using this work for their own purposes (thus benefiting from the liberal licensing) should also license his/her output under the exact same conditions (thus contributing back to the pool of liberally licensed content). This is likely the most important motivation behind the choice of such licenses by CC users, a sort of legal 'tit for tat' and an example of the moral philosophy popularly known as "paying it forward".

Let us examine additional motivations: If the answer to D_2 has been negative, then an affirmative answer to D_4 (i.e. the selection of by-nc-sa) may also be motivated by a mostly irrational but perhaps somewhat justified fear of derivative authors licensing their output under terms which would allow third parties (or authors of second-generation derivative works) to commercially benefit from the original work. By forcing the self-perpetuating share-alike constraint original authors can ensure that all generations of derivatives based on their work will also be licensed under by-nc-sa and thus will not be commercially distributed. This fear is somewhat irrational because licensing under by-nc would also exclude commercial exploitation of the derivative work, although the situation becomes less clear when it comes to second-generation derivatives, where the use of by-nc-sa can be interpreted as a 'safety lock' on the licensing of all future derivatives of the original work. In the case where the answer to D_2 has been affirmative the safety lock argument is also applicable.

A well-known complication that share-alike introduces is potential incompatibilities which can hinder the creation of derivative works. Suppose for example that a derivative incorporates two works, one licensed under by-sa and the other under by-nc-sa. The constraints imposed by the two licenses are incompatible as one dictates that the derivative should be licensed under by-sa, whereas the other dictates that it should be licensed under by-nc-sa. If the two works had been licensed under by and by-nc instead, the derivative work could have been licensed under by-nc to satisfy the constraints on commercial exploitation imposed by the second work. By adding the share-alike constraint on both original works the derivative work is forced into a gray zone of illegality¹³. It follows that imposing the SA constraint will reduce the appeal of the original work as raw material for derivative works, which in some cases may defeat the purpose of allowing derivatives in the first place. Nevertheless, besides this shortcoming, the SA constraint does not have any other direct negative effect on the author of the original work.

Decision tree and probabilities of outcomes

Based on the previous discussion and our definition of D_1 - D_4 we can construct a decision tree to model author decisions. Then, based on the data we have collected on CC usage we can infer

¹³ The pros and cons of the share-alike constraint have been discussed extensively in CC-related mailing lists and the potential legal gridlock caused by conflicting share-alike constraints has been documented in more detail in Zachary Katz, *Pitfalls of Open Licensing: An Analysis of Creative Commons Licensing*, 46 IDEA 391 (2006).

the probabilities of each outcome in the decision tree (by using the relative popularity of each license type as a probability of occurrence of this license type and deconstructing the user decision process into a sequence of individual decisions relating to each of the defining properties of CC licenses: NC, ND, SA¹⁴). In most cases we will use a range of probabilities as not all search methods we employed returned the exact same results. The combined result is shown in Figure 3.

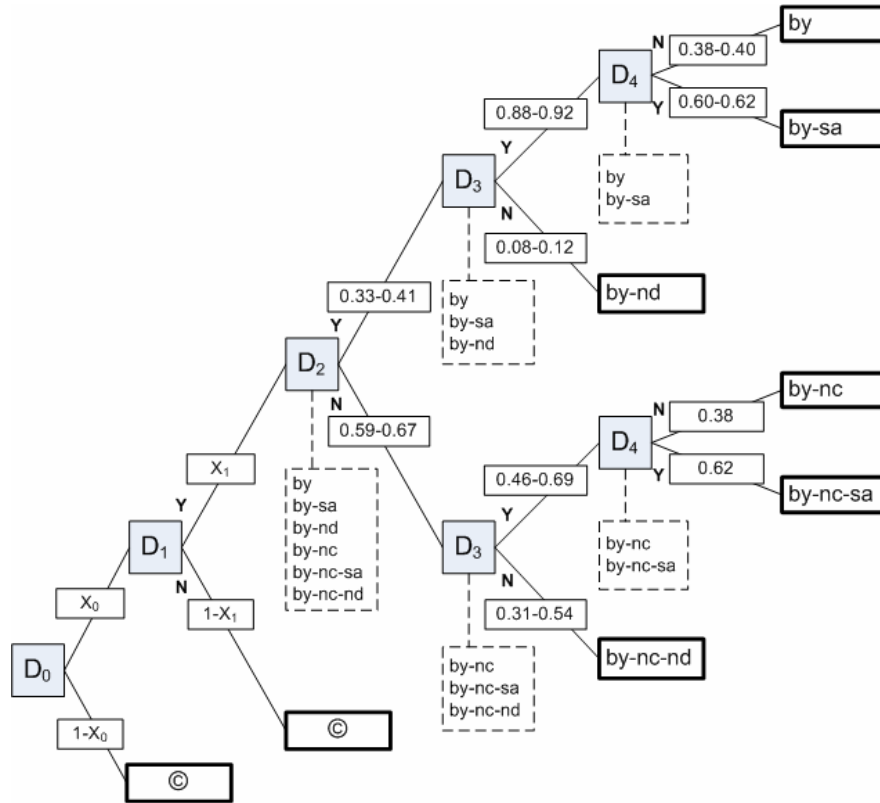


Figure 3: Decision tree for average author using the Internet as his/her main distribution channel. Each shaded box represents a decision point and each link has a probability range attached to it based on earlier findings on the popularity of CC license types

For completeness we have added decision point D_0 , which represents the decision to invest the time and effort it takes to discover, review and evaluate alternatives to full copyright restrictions. Many authors will simply publish their work under the existing copyright regime because this requires no additional effort on their side, or because they are not even aware of the alternatives. With some probability X_0 an author will consider and evaluate alternative licensing options. We cannot observe D_0 but the mere fact that in the population of authors there is imperfect information on CC and similar licenses (combined with the fact that copyright protection is automatic) suggests that D_0 must exist and that X_0 depends on the costs associated with obtaining this information. Authors who do choose to incur these (search) costs will in turn choose to adopt a model like CC in decision point D_1 with probability X_1 or will prefer full copyright protection with probability $1-X_1$. Similarly to X_0 , we cannot observe X_1 , because of the automatic application of copyright law at the birth of a work. However, unlike X_0 , it is possible to observe X_1 in an experi-

¹⁴ In Cheliotis, Guglani and Tayi, *Measuring the Commons*, presented at the 3rd Symposium on Statistical Challenges in E-Commerce Research, May 15-17, at the University of Connecticut. In this paper we present data on the relative popularity of each of the 6 major CC license types, collected with three different methods (backlink search, CC-Search and dictionary search), utilizing Yahoo's and Google's advanced search functions. Contact the authors for a copy of the paper.

mental setup where a controlled user group is given different licensing options, including full copyright protection. Such an experiment is left for future research.

By combining the picture in Figure 3 with our previous discussion of incentives and trade-offs we can reach the following conclusions:

- **D₂** (choice of NC constraint): An author who permits non-commercial distribution of his/her work is almost twice as likely to forbid commercial distribution of the work rather than allow it. It follows that for the average author the potential losses from permitting commercial distribution without compensation outweigh the potential benefits of additional reputation gains or any ideological/altruistic motivations that the author may have for licensing more liberally (unless the author's ideological stance towards liberal licensing is limited to non-commercial uses and thus does not welcome commercial exploitation).
- **D₃** (choice of ND constraint): We notice that authors are 3 to 5 times more likely to forbid the creation of derivatives when the scope of derivatives is already limited to non-commercial only. This is interesting as the authors who stand to lose more financially are those who also allow for commercial uses, as we have discussed. This leads us to believe that authors who allow for commercial uses of their work are definitely *not* financially motivated and act mostly on conviction or altruism, or, at most with the expectation of some future financial gains through gains in reputation. On the other extreme, authors who only allow non-commercial uses of their work appear to be concerned about competition and potential missed financial opportunities and are thus more keen to forbid non-commercial derivatives, even if the potential impact of those derivatives on the market is doubtful and would be only indirect (due to their non-commercial nature).¹⁵
- **D₄** (choice of SA constraint): Interestingly, even if our analysis of D₃ signifies the existence of two different mindsets in the community of authors (as defined by their preference or dislike for the NC constraint), when it comes to the share-alike constraint, the two groups not only 'share alike', but also think alike, favoring the application of the share-alike constraint to the same extent. We cannot say with confidence how much they really favor share-alike, as we are observing the combined effect of original works being licensed with share-alike and derivative works being forced to use 'share-alike' due to their re-use of at least one original work incorporating that constraint. It is nevertheless interesting to note that the appeal of the 'tit-for-tat' concept of fairness in 'share-alike' appears to be independent of other author preferences..

On perceptions of value and the role of reputation gains

With respect to the decisions on derivatives (D₃), we should note at this point that the common assumption of the existence of two author groups, one being motivated by financial gain and the other by other, more altruistic/ideological and non-financial incentives is a sufficient explanation of observed behavior only in the case where authors in the two groups have the same (rational or irrational) expectations of the commercial viability of their work. If authors have different perceptions of commercial viability, we would expect some to be more protective of their content than others.

This behavior may be rational (when content of similar quality is of higher value to the author as a source of income), or irrational (when the subjective expectations of the author with respect to the

¹⁵ If these authors were primarily motivated by ideology or altruism and just favored non-commercial sharing because commercial exploitation would not have been compatible with their aims and beliefs, then we would also expect them to display a strong preference for non-commercial derivatives, which is not the case.

appeal of the work are much higher than the actual market valuation of the work). It may therefore be that some of the authors who allow for commercial uses of their work are not so much motivated by ideology or altruism but rather have a lower expectation of the financial returns that their work can generate and are thus keen to license it more liberally to benefit from increased distribution and, consequently, increased visibility and reputation.

However, it is wrong to assume that allowing for commercial derivatives is only an additional means of increasing visibility without any financial loss. Commercial derivatives will only be created if there is financial incentive to do so, which would imply that the work has commercial value, if not as an original work, than as raw material for derivative works (for example, music and special effects material can be much more valuable when incorporated into the soundtrack of a successful movie or ad campaign rather than as stand-alone works). It follows that to explain the observed preferences we need to make the assumption that users who permit commercial uses have either:

- a) a low expectation of the commercial value of their work, or...
- b) are strongly ideologically motivated, or...
- c) act on altruistic motivation

In all of these cases they will choose the most liberal licensing possible under this framework (i.e. by and by-sa), with no particular reason to choose by-nd. On the other hand, those who choose to permit only non-commercial uses have either:

- a) a high expectation of the commercial value of their work, or...
- b) are ideologically motivated but consider commercial exploitation to be incompatible with this motivation

These authors will choose the more restrictive licenses in the framework (by-nc, by-nc-sa, by-nc-nd) but will be more divided when it comes to their preference for by-nc-nd, as in case (a) they will value the ND constraint much more highly than in case (b), depending also on the author's expectation of the value of the work as re-usable material for the creation of derivative works. This is indeed what we observe in the probability of outcomes in Figure 3. We have thus established that while reputation gains through increased distribution and reuse may play a role in an author's decision (D_1) to adopt CC, they do not influence licensing decisions within the CC framework (decisions D_2 , D_3 and D_4). The latter are driven by the author's expectation of the commercial value of the work, and/or by ideological/altruistic motivations.

Community and medium type

We will now examine the influence of the community (and the medium type, which is usually tied to the community) on individual author choice. We would generally expect the attitudes and preferences of the community to exert some influence on the individual decisions of members. As we have already mentioned, the use of CC licenses on Flickr exhibits a somewhat different pattern compared to general CC-licensing preferences. We show the decision tree for Flickr in Figure 4. We notice again a preference for not permitting commercial uses, which is even stronger in the Flickr community than on average, and the same pattern for derivative works, though again with a higher tendency *not* to permit adaptation. This leads us to believe that Flickr users license content similarly to the average CC adopter, but more conservatively in some respects. One reason for this can be privacy concerns. Unlike with music, which is still for all intents and purposes an art form, photography is also used for documentation. Many photographs may include images of the author and his/her relatives and friends, so the author may wish to protect this content from commercial exploitation and derivative use.¹⁶

¹⁶ The same would be true for video.

The relatively strong preference for by-nc-nd may also be related to the fact that photographs are often not as commercially valuable as music or movies as stand-alone products, but rather as illustration material for magazine articles, books, advertisements or news reports. Photographers may therefore wish to limit the creation of derivative works as much as possible, to demand a fee for every derivative use. This later point regarding the use of photographs for illustration may be a strong motivation behind the choices we observe, but is factually incorrect as the inclusion of a photograph without modification in an article of any type does not constitute a derivative work. This is in direct contrast to the use of music for movie soundtracks, as typically the recording needs to be cut into smaller parts and synched to the relevant movie scenes, hence leading to a soundtrack which is clearly a derivative of the original track.

Interestingly, preferences for the share-alike constraint appear to depend this time on the decision to allow commercial derivatives, unlike in the general case where they were independent of this constraint. The difference stems from the group of authors permitting commercial uses, who in Flickr tend to use by-sa less frequently (with a probability of 0.42 instead of 0.60-0.62 for the average user). The explanation for this may lie in the fact that Flickr contains a large number of amateur photographers with no artistic or commercial aspirations (and presumably with no privacy concerns, which would lead them to be more protective of the content).¹⁷ When such authors choose a more liberal license it would be rational to choose one of the most liberal licenses possible, as their content has no commercial value, and little, if any value as material for derivative works. For these authors the application of the share-alike constraint is probably less meaningful as they do not expect their work to be used in any derivative works.

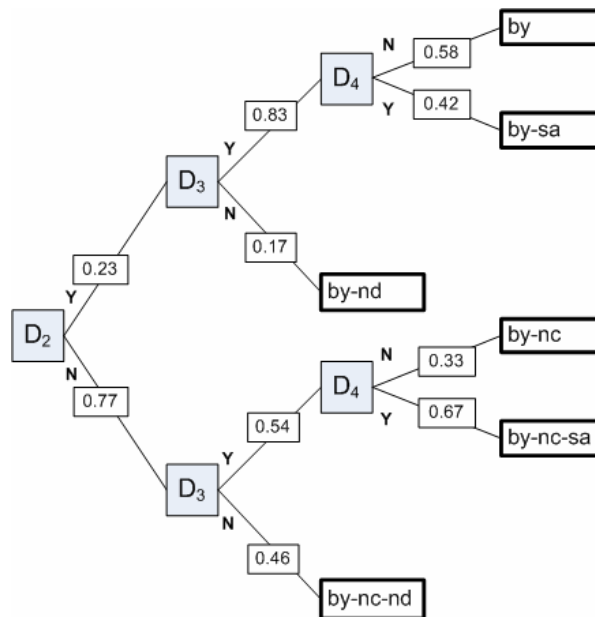


Figure 4: Decision tree for the average Flickr user adopting CC

Table 2: License mix for some online communities utilizing CC licenses

Websites	Media	BY	BY-SA	BY-ND	BY-NC	BY-NC-SA	BY-NC-ND	S+	NC-S+	Free Art	Total
Flickr	Photo	11%	8%	4%	14%	28%	36%	0%	0%	0%	100%
blip.tv	Video		32%	2%		50%	16%	0%	0%	0%	100%
ccMixter (Samples)	Audio	69%	0%	0%	26%	0%	0%	3%	1%	0%	100%
ccMixter (A Cappellas)	Audio	45%	0%	0%	51%	0%	0%	2%	2%	0%	100%
Jamendo	Audio	1%	8%	1%	1%	49%	27%	0%	8%	5%	100%

¹⁷ Photographs of public buildings and landscapes taken during vacation would be an example of such works.

We see that the medium and the membership (i.e. the characteristics of the members) of a community also play a role in the licensing decisions of individual authors. Table 2 shows some data collected from online communities known to host CC content. Sampling Plus (S+) and Non-Commercial Sampling Plus (NC-S+) are CC licenses tailored for audio content, whereas Free Art is a 'copyleft' license for artistic works. Most of the content on these communities is licensed under the main CC licenses we have been examining. We notice that blip.tv users license video in similar terms to Flickr users, which is rather more conservatively than the average CC user.

On the other hand, ccmixer data, which refers to audio files, shows more liberal licensing, with the majority of files licensed under by and by-nc. This may lead us to believe that video is typically licensed under more restrictive terms like photography, whereas audio is licensed more liberally. However, if we look at data from Jamendo, which is also a music community, the majority of the content is licensed under the two most restrictive licenses, by-nc-sa and by-nc-nd, in a way similar to Flickr and blip.tv. Different communities appear to be licensing content in different ways, independent of the medium. However, there is more information in this small dataset: the data on ccmixer is only for 'samples', i.e. for audio content whose main purpose is to be re-used in derivative works. It is natural to expect that such content will not be licensed with a restriction on the creation of derivative works, as this would negate its very purpose. The fact that it is also *not* licensed with a share-alike constraint is perhaps more indicative of the character of this community, which appears to favor more liberal licensing, i.e. by and by-nc instead of by-sa or by-nc-sa. There is also the practical consideration that by avoiding the use of SA one avoids potential incompatibilities in derivatives which utilize more than one original work, as already discussed. In conclusion, several factors influence licensing decisions within a community: *the aims of the community, the membership of the community, the medium type that the community is focusing on, and the licensing, sharing and re-use practices within the community.*

Environment

In this section we will examine to what extent the social, legal, cultural and economic environment in which authors act influences licensing choices and attitudes towards intellectual property. Even if most CC users use the Internet as their main distribution channel and are members of cross-border online communities, the debate on IP rights, DRM and piracy is taking place online as well as offline and we should expect licensing decisions to be influenced by the history and idiosyncrasies of the countries of origin of the authors. In this section we will be forced to move beyond the well-defined confounds of the decision analysis which guided us through the paper so far, as we will have to examine how the confluence of a large number of diverse factors from the environment influences licensing decisions in complex ways. Sometimes we will have to resort to qualitative data and anecdotal evidence. Also, at the 2007 iCommons Summit, a yearly gathering of CC supporters and related communities and organizations, we had the chance to discuss our findings with several of the local and global leaders of the CC movement and also conducted a small scale survey of CC jurisdiction teams¹⁸. These interactions and the survey yielded more

¹⁸ We received 15 complete replies to our survey, from 14 countries. Of the 33 jurisdictions in our data set, only 8 are represented in this survey, so we will not place much emphasis on this very limited dataset in this paper, but will take into account some of the information we were able to collect at the summit where appropriate. CC volunteers translating and promoting the licenses in different countries were asked to: (A) indicate the level of awareness of CC licenses in their country, as they perceive it, in a scale of 1—5 and list specific events which have influenced this awareness; (B) comment on the data we collected on their country (if any) with respect to license volume and license mix; (C) comment on the general attitude of the public and policy makers in their country with respect to the existing copyright regime, file sharing and DRM. From the replies we were able to collect we observe the following general patterns: (A) awareness is assumed to be relatively low in most countries with most respondents rating the awareness in their country in a range of 1—3 out of 5; also, the launch and other promotional events as well as the adoption of the licenses by bloggers, prominent local communities and government were listed as having contributed to general awareness of CC; (B) authors often choose more restrictive licenses either because they are cautious in their initial use of the licenses (and the expectation is that they will license more liberally in the future) or because they perceive the licenses as a means of protecting their work rather than a means of waiving some of the rights granted by law (a misperception which could be attributed either to the authors' poor understanding of copyright law, or

insight into factors influencing CC adoption and use which would have otherwise been hard or impossible to observe independently.

Jurisdiction-specific licenses

All the basic 6 CC license types are available in multiple versions: a generic version, which is the oldest and most widely used in the US and around the world, and jurisdiction-specific versions, tailored to the legal language and tradition of each jurisdiction, with an active CC team of volunteers promoting use of the licenses in each jurisdiction. The generic license is used throughout most of the English-speaking world and by most (US-based) online communities. For example, a French user of Flickr can only select a generic CC license on this community, even if French versions of the licenses exist. However, many local online communities around the world are adopting jurisdiction specific licenses instead of the generic version, which means that by examining the data we have collected on these licenses we can produce a picture of how authors license works in the different countries.

Jurisdiction-specific licenses comprise only 20% of the total CC pool; however this is still a large number (almost 8 million items according to Yahoo search data we have collected, rising to 12 million, if we take into account our total estimate of 60 million CC-licensed items on the Web, as discussed earlier in the paper). We therefore believe that this data merits more attention as it provides us with a unique opportunity to study licensing behavior across not only a spectrum of options, but also across many countries. We have included 33 jurisdictions in our data set, shown in Table 3. Each jurisdiction exhibits a different level of adoption of Creative Commons licenses and a different license mix (i.e. relative preference for more restrictive or more liberal licenses). We attempt to decipher the determinants of these differences in license adoption and licensing preferences by comparing the data we have collected on CC-licensed items per jurisdiction with country-level indicators. So far we have included GDP, Piracy rates¹⁹, Internet subscribers, Broadband Penetration and Unemployment, as well as Political, Economic and Press Freedom indices in our analysis. We compare these indices to CC volume and license mix data from our Yahoo and Google backlink search methods which provide the most comprehensive view of CC adoption across jurisdictions.

Table 3: CC jurisdictions included in our analysis

Argentina	Denmark	Netherlands
Australia	Finland	Peru
Austria	France	Poland
Belgium	Germany	Portugal
Brazil	Hungary	S. Korea
Bulgaria	Israel	Slovenia
Canada	Italy	South Africa
Chile	Japan	Spain
China	Malaysia	Sweden
Colombia	Malta	Taiwan
Croatia	Mexico	UK ²⁰

Table 4 shows all the variables included in our analysis. In the following section we will explain how we have produced mixed scores of relative licensing restrictiveness (MYBL and MGBL) for each jurisdiction.

to rampant copyright infringement leading authors to believe that by using CC licenses they more effectively declare to the world that they want to preserve some exclusive rights to their work); (C) there is a gap between the general attitudes of the population towards copyright, file-sharing and DRM and public policy which is generally against file-sharing and pro-DRM.

¹⁹ We have used BSA data on software piracy as an indicator of piracy rates instead of MPAA/RIAA/IFPI data because BSA data is more detailed and we assume that software piracy and digital media piracy are strongly correlated at the country level.

²⁰ There are two CC jurisdictions, UK:England & Wales and UK:Scotland, but for the purposes of this analysis we have grouped them together as other data was available only for the UK as a whole

Table 4: Analysis variables

Variable	Description	Source
MYBL	Mixed score according to YBL	Cheliotis, Guglani and Tayi (2007)
MGBL	Mixed score according to GBL	Cheliotis, Guglani and Tayi (2007)
VOL	Absolute volume according to YBL	Cheliotis, Guglani and Tayi (2007)
VYBL	Volume per capita according to YBL	Cheliotis, Guglani and Tayi (2007)
VGBL	Volume per capita according to GBL	Cheliotis, Guglani and Tayi (2007)
PIR	Software piracy	BSA, 2006
INT	Internet subscribers per capita	OECD, 2003
BRO	Broadband subscribers per capita	OECD, 2003
GDP	GDP per capita	IMF World Economic Outlook, 2006
UNE	Unemployment	IMF World Economic Outlook, 2006
POF	Political freedom	Freedom in the World, Freedom House, 2006
ECF	Economic freedom	Wall Street Journal & Heritage Foundation, 2006
PRF	Press freedom	Reporters Without Borders, 2006
DAT	Date of introduction of CC licenses	Mike Linksvayer, VP, Creative Commons

License scores

To make a comparison of the relative permissiveness/restrictiveness of licensing behavior across jurisdictions possible we have devised a simple method of summarizing the relative popularity of each of the 6 major CC license types into a number from 1 to 6 which should reflect the relative restrictiveness of licensing in a jurisdiction. It is not possible to quantify or measure freedom and hence it is not possible to measure how much more restrictive one license is compared to another. Nevertheless, we will attempt to order the licenses from more restrictive (by-nc-nd) to more liberal (by), as shown in the first row of license scores in Table 5. We call this “commercial freedom” because this scoring/ordering of the licenses from 6 (most liberal) to 1 (most restrictive) places for example by-nc below by-nd, and while it may be true that for someone interested in commercial exploitation of a work, by-nc is more restrictive, for someone interested in the creative freedom that a license affords, by-nd is much more restrictive as it does not allow for any derivative use. We therefore introduce a second scoring of the licenses, based on creative (as opposed to commercial) freedom. As one of the motivations of more liberal licensing models like CC is to promote creativity, we feel that it is important to add this dimension. Finally, we take the average of these two scores for each license type to produce a “mixed score”, which is a combination (in this case the arithmetic average) of the creative and commercial freedom scores of each license, and which we expect to be more representative of the average author’s perception of restrictiveness, as it incorporates both commercial and creative considerations²¹.

Table 5: Scoring licenses according to the freedoms they permit

License	BY	BY-SA	BY-ND	BY-NC	BY-NC-SA	BY-NC-ND
Commercial Freedom	6	5	4	3	2	1
Creative Freedom	6	4	2	5	3	1
Mixed Score	6	4.5	3	4	2.5	1

We can use any of the three rows of scores to calculate a jurisdiction score based on the license mix we observe for that jurisdiction. By treating what is essentially an ordering of the licenses as a score on a scale of 1 to 6 we produce a somewhat crude but effective way of summarizing the relative restrictiveness of licensing in each jurisdiction. If we had the means to actually measure the distance between license types on commercial or on creative freedom instead of assuming a fixed step size of 1, that would be optimal. An approximate measure of this distance could be produced by conducting a user survey where we ask users of these licenses to attribute scores to the licenses according to their own perceptions of how restrictive the licenses are. Then we could use the results of the survey as a scale of the (user-perceived) relative restrictiveness of each license type. However, this is beyond the scope of this paper and for our purposes our approach will suffice.

²¹ For the complete argumentation on the relative license scores, see Cheliotis, Guglani and Tayi, *Measuring the Commons*, presented at the 3rd Symposium on Statistical Challenges in E-Commerce Research, May 15-17, at the University of Connecticut. Contact the authors for a copy of the paper.

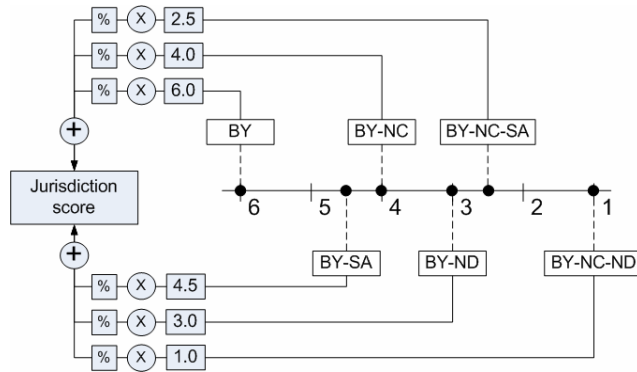


Figure 5: Calculation of jurisdiction scores based on the mixed scores of licenses

Figure 5 shows diagrammatically how we calculate a rating for each jurisdiction based on the mixed scores of each license type and the relative percentage use of each license type in the jurisdiction. We note that according to the mixed scores by and by-nc-nd remain at the extremes of the most permissive (6) and most restrictive (1) scores respectively. Share-alike licenses (by-sa and by-nc-sa) move half a step towards the middle which reflects the fact that the share-alike constraint impacts commercial freedom (some business models will not be compatible with the liberal model of CC licensing) and creative freedom (because of the possible licensing gridlock that share-alike can cause, as we have already discussed). Most notably by-nc and by-nd switch places (compared to the commercial freedom scores where by-nc has a score of 3 and by-nd has a score of 4). This is because by-nd is a serious constraint on creativity, much more so than by-nc.

We can also provide intuitive support for the appropriateness of the mixed scores. We have observed in our analysis of individual author decisions that authors are driven either by their expectation of their work’s market value or by ideological conviction and/or altruism. The former group, when valuing their content highly, will tend to use by-nc-nd and by-nc-sa, the most restrictive licenses, with by-nc lagging clearly behind in their preferences. The latter group, especially those who are altruistic in their behavior, tend to prefer by and by-sa, with by-nd being much more unpopular. By placing by-nc and by-nd further away from the left (respectively right) end of the 1—6 scale we reflect essentially the observation that these licenses are the least popular among the groups of authors who allow (respectively disallow) commercial uses of their work. Given that we can also find intuitive and logical support for the mixed scores we will prefer using them in our analysis, even if they do have shortcomings²². Finally, we should note that the analyses that follow do use mixed scores as we find them to be more appropriate, but the conclusions of these analyses would have been the same if we had used only commercial freedom scores.

Correlation analysis

We have shown in Table 4 the variables we have included in our analysis. YBL stands for Yahoo BackLinks and GBL for Google BackLinks, two of the methods we used for collecting CC usage data. MYBL and MGBL are the mixed scores for a jurisdiction, based on the method we have illustrated in Figure 5. VOL is the (absolute) volume of licenses according to YBL. VYBL and VGBL are the volume of CC-licensed items per jurisdiction according to YBL and GBL data respectively. CC launch dates, piracy rates and GDP per capita are available for all 33 jurisdictions and Table 6 shows the correlation coefficients for these jurisdictions. We observe that volume numbers according to YBL and GBL are highly correlated, and the mixed scores across the two search methods are also correlated, though not as strongly. We also observe the well-known fact that piracy

²² Namely they are based on placing the licenses in equidistant intervals on a ‘freedom scale’, instead of being based on an objective and verifiable measure of the relative restrictiveness.

rates and GDP are negatively correlated but we do not observe a relationship between either volume or license mix and GDP or piracy.

Table 6: Correlation matrix for all CC jurisdictions

All 33	MYBL	MGBL	VOL	VYBL	VGBL	PIR	GDP	DAT
MYBL	1.00							
MGBL	0.67	1.00						
VOL	-0.10	-0.11	1.00					
VYBL	-0.03	-0.09	0.85	1.00				
VGBL	0.12	0.08	0.75	0.90	1.00			
PIR	-0.05	-0.03	-0.10	-0.18	-0.17	1.00		
GDP	-0.08	-0.09	0.26	0.29	0.32	-0.84	1.00	
DAT	-0.01	0.17	-0.44	-0.46	-0.38	0.46	-0.46	1.00

Absolute volume (VOL) is highly correlated with volume per capita (VYBL and VGBL). With respect to the launch dates, we observe some weak negative correlation between launch dates and license volume (absolute and per capita), which is expected, as jurisdictions where the licenses have been introduced earlier should naturally exhibit a higher volume. But why is the correlation not stronger? Figure 6 shows a plot of absolute license volume versus launch dates, while Figure 7 shows the same picture for volume per capita. From both figures we can verify that indeed jurisdictions where the licenses have been introduced more recently exhibit lower absolute and per capita volume. However, there are significant differences between jurisdictions with launch dates not very far apart and these differences increase in proportion to the age of the jurisdiction-specific licenses (the plots are on a log scale, so differences between jurisdictions on the left side of the plot are much larger than on the right). This is why the correlation coefficients and the R^2 values are relatively low.

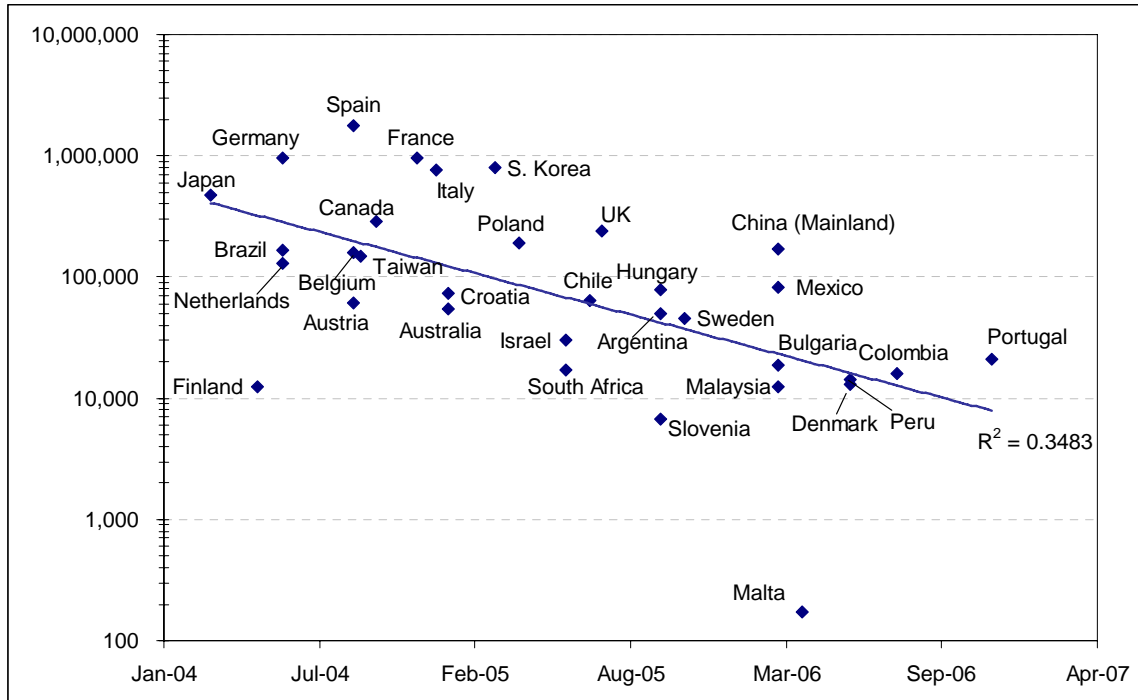


Figure 6: Absolute license volume versus date of CC license introduction. Note that the vertical axis is in log scale and thus the fitted curve is exponential.

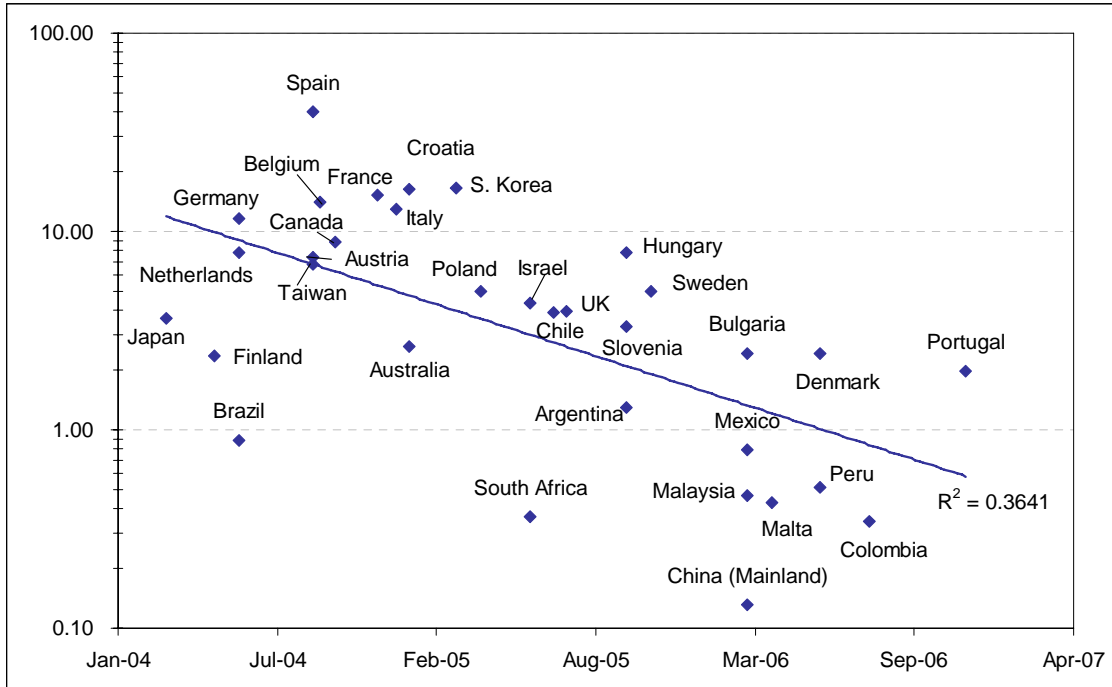


Figure 7: License volume per capita versus date of CC license introduction. Note that the vertical axis is in log scale and thus the fitted curve is exponential.

Thus we can say that ‘younger’ jurisdictions naturally cannot exhibit high volumes, but for many jurisdictions other factors besides launch dates must be leading to the significant differences in adoption (which for some countries are more pronounced on a per capita basis, although for most their positions on the two plots are similar – with China being a notable exception). The fitted (exponential, as the plots are in log scale) curves can be used as an approximate means of determining whether a jurisdiction exhibits a license adoption that is average for its ‘age’, or not.

Furthermore, it is interesting to observe which countries have been early versus late adopters of CC licenses²³. Figure 8 is helpful in this respect as it shows a plot of GDP per capita versus launch dates. Although GDP is only one of many indicators of a country’s relevant characteristics, we observe that the early adopters of CC have all been countries with a relatively high GDP per capita, with the only exceptions of Brazil, and later, Taiwan. We see an interesting geographical spread pattern along the GDP dimension, where CC licenses are (invented and) promoted first in the ‘first world’ but then quickly spreading to many poorer countries, with some ‘laggard’ developed nations joining as well over time (UK, Sweden, Denmark on the plot). The mostly European early adopters exhibit high (absolute and per capita) license volume and thus account for most of the total jurisdiction-specific volume, although their licensing preferences vary greatly, as we will show. As the CC movement grows and becomes truly global the set of countries adopting CC becomes increasingly diverse, encompassing jurisdictions with different cultures, social structures and levels of economic prosperity. We will examine some of these differences and how they may be impacting licensing choices later in the paper.

²³ Of course chance also plays a role, as by countries adopting CC licenses we do not mean that the countries officially decide to adopt CC, but rather that a small team of volunteers in the respective countries design and launch the jurisdiction-specific licenses in coordination with CC-international.

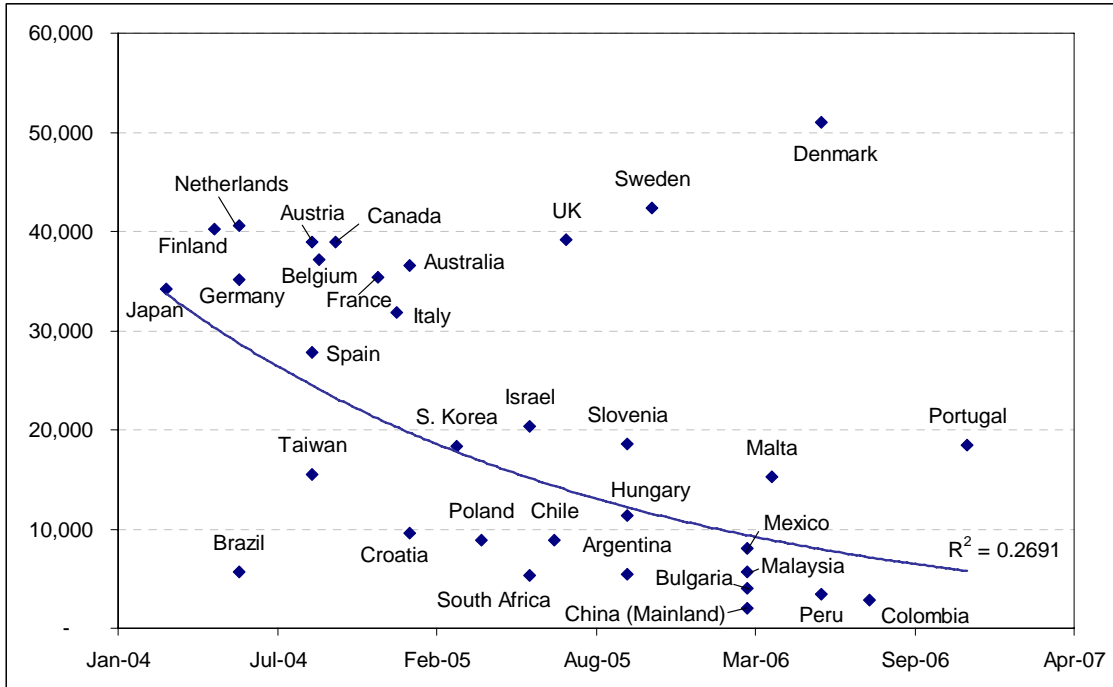


Figure 8: GDP per capita (in USD) versus date of CC license introduction.

After having examined the impact of CC launch dates on the data, we return to our earlier observation on the relationship between piracy and GDP. Figure 9 shows all the jurisdictions on a piracy versus GDP per capita plot.

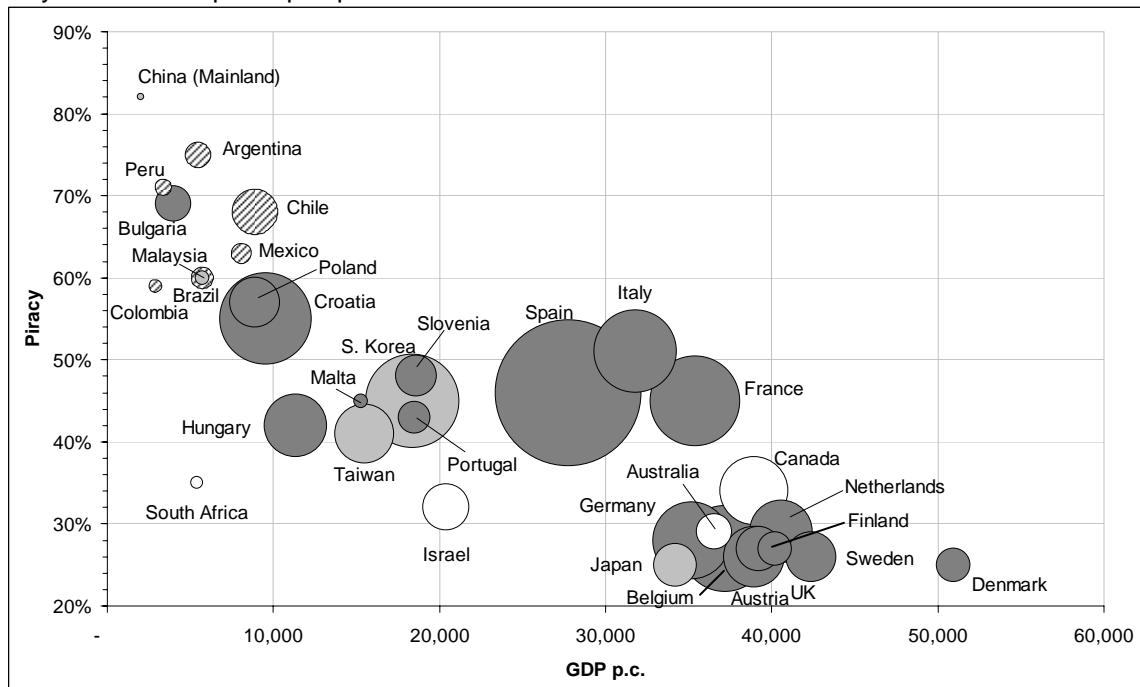


Figure 9: Plot of CC jurisdictions' piracy rates versus GDP per capita. Bubble surface size is license adoption per capita. Europe shaded deep gray, Asia light gray, South America shaded with lines, and Others have no shading.

We note that the jurisdictions with the highest CC adoption per capita have an average piracy rate (also, those with the highest per capita *and* absolute CC volume²⁴ are those with average-to-high GDP per capita). Based on this observation we form a hypothesis that relatively high piracy rates in developed countries may be indicative of a rather lax or critical view in the population with respect to copyright protection and this may be providing fertile ground for more liberal licensing models like CC. We therefore examine more closely the top 14 economies with GDP per capita greater than US\$25,000. The correlation coefficients for these countries are shown in Table 7.

Table 7: Correlation matrix for top economies

Top 14	MYBL	MGBL	VOL	VYBL	VGBL	PIR	INT	BRO	GDP	UNE	POF	ECF	PRF	DAT
MYBL	1.00													
MGBL	0.55	1.00												
VOL	-0.02	0.06	1.00											
VYBL	0.01	0.12	0.88	1.00										
VGBL	0.06	0.16	0.83	0.96	1.00									
PIR	-0.25	-0.23	0.73	0.68	0.67	1.00								
INT	0.07	0.38	-0.64	-0.62	-0.59	-0.63	1.00							
BRO	0.19	0.36	-0.48	-0.30	-0.29	-0.47	0.49	1.00						
GDP	-0.03	0.32	-0.76	-0.68	-0.63	-0.64	0.86	0.60	1.00					
UNE	-0.15	-0.11	0.62	0.62	0.60	0.54	-0.64	-0.31	-0.51	1.00				
POF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.00			
ECF	0.11	0.08	-0.46	-0.53	-0.35	-0.41	0.56	0.10	0.62	-0.26	N/A	1.00		
PRF	0.30	0.27	-0.47	-0.45	-0.39	-0.55	0.68	0.41	0.67	-0.35	N/A	0.73	1.00	
DAT	-0.06	0.29	-0.28	-0.23	-0.22	-0.12	0.39	0.11	0.64	-0.29	N/A	0.30	0.26	1.00

Table 7 includes more variables as more data is readily available for these countries. First, all of these countries have the same high political freedom rating (POF) and generally high economic and press freedom ratings. More importantly we notice now some positive correlation between piracy rates (which are again correlated with GDP) and license volume (VYBL and VGBL). According to these results we can say that the biggest adopters of CC licenses are developed countries with high political and economic freedom and relatively high piracy rates (lower GDP per capita) compared to other developed countries²⁵. This is nevertheless no proof of causation and moreover, if we plot license adoption per capita against piracy rates we do not observe a clear relationship between the two.

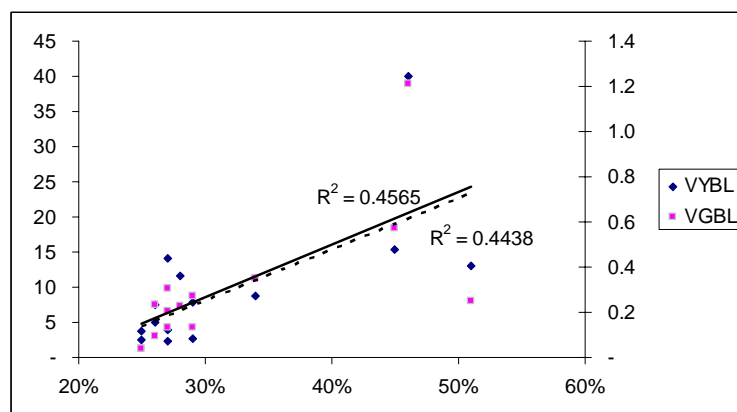


Figure 10: License adoption per capita versus piracy rates for top economies

In conclusion, we have found only weak support for our hypothesis that a relatively lax or critical view on copyright protection is providing fertile ground for more liberal licenses. This is logical

²⁴ We have not included a plot of absolute license volumes per jurisdiction as volume per capita is generally a more appropriate measure of adoption and we therefore want to focus our attention to this measure.

²⁵ The results are the same even if we remove Spain, which, as we will show later, benefits from South American authors using the Spanish license.

after all, because even if some authors may be motivated to use CC licenses because they are critical towards the restrictions imposed by intellectual property law, there are other reasons why one would use such licenses, as we have shown in the analysis of the decision tree in Figure 3.

Geopolitical, legal and social analysis

So far we have not been able to provide an explanation for the differences in license mix across jurisdictions and only weak evidence for a relationship between license volume and piracy rates. It is likely that a multitude of factors influence license choice in complex ways, making analysis more difficult. To get a sense for how jurisdictions compare on both license adoption per capita and license mix, we utilize the mixed scores we proposed to summarize licensing restrictiveness and produce the plot in Figure 11. The size of each bubble is the absolute volume of licenses per jurisdiction. Countries on the top right end of the plot exhibit the highest per capita adoption of the licenses and the most liberal licensing.

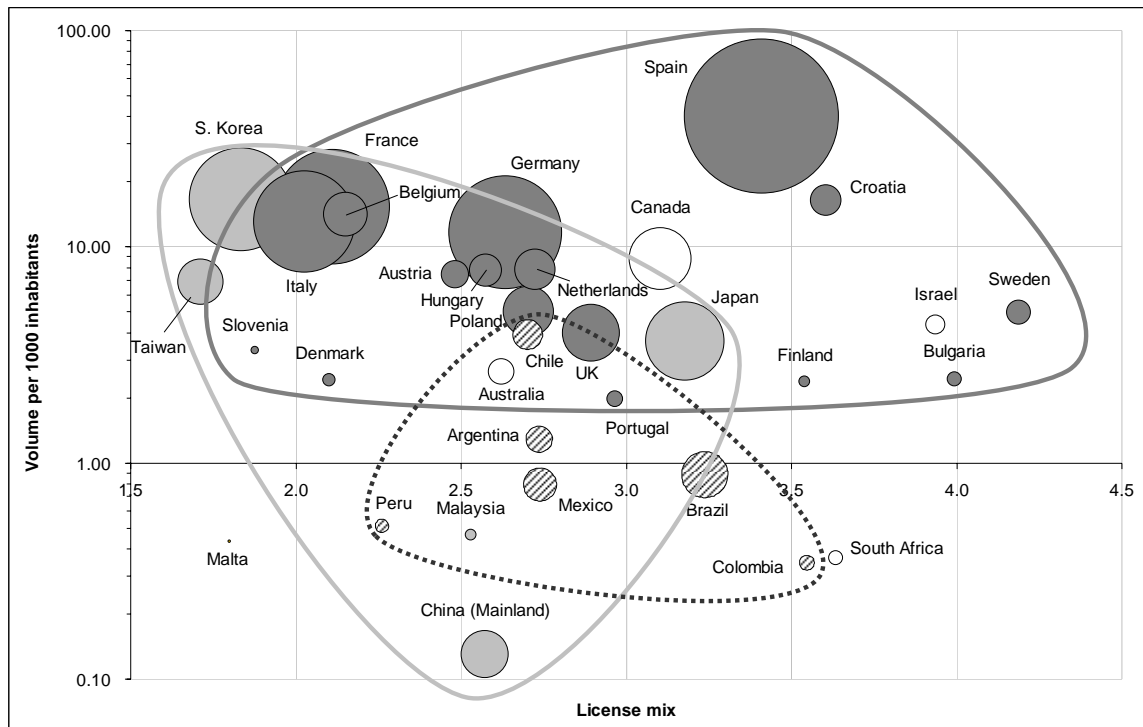


Figure 11: Plot of jurisdictions' CC license volume per 1000 inhabitants versus license mix (relative restrictiveness of the licensing based on mixed scores²⁶). Bubble surface size is absolute CC license volume per jurisdiction. Europe shaded deep gray, Asia light gray, South America shaded with lines, and Others have no shading. Notice that the vertical axis is in log scale.

In this section we will discuss some known facts regarding the political, social and legal background of the jurisdictions and will attempt to look for contextual factors which may provide some explanation for the position of a jurisdiction on Figure 11 and/or for the positions of jurisdictions relative to each other. A complete analysis on all relevant dimensions of all the jurisdictions is beyond the scope of the paper, but we hope to provide some intuition with respect to (and kick-start more interest and study on) how relationships at the 'macro' level of countries and geographical regions may be affecting the 'micro' level of individual author choice. We hope that this

²⁶ We checked the robustness of the relationships suggested by Figure 11 with respect to the definition of the x-axis, by producing the same plot using commercial freedom scores instead of mixed scores. The relative positions of the bubbles vary only slightly (most notably Israel shifts to the right of Sweden). These changes do not affect the observations we make in this paper.

initial analysis will spur more in-depth region- or country-specific investigations by other researchers.

Spain

We immediately notice in Figure 11 the special position of Spain, where the Spanish licenses are popular, in absolute terms *and* per capita *and* they are used in a very liberal way compared to any other high volume jurisdictions. Besides the fact that Spain has been an early adopter of CC, in correspondence with the Spanish and South American CC jurisdiction teams they both pointed out to us that Spanish licenses are also popular in South America, as the language in most of these countries is practically the same, and both Spanish and South American authors are bound to be members of some of the same Spanish language communities.

Nevertheless, besides the contributions of South American authors, there is reason to believe that the awareness of CC licenses in Spain itself is high. The CC launch event (October 2004) and the Copyfight event (July 2005) have likely increased awareness, but a recent (March 2006) and widely publicized court case regarding the streaming of royalty-free music from the Internet in bars has probably also contributed to a heightened awareness and sensitization to intellectual property issues in Spain²⁷. We therefore assume that Spain holds a special position among CC jurisdictions mainly because of two contributing factors: *language* and high license *awareness and promotion*. Moreover, Spain is among those countries with a relatively matured information society and developed economy which nevertheless exhibit relatively high piracy rates (and low-to-zero levels of litigation against piracy and file-sharing). This also places Spain in the group of countries where liberal licensing approaches may be benefiting from a general social attitude that is friendly towards sharing and a public policy that is not favoring the persecution of individual file-sharers.

Croatia

Croatia is similar to Spain in combining high adoption per capita with liberal licensing, even if Croatia's absolute volume is naturally lower. Croatia has been an early adopter of CC. The 2007 iCommons Summit, the largest yearly CC-related event, was held in Croatia. Also, from the Croatian CC jurisdiction team we learn that bloggers in Croatia are known to have adopted CC licenses in large numbers and awareness among artists and in parts of the government is relatively high. Also, it is interesting to note that Croatia, like Bulgaria which we will examine a bit later, exhibits one of the highest piracy rates in Europe.

Perhaps most importantly, the Croatian CC team appears to have been very active and effective in promoting the licenses, as is the case with the Spanish team. Without implying that these teams have been better in execution than other CC jurisdiction teams, from informal discussions, and the survey we conducted during the 2007 iCommons Summit we have come to believe that, other things being equal, *the personality, drive and network of the teams of volunteers in each jurisdiction are critical factors influencing both adoption and the relative restrictiveness of licensing*. Together with the leaders and supporters of CC-friendly movements (such as local blogging communities and OSS projects) these individuals form a local pro-sharing avant-garde which we believe can be critical to the success of CC in a jurisdiction, especially in the very early stages of low general awareness in the population. A similar argument can be made for Sweden (see below) and probably also for other jurisdictions. We currently cannot provide hard evidence for this, so it is only an assertion on our part, which nevertheless is consistent with observations made with respect to the reputation and networks of participants as contributing factors for the success of OSS projects²⁸.

²⁷A Badajoz court (the Juzgado de Primera Instancia número 6 de Badajoz) ruled that the Metropol bar must not pay royalties to an Authors society, because it only plays royalty-free music.²⁷

²⁸Several factors have been studied with respect to how they contribute to the success of OSS projects: project age, intended audience, the reputation of the participants, license restrictiveness and the level of public organizational support are some of the factors that have been found to have a positive effect. See

Sweden and Bulgaria

Swedish, Bulgarian and Israeli licenses are used very liberally. As these countries have very little in common in terms of sociopolitical or historical background it is not so helpful to examine them as a group. We currently do not have any information on Israel, so we will limit our discussion to Sweden and Bulgaria, while focusing more on Sweden, as recent developments in this country have received worldwide attention. Sweden is famous for the May 31st 2006 police raid on Pirate Bay, one of the most popular Bittorrent sites, used mostly for downloading popular movies. The police raid on Pirate Bay led to backlash by some parts of Swedish society, as it was perceived as an outside intervention by the US-based MPAA. Supporters of Pirate Bay sometimes argue that file sharing is an accepted social practice in Sweden²⁹ and this move was seen as Swedish authorities giving in to pressure from the US. This situation has led to the radicalization of part of the population and the adoption of an open pro-piracy stance, whose most famous offspring is the Pirate Party, a pro-piracy political party³⁰. Sweden is also the home of the Pirate Bureau (Piratbyran), an ad hoc pro-piracy think-tank predating both the Pirate Bay and the Pirate Party.³¹

The very liberal licensing of CC adopters in Sweden may therefore be connected to our earlier hypothesis on the relation between piracy rates and CC adoption. Sweden's piracy rates are generally very moderate, but it may be that the piracy-related radicalization of a small part of the society and the general sensitization of the population on copyright issues has indeed led to very liberal CC licensing.

Another contributing factor may be the liberal-socialist political tradition of Sweden and to some extent of all of the Scandinavian countries. Finland is also exhibiting a liberal licensing pattern. Denmark appears to be licensing conservatively in comparison, however we can see in Table 8 that a small number of countries exhibit significant differences between our YBL and GBL measurements and Denmark is one of them. Although the GBL sample set is smaller and therefore more prone to statistical error, Denmark is one of only two countries which according to GBL results are licensing much more liberally (the other one is Malta, whose sample size is so small that it is no surprise that we see a great difference between YBL and GBL estimates).

Table 8: Difference in mixed scores: YBL – GBL

Argentina	-0.22	Denmark	-2.00	Netherlands	0.05
Australia	-0.10	Finland	-0.19	Peru	-0.16
Austria	-0.10	France	-0.34	Poland	-0.57
Belgium	-0.23	Germany	-0.09	Portugal	-0.19
Brazil	-0.28	Hungary	-0.20	S. Korea	-0.30
Bulgaria	-0.93	Israel	-0.07	Slovenia	-0.24
Canada	-0.02	Italy	-0.03	South Africa	-0.60
Chile	-0.68	Japan	-0.07	Spain	-0.61
China	-0.12	Malaysia	0.20	Sweden	0.75

Stewart, Ammeter and Maruping, *Impacts of License Choice and Organizational Sponsorship on User Interest and Development Activity in Open Source Software Projects*, ISR, Vol. 17, Issue 2 (June 2006), pp: 126-144; Chengalur-Smith and Sidorova, *Survival of open-source projects: A population ecology perspective*, in Proceedings of the 24th International Conference on Inf. Systems, Assoc. for Inf. Systems 2003; Crowston and Scozzi, *Open source software projects as virtual organisations: competency rallying for software development*, IEE Proc. Software, 149(1) 3-17.

²⁹ File-sharing has been made illegal in Sweden since 2005 (so it is not true that it is exempted from protection or that it does not constitute infringement), however, the penalty is relatively low (fine only) and enforcement is not strong (due to privacy rights and popular support for file-sharing and shared culture). See <http://www.reuters.com/article/internetNews/idUSL1220452220070612>.

³⁰ The Pirate Party's simple political agenda is summarized in their homepage: "The Pirate Party wants to fundamentally reform copyright law, get rid of the patent system, and ensure that citizens' rights to privacy are respected." (http://www.piratpartiet.se/the_pirate_party)

³¹ See <http://www.wired.com/science/discoveries/news/2006/08/71544>.

Colombia	0.19	Malta	-2.15	Taiwan	-0.46
Croatia	0.48	Mexico	-0.06	UK	0.15

Finally, according to the Bulgarian CC team, Bulgaria has strong (though less publicized internationally compared to Sweden's) anti-copyright/pro-piracy, blogging and OSS movements which have been quick to embrace CC and are licensing very liberally.

Europe-overall

European developed countries have been for the most part very early adopters of CC licenses and contribute most of the jurisdiction-specific licensed content (while the US is assumed to account for a great share of the 'generic' CC license adoption). All European jurisdictions exhibit moderate to high volume per capita, as we have seen.

It is also interesting to observe in Figure 11 two clusters of European countries: a central European cluster comprising Germany, the Netherlands, Austria, Hungary and Poland, as well as a Franco-Latin cluster comprising France³², Italy and Belgium. Both clusters exhibit high per capita and absolute volume. The Central European cluster however appears to be licensing much more liberally than the Franco-Latin cluster³³. This clustering may be coincidental and at first it is surprising to observe, but these countries do share borders and have interrelated backgrounds, culture and history. It is therefore possible that what we observe does reflect real similarities in the perception of law and licensing issues in these countries and/or closer collaboration among the volunteers who promote the licenses in these geopolitical regions. For example, the headquarters of CC International, the organization responsible for the international coordination and promotion of the licenses, are in Berlin and the Berlin team collaborates closely with the Dutch team. Common language and culture may also be responsible for similarities between Germany and Austria, while Poland and Hungary share borders and have strong economic ties with Germany and Austria respectively. In the Franco-Latin cluster, Belgium and Italy share borders with France and one of the official languages of Belgium is French. These similarities indicate that the clustering observed in Figure 11 may not be coincidental.

Spain and Portugal appear to be licensing more liberally than either cluster, which may be a reflection of a different licensing mentality in these countries, or may also be a reflection of the influence of Spanish-speaking (respectively Portuguese-speaking, i.e. Brazil) South American authors. In this sense, the use of the Spanish (and perhaps also the Portuguese) license should not be interpreted as purely European in origin.

South America

Brazil exhibits the highest absolute volume of licenses in South America, which is not surprising given the relative size of the country but also given the fact that Brazil became one of the first adopters of CC in 2004 (was the third country to join after Japan and Finland). The 2006 iCommons Summit was held in Rio De Janeiro and CC enjoys strong support from the minister of culture (world-famous musician Gilberto Gil). Finally, very relevant is the popularity of 'commons-based' (as opposed to copyright-based) production models in the country.³⁴

³² Intellectual property and DRM issues have received significant press attention in France after the introduction of (and ensuing debate on) DAVDSI: Loi sur le Droit d'Auteur et les Droits Voisins dans la Société de l'Information

³⁴ For example, Ronaldo Lemos, Professor of Law and head of CC Brazil talks about the Brazilian Tecno-brega movement in an article in the Miami Herald, *In Brazil, performers embrace music pirates* (<http://www.miamiherald.com/213/story/164020.html>) and in *Good Copy, Bad Copy*, a Danish documentary film on intellectual property issues directed by A. Johnsen, R. Christensen and H. Moltke (<http://www.goodcopybadcopy.net/>).

South American CC teams probably communicate and coordinate with each other frequently due to their similar cultures and common language. These similarities may also provide an explanation for the fact that South American jurisdictions are positioned relatively close to each other on the plot of Figure 11. See also the later discussion on the digital divide between developed and developing countries for additional motivation for the appeal of CC in South America.

Asia-overall

Interestingly, Asian jurisdictions appear to be using more restrictive licenses, compared to Europe or South America. This may be due to several factors, but it can also be a reflection of a more conservative stance towards copyright on the part of these countries (for more on this see the next subsection on China), although, unlike South American jurisdictions, Asian jurisdictions are positioned further apart from each other in terms of the license mix and in terms of volume per capita. This greater distance with respect to license adoption and use may in turn be a reflection of the greater geographical, historical and cultural 'distance' between the respective countries. Also, it is possible (though we cannot substantiate this) that there has been closer collaboration among European and especially among South American CC teams than among Asian teams.

Japan has been one of the first CC adopters and stands out for the high volume and liberal licensing compared to other Asian jurisdictions. There appears to be very strong support for CC in Japan and also corporate interest in the use of the licenses, as exemplified by the recent announcement that Sony's Japanese "YouTube", named eyeVio, will be using CC licenses only for all user-submitted content. Also, not coincidentally, the 2008 iCommons Summit is planned to take place in Japan. Interestingly South Korea also exhibits very high adoption of the licenses, albeit with much more restrictive licensing. Unfortunately we do not have more information on the background of South Korea to provide some explanation for this notable difference to Japan (if indeed what we observe is correct and not a measurement error, as, for unknown reasons, Korean CC usage data appears to be much more volatile than that of other jurisdictions³⁵).

China

Of particular interest is China, which is a statist-communist country following a socialist continental legal system that is quite different from the common law and civil law systems,³⁶ but that has since embraced facets of capitalism and the market economy into its economic policy. CC licenses were only introduced in China in March 2006 but when compared to other jurisdictions with similar launch dates and even to many earlier adopters, Chinese licenses exhibit high usage volume (though naturally volume per capita is low due to the size of the country). China has therefore the potential to become a major CC license adopter, perhaps only second to the US and the Spanish-speaking world.

China has only recently built up a body of IP laws and enacted its first set of copyright law, the Copyright Law of the People's Republic of China, in 1991. China also acceded to the Berne Convention in 1992³⁷ and to the TRIPs Agreement in 2001^{38, 39}. Copyright piracy continues to thrive in

³⁵ Source: Mike Linksvayer, Creative Commons VP

³⁶ For an overview, see Warren Newberry, *Copyright Reform in China: A "Trips" Much Shorter and less Strange Than Imagined?*, 35 Conn. L. Rev. 1425 (2003); Gang Yuan, *A Comparison of Cyberspace Copyright Protection in China and the United States*, (2001); Reiko R. Feaver, *China's Copyright Law and the TRIPs Agreement*, 5 J. Transnat'l L. & Pol'y 431 (1996); and Patrick H. Hu, *"Mickey Mouse" in China: Legal and Cultural Implications in Protecting U.S. Copyrights*, 14 B.U. Int'l L.J. 81 (1996).

³⁷ Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, revised July 24, 1971, S. TREATY DOC. No. 99-27, 828 U.N.T.S. 221.

³⁸ Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Apr. 15, 1994, 33 LL.M. 1125 (1994). Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments -- Results of the Uruguay Round, Apr. 15, 1994, 1869 U.N.T.S. 299 (1994). China acceded to the WTO in 2001 and the TRIPs agreement is a key aspect of WTO accession. See also, Robert Slate, *Judicial Copyright Enforcement in*

China, not only of foreign but also of local works.⁴⁰ Besides the general observation we have made on the relationship between GDP per capita and piracy rates, in the case of China this is perhaps due in part to its sociopolitical history.⁴¹ Confucianism and communitarianism may have played a part in forming the attitudes of its people towards the treatment of creative works. For example,⁴² the rule of law is an emerging but still nebulous concept for legal practitioners in China and its history, traditions and culture influence its approach to the treatment of intellectual works.⁴³ What about the data showing that Chinese creators do use CC licenses and not very

China: Shaping World Opinion on TRIPS Compliance, 31 N.C.J. Int'l L. & Com. Reg. 665 (2006), illustrating the Chinese approach as "TRIPs with Chinese characteristics".

³⁹ China promulgated the Regulations on the Implementations of the International Copyright Treaties [70](#) (1992) (translated in *China L. & Prac.*, 14 January 1993) and the Implementing Rules for the Copyright Law of the People's Republic of China (1990) (translated in *China Law Reference Service ref. no.* 5100/91.05.30) to harmonize its laws with the Berne Convention.

⁴⁰ See Ralph Oman, *Copyright Piracy in China*, 5 J. Marshall Rev. Intell. Prop. L. 583 (2006). To avoid dispute from going the route of a formal dispute resolution action in the WTO, China and the United States convened a meeting of the United States-China Joint Commission on Commerce and Trade (JCCT) to discuss the copyright piracy problem. During the meeting, the USTR expressed dissatisfaction over China's copyright enforcement record and in the course of it noted that Chinese piracy rates continue in the eighty-five to ninety percent range. See Office of the United States Trade Representative, 2006 Special 301 Report, available at:

http://www.ustr.gov/assets/Document_Library/Reports_Publications/2006/2006_Special_301_Review/asset_upload_file473_9336.pdf. For an different perspective, see Peter K. Yu, *From Pirates to Partners: Protecting Intellectual Property in China in the Twenty-First Century*, 50 Am. U. L. Rev. 131 (2000) and Peter K. Yu, *A Review of Recent Decisions of the United States Court of Appeals for the Federal Circuit: From Pirates To Partners (Episode II): Protecting Intellectual Property In Post-WTO China*, 55 Am. U.L. Rev. 901 (2006). It is acknowledged that for China to improve its copyright protection, it has to consider it to be of domestic interest to do so. One of the ways to do that is to ensure that its own body intellectual works develops to the extent that they require protection from illegitimate exploitation. See Graham J. Chynoweth, *Reality Bites: How the Biting Reality of Piracy in China is Working to Strengthen Its Copyright Laws*, Duke L. & Tech. Rev. 3 (2003). For more positive outlook of the future of copyright protection in China, see Wu Shulin, *The Conditions of the Judicial and Administrative Protection of Copyright in China*, 9 Duke J. Comp. & Int'l L. 241 (1998) and Chen Zhaokuan, *Administrative Management and Enforcement of Copyright in China*, 9 Duke J. Comp. & Int'l L. 249 (1998);

⁴¹ Brent T. Yonehara, *Enter the Dragon: China's WTO Accession, Film Piracy and Prospects for the Enforcement of Copyright Laws*, DePaul-LCA J. Art & Ent. L. 63, 74-83 (2002) [also published in 9 UCLA Ent. L. Rev. 389 (2002)]. The author examines the Chinese predispositions and Confucian attitudes including communitarianism, equality and non-competition which all contribute to the lax attitude towards privatization and propertization of intellectual works for personal gain and interest. See also Jordana Cornish, *Cracks in the Great Wall: Why China's Copyright Law Has Failed to Prevent Piracy of American Movies Within its Borders*, 9 Vand. J. Ent. & Tech. L. 405, 422-431 (2006), on an analysis of the cultural and ideological differences that may, in the words of the author, "impede the "will" of the Chinese people to protect U.S. intellectual property rights". *Ibid.* at 422. See further, Eric Priest, *The Future of Music and Film Piracy in China*, 21 Berkeley Tech. L.J. 795, 809 (2006) and Kent Hughes, Gang Lin & Jennifer Turner, *China and the WTO: Domestic Challenges and International Pressures* 6 (2002), available at: <http://www.wilsoncenter.org/topics/pubs/WTOOrpt.pdf>.

⁴² Xu Guoqi, a senior official in Shanghai's Industrial and Commercial Administration has been quoted as stating that "when it comes to copying a disk, most Chinese people don't see what's wrong", while commenting on the boom in movie piracy at that time (quoted in Seth Faison, *China Turns Blind Eye to Pirated Disks*, N.Y. Times, Mar. 28, 1998, at D2, and cited in Julia Cheng, *China's Copyright System: Rising to the Spirit of TRIPs Requires an Internal Focus and WTO Membership*, 21 Fordham Int'l L.J. 1941 (1998) at n1). The author further stated that "[t]he idea that property rights can be attached to the intangible workings of the mind is new to Chinese culture." *Ibid.* at 1951. "The concept of copyright is foreign to Chinese thinking." [74](#) While China recognized the right to personal and real property, Chinese culture did not view works of the mind as property, therefore authors did not have ownership rights to their creation. [75](#) Furthermore, in ancient China, granting authors ownership rights would have frustrated the emperor's goal of making ideas widely accessible to the people." *Ibid.* at 1952.

⁴³ See William P. Alford, *Forum: Taiwan and the GATT: Panel Three: Intellectual Property Trade and Taiwan: A GATT-Fly's View*, 1992 Colum. Bus. L. Rev. 97, 104 (1992). The panel discussed the problems and difficulties that the U.S. and the European countries encountered in introducing intellectual property law to China in the early 1900s. See also, Peter K. Yu, *Piracy, Prejudice and Perspectives: An Attempt to Use*

liberally as well? This may be interpreted as double standards in that the Chinese creators of works are in fact using CC licenses to *expressly assert* some of the rights to their works in the face of rampant piracy while acknowledging the general lack of enforcement against the copying and distribution of their works. See also the related discussion below on the developed and developing country divide.

USA

Our analysis does not include the United States as US-based authors use the 'generic' licenses and these are also used by members of other jurisdictions, making it harder to distinguish between the two. Hence the US is 'hidden' in our dataset. We can however assume that a large share of content licensed under the generic license stems from US-based authors. Since the generic license accounts for about 80% of the total CC volume, it follows that CC adoption in the US must be the highest in the world, which is not surprising, as the roots and most prominent supporters of the CC movement are based in the US. Also, the US has been the global epicenter of debates (and litigation) relating to copyright and intellectual property rights in general.

The developed and developing country divide

We would expect the level of economic development of a country to influence not only its general attitude towards intellectual property, but also the licensing behavior of individual authors. It has to do with a conflation of several sub-factors affected by lack of resources which in turn affects the level of creativity and gives rise to the need for transfer of knowledge and other forms of intellectual resources for economic and social survival and/or progress. At first look we do not notice any clear pattern of different licensing behaviors between developed and developing countries. Nevertheless, the motivations why authors choose to use a more liberal licensing model like CC may differ for these two groups of countries. There is increasing evidence that current intellectual property rights laws are harming those they purport to benefit by cutting off the "intellectual commons" to potential future creators and transferring wealth from poor to rich countries.⁴⁴ Voices from the developing world have asserted a counter-discourse to the existing regime that has crystallized under the rubric of Traditional Knowledge (TK), which calls into question the cultural assumptions in the current copyright model and its distributive effects. Their central prescriptive solution calls for a *sui generis* legal regime to protect community rights,⁴⁵ while on the other hand the legal structure of intellectual property as it is known in developed countries remains mostly "irrelevant, unfamiliar and unenforceable".⁴⁶

Many developing country governments implemented the TRIPS agreement only out of necessity for trade reasons and as a matter of law but have failed to follow it up with robust enforce of intellectual property rights in general.⁴⁷ That is not to say that developing countries have only been passively transposing copyright laws formulated mainly by the developed countries like the U.S., European Union countries and Japan without attempting to influence changes to the regime themselves, albeit in tactical maneuverings in negotiations for copyright amendment in interna-

Shakespeare to Reconfigure the U.S.-China Intellectual Property Debate, 19 B.U. Int'l L.J. 1, 33, 69 (2001) where the author criticized Western countries for ignoring differences in China's history, cultural and political system in their attempts to foist their ideas of intellectual property rights protection on her.

⁴⁴ For instance, price and import control legislation for the same products. The TRIPs regime has been touted as having the same effect. See *Chander and Sunder* 1346-1354. See also, Peter Drahos & John Braithwaite, *Information Feudalism* 11 (2002); Jagdish Bhagwati, *Free Trade Today* 75 (2002), cited in *Simon* at n6.

⁴⁵ Bradford S. Simon, *Intellectual Property and Traditional Knowledge: A Psychological Approach to Conflicting Claims of Creativity in International Law*, 20 Berkeley Tech. L.J. 1613 (2005).

⁴⁶ Ronaldo Lemos, *From Legal Commons to Social Commons: Brazil and the Cultural Industry in the 21st Century*, Centre for Brazilian Studies, University of Oxford (Working Paper).

⁴⁷ See generally Susan K. Sell, *Intellectual Property Protection and Antitrust in the Developing World: Crisis, Coercion, and Choice*, 49 Int'l Org. 315 (1995), cited by Michael P. Ryan, *Knowledge-Economy Elites, The International Law of Intellectual Property and Trade, And Economic Development*, 10 Cardozo J. Int'l & Comp. L. 271, 272 (2002) at n2.

tional fora.⁴⁸ There are also accusations of “IP opportunism” that once again highlight the tensions between developing countries and developed countries’ notions of IP protection.⁴⁹

When we compare developed to developing countries, inevitably another type of comparison emerges in relation to the origin or context of creative works, in particular “industrial knowledge” as opposed to “traditional knowledge” (which predominate in the former and latter respectively). According to discussions we have had with CC jurisdiction teams in South America, the use of CC licenses is partly motivated by a desire to prevent the commercial appropriation of traditional knowledge for private interest. The Access to Knowledge movement and ally countries like Brazil and Argentina are proponents of copyright policies and regulations that take into account the special needs of developing countries.⁵⁰ Also, we noted that in the case of China and possibly also in other countries some authors may be selecting CC licenses as a means of protecting some of their rights while at the same time avoiding the adoption of the “all rights reserved” doctrine, because the latter may be perceived as a tool for promoting and preserving a form of US cultural imperialism (consider the frequent references to Mickey Mouse in connection to the Sonny Bono Copyright Term Extension Act of 1998 which led to similar extensions in other countries around the world).

Contrast this to the predisposition of CC adopters in developed countries, where moving to a CC licensing model is a means of permitting more liberal sharing and use in a conscious (and perhaps sometimes altruistic) decision to share more freely, rather than a means of preserving a local culture and protecting it from appropriation (although the adoption of CC as an act of protest against the current copyright regime and its beneficiaries and a means of preserving a “free culture”, are factors in both developing and developed countries).

Collective consciousness and a new identity

Now let us take a more macro-level perspective of the use of CC licenses. From the fact that they are utilized and adopted across jurisdictions and from the sheer volume of usage a certain trend emerges from which we may draw the conclusion that from the borderless digital plane and the maturing of information technology, a new form of collective consciousness has developed. This is perhaps also partly driven by globalization. The global attitudes and practices towards file-sharing (through Peer-to-Peer (P2P) technology),⁵¹ the culture of re-use (remixing, mash-ups),

⁴⁸ Laurence R. Helfer, *Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking*, 29 Yale J. Int'l L. 1 (2004).

⁴⁹ Lawrence A. Kogan, *Brazil's IP Opportunism Threatens U.S. Private Property Rights*, 38 U. Miami Inter-Am. L. Rev. 1 (2006). Russia, China and India are also implicated in this article. See *ibid.* at 137.

⁵⁰ Kristin Delaney, *World Wide Web: Using Internet Governance Structures to Address Intellectual Property and International Development*, 32 Brooklyn J. Int'l L. 603 (2007). Also writing on the face of Internet governance and the WIPO development agenda. See also the Draft Access to Knowledge Treaty. WIPO, *Draft Treaty on Access to Knowledge*, 9 May 2005. available at <http://www.cptech.org/ip/wipo/a2k.pdf> and Indicare, *Access to Knowledge: Make It Happen*, available at: www.indicare.org/tiki-read_article.php?articleId=102.

⁵¹ The following are some factors that are likely to influence behavior towards digital file-sharing on P2P networks relating to copyrighted works:

1. Flocking behavior (“Everyone else is doing it anyway”).
2. Inter and intra reinforcing behavior (“Since I am already doing it; my friends are doing it and so shall I”; “My friends have given it to me, why should I buy it”).
3. Self-interest, profit divorced from morality (“Why should I pay; it benefits the industry which is already rich anyway”).
4. Us vs. Them mentality (the fight against the establishment).
5. Hip factor (anti-authority underground movement).
6. Generational gap affecting inculcation of values (i.e. the older generation is not familiar with digital behavior and thus cannot impart values or influence behavior), low valuation (i.e. values often imparted relate to personal morality relating to religion, culture and race, none of which have much to say about IP rights); high specificity in values (i.e. values often relate to general virtues such as honesty and integrity, but illustrated or in the social context, not relating to economic context).

pervasive and flagrant acts of piracy (emboldened by the perceived, though only partial, anonymity of internet use) and the expectations of universal access and easy replication also support this conclusion. Modern creation has a greater regenerative tendency than ever before. Recycling and creative innovation through re-invention have become even more popular than ever.

Another significant factor is the emergence of the user-creator (and user-created content, such as through Youtube, Flickr, Wikis and Blogs) which is largely premised on a 'remix culture'. Skeptics of the CC movement refer to users of license wavers as "atypical authors" (i.e. the exception).⁵² However, the irresistible fact is that the phenomenon of the user-creator (amateur or professional), who is not manufactured or nurtured for commercial success by industry and who is motivated by a complex mix of factors (going beyond mere profit) to create and share his/her creative works, has become a mainstay.⁵³ The profile of user-creators is an interesting study as the demarcation between the user and the creator that usually drives the interest balancing mechanism is now erased to some extent. They have both the interest in control over their creativity but at the same time an interest in access to the creative works of others. This group of people is, to the best of our knowledge, a main adopter of the licenses.

The new global consciousness is likely to be even more apparent in 'Generation Z', the generation that grows up with the Internet and that is familiar with the digital format of all types of works (unlike 'Generation X and Y' who have had to adapt to these new conditions). The one-sided conception and psychology of creativity created by the existing copyright regime can be illustrated by the problems relating to the unsatisfactory treatment of TK and indigenous creativity under the copyright framework.⁵⁴ The same argument could be made for the protectionist reaction to information technology and its effects on the nature, replication/duplication and dissemination of creative works. As generation Z is nurtured in an environment of increased sharing and participation, we expect to see a gradual shift to a 'user-creator' age (whose early signs we are already witnessing).

We use Table 9 to compare the treatment of different types of creative works, which is also a comparison over time, although today all three types of works co-exist. It is precisely these differences that should be noted in evolving a holistic copyright framework that can at least acknowledge, if not reconcile, their differences.

So now that we have a compelling argument that there is an emerging global consciousness and a more liberal attitude towards the use of creative works as evidenced by the rapid adoption of CC licenses and other identified factors (particularly in relation to copying and distribution), the question is: How should this impact on the law and policy on copyright protection? Should people continue to be threatened with legal action for actions that they do not consider wrong and that they will continue to do as long as they are not likely to face adverse consequences?⁵⁵ Also, is

7. New and emerging virtual community norms.

See further, Archives.org at: <http://www.archive.org/details/copyrightvscommunity>.

⁵² Mihaly Ficsor, *The Wipo "Internet Treaties:" The United States as the Driver: The United States as the Main Source of Obstruction -- As seen by an Anti-Revolutionary Central European*, 6 J. Marshall Rev. Intell. Prop. L. 17, 35-37 (2006). Contra. Rosemary J. Coombe, *Fear, Hope, and Longing for the Future of Authorship and a Revitalized Public Domain in Global Regimes of Intellectual Property*, 52 DePaul L. Rev. 1171 (2003), referring to the need for "cultural public domain" and the creative commons.

⁵³ See generally, Roberta Rosenthal Kwall, *Inspiration and Innovation: The Intrinsic Dimension of the Artistic Soul*, 81 Notre Dame L. Rev. 1945 (2006). Note in particular the references to the "artistic soul" and the "romantic author". Moral rights are particularly strong in European countries such as France. *Ibid.* At 1976, 1977 & 1985.

⁵⁴ *Simon*. See also, Vandana Shiva, *Protect or Plunder?* (Zed Books, 2002). On what is "traditional knowledge", see WIPO, *Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore*, available at: http://www.wipo.int/about-ip/en/studies/publications/genetic_resources.htm.

⁵⁵ "People do seem to buy into copyright norms, but they don't translate those norms into the rules that the copyright statute does; they find it very hard to believe that there's really a law out there that says the stuff the copyright law says...People don't obey laws that they don't believe in. It isn't necessarily that they be-

there any way in which we can further encourage authors to license their works more liberally while also respecting the desires of those who do not wish to do so (if indeed we believe that increased sharing and re-use will be beneficial for society as a whole)?

Table 9: Comparison of treatment of creative works over time

Period Subject of comparison	TK Age <i>Pre-Industrial Age</i>	IP Age <i>Industrial Age and Early Information Age</i>	User-Creator Age <i>Matured Information Age</i>
Human cognitive and social psychology	Collective consciousness of people from "simple" societies	Individualistic knowledge and consciousness of people from "complex" societies	Collective consciousness re-emerging from individualistic consciousness, singular global society ⁵⁶
Dominant behavior	Cooperative	Competitive	Cooperative (sharing) and competitive
Medium	Word of mouth, familial and community forms of transfer	Packaging, but moving towards technological format and transfer, also use of technology to control rights	Technological intangible 'product' format and mode of delivery, less reliance on technological rights management
Objective (theoretical justification)	Largely Cultural "Fundamentally collective, cooperative, informal, cumulative, and often spiritual" ⁵⁷	Largely Commercial Corporatization and commercial appropriation of culture, often disguised under the clothing of individualism	Mixed Empowerment of one (grater autonomy for the individual) and all (the community)
Legal basis	Commons	From propertization (of tangible format) to rights creation (of intangible format)	Mix of Commons ⁵⁸ and rights creation (through licenses)

have lawlessly, or that they'll steal whatever they can if they think they can get away with it. Most people try to comply, at least substantially, with what they believe the law to say. If they don't believe the law says what it in fact says, though, they won't obey it - not because they are protesting its provisions, but because it doesn't stick in their heads." Jessica Litman, *Copyright Noncompliance (Or Why We Can't "Just Say Yes" to Licensing)*, 29 N.Y.U. J. Int'l L. & Pol. 237, 238-239 (1997), available at: <http://www-personal.umich.edu/~jdlitman/papers/no.htm>. See also, Marci A. Hamilton, *The TRIPS Agreement: Imperialistic, Outdated, and Overprotective*, 29 Vand. J. Transnat'l L. 613, 616 (1996) ("Intellectual property is nothing more than a socially-recognized, but imaginary, set of fences and gates. People must believe in it for it to be effective."). See also, Jessica Litman, *Copyright as Myth*, 53 U. Pitt. L. Rev. 235 (1991) (examining the difference between the prevailing public myth of copyright and existing copyright statute and case law).

⁵⁶ Compare this to the challenges to state sovereignty and control in the age of globalization and the "communication revolution". See Adeno Addis, *The Thin State in Thick Globalism: Sovereignty in the Information Age*, 37 Vand. J. Transnat'l L. 1 (2004).

⁵⁷ *Simon* at 1618.

⁵⁸ E.g., the "free culture movement". See Lawrence Lessig, *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity* (Penguin Press, 2004); James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 Law & Contemp. Probs. 33 (2003); James Boyle, *Foreword: The Opposite of Property?*, 66 Law & Contemp. Probs. 1 (2003); Anupam Chander, *The New, New Property*, 81 Tex. L. Rev. 715, 797 (2003); and Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. Rev. 354, 364-86 (1999). For a more moderated and measured response to issue, see Anupam Chander and Madhavi Sunder, *The Romance of the Public Domain*, 92 Calif. L. Rev. 1331 (2004), arguing that the commons "is not always kind to the commoners", and suggesting solutions particularly in the relation to TK. See also, R. Polk Wag-

Period Subject of comparison	TK Age <i>Pre-Industrial Age</i>	IP Age <i>Industrial Age and Early Information Age</i>	User-Creator Age <i>Matured Information Age</i>
Relationship	Community (indigenous)	Corporate model (exclusive and nurtured creators, capitalist conceptions)	Emergence of independent user-creator, deconstruction of the vertically integrated corporate model
Most suitable legal framework for comparison (and use?)	N/A	Private international law and domestic frameworks	Public international law modified to encompass personality of individuals – use of concepts like customary law to decipher appropriate form of behavior?
General application (scope)	More in developing countries and traditional societies	More in developed countries and industrialized nations	Everyone in any country with internet access
Current legal/policy status	Seeking <i>sui generis</i> treatment	Supported by existing framework	May influence existing framework
Description of subject matter	Amorphous subject matter, owned by collectivity or community	Largely privately owned, sometimes privately created and 'manufactured'	Both TK and IP types of works but with more amateur- and peer-produced content

When millions of people exchange music files over the Internet, statutes can criminalize it and judges can rule that such acts infringe copyright and even force online services and technologies facilitating file sharing to shut down. What they cannot do, however, is reach into their psyche to make these people accept these laws as a matter of collective conscience.⁵⁹ “There is a growing disjuncture between the Copyright Act, copyright case law and the ways individuals (in their consumptive capacities) have traditionally used, and would prefer to continue to use, copyrighted content.”⁶⁰ The argument becomes even stronger when we introduce the new user-creator into the equation. Moreover, it is also counter-productive to sue users (in particular, in relation to music)⁶¹ as is the strategic/tactical trend in the U.S. and Europe.⁶² It will only serve to alienate and stigmatize them unnecessarily (due to the divide between law and morality and the ambiguities of morality in such acts). Also, user rights should be unambiguous and consistent in all jurisdictions.

ner, *Information Wants to Be Free: Intellectual Property and the Mythologies of Control*, 103 Colum. L. Rev. 995 (2003), where the writer argues in defense of the control conferred by IP rights.

⁵⁹ See also, Mark Landler, *U.S. Is Only the Tip of Pirated Music Iceberg* (The New York Times, 26 September 2003), available at: <http://www.nytimes.com/2003/09/26/technology/26MUSI.html?pagewanted=1&ei=5007&en=f5d01f35185369c8&ex=1379908800&partner=USERLAND>, where the journalist noted that “[t]he industry's biggest hurdle may be cultural”, with file swapping and CD burning “viewed in most countries as routine, not renegade, behaviour.”

⁶⁰ Ann Bartow, *Electrifying Copyright Norms and Making Cyberspace More Like a Book*, 48 Vill. L. Rev. 13, 15-16 (2003). See also, Rochelle Cooper Dreyfuss, *TRIPS-Round II: Should Users Strike Back?*, 71 U. Chi. L. Rev. 21 (2004), arguing for enhanced user rights; and Julie E. Cohen, *Intellectual Property and Public Values: The Place of the User in Copyright Law*, 74 Fordham L. Rev. 347 (2005).

⁶¹ See the latest statistics on the music market at the International Federation of the Phonographic Industry (IFPI) website at: http://www.ifpi.org/content/section_statistics/index.html.

⁶² Amanda M. Witt, *Burned in the USA: Should The Music Industry Utilize its American Strategy of Suing Users to Combat Online Piracy in Europe?*, 11 Colum. J. Eur. L. 375, 381-384 (U.S.) & 397-402 (Europe) (2005). Alluding to file sharing as a “form of digital civil disobedience”. *Ibid.* at 400.

There is granted no “global village” or “global (virtual) community” in *all* senses of the word,⁶³ which is also evident in the different licensing patterns in our dataset, but there is a growing global consciousness specifically relating to the creation, storage, dissemination and treatment of digital information; and when previous forms of creative works take on the form and characteristics of digital information, then they become treated in the same manner. If copyright laws have created some exceptions for written information to allow the Internet to work, then so should they create protection for other (no less important) forms of IT that add to the functionality and benefits of the Internet. Hence, for example, the U.S. Supreme Court treatment of Peer-to-Peer technology in the line of cases leading to (but probably not culminating in) *MGM Studios, Inc. v. Grokster, Ltd.* 545 U.S. 913 (2005), and the balancing objective behind the creation of, and modifications to, the “substantial non-infringement” test.

The emergence of the collective consciousness and the convergence of values, at least in relation to copyright, should thus be taken into consideration with a view to policy and law-making in the copyright regime to render it one that is realistic and that takes into greater account the interests of all the parties (not just that of the traditional copyright holders), including the user-creators. This leads directly to next part of this paper on the law and policy implications of this study.

Law and policy implications

Why and how is this empirical study useful for policy and law-making beyond offering statistical and anecdotal evidence of CC licensing behavior? CC licenses play an important role as identification of trend and detection of the growth or as evidence of the existence of ‘new users’ and a new mindset regarding IP, in order to convince and influence legislative and policy changes. We believe that tracking the expectations and attitudes of the user, and in particular the user-creator, is important and should be seriously considered when decisions are made as to the appropriate scope and nature of copyright protection, whether defined under law or influenced through policy actions. The interpretation of data will provide some clue on this. It is often the case that the voices of the users are not heard above the strong lobbying efforts made by ‘copyright industries’ with their own interests and agenda to protect.

Law and policy changes may first take place locally but will eventually have to be effected at the international level to be consistent with the arguments of universality wrought by cyberspace and to produce the fairest result and a penetrative and consistent effect among different jurisdictions. It should be kept in mind that the more radical the change the less likely that it will be accepted for adoption or successfully implemented. Hence, various options, in order of degree of change, will be suggested. These suggestions are not exhaustive and it is hoped that the findings in this study and the opinions put forth will form the catalyst to generate more discussions and ideas on how to resolve the issue and to improve copyright law to reflect modern technological realities.

Under the Article 9(2) of the Berne Convention of 1967, a clause was created that imposes constraints on the possible limitations to the protected exclusive rights under domestic copyright laws of signatory states. It has since acquired the moniker of the “Berne three-step test” and has been included in several international treaties on copyright since it first appeared (e.g. the WIPO Copyright Treaty, the EU Copyright Directive and the WIPO Performances and Phonograms Treaty). It was also adopted in modified form in Article 13 of the TRIPS Agreement, where it reads as follows:

⁶³ Kate Gardens, *The Global Community Myth* (Yours Daily, 25 February 2007), available at: http://www.yoursdaily.com/culture_media/media/the_global_community_myth. Jonathan H. Blavin and I. Glenn Cohen, *Gore, Gibson, and Goldsmith: The Evolution of Internet Metaphors in Law and Commentary*, 16 Harv. J. Law & Tec 265, 272 (2002). Metaphors can restrict thought, but it can also put matters into context and help one understand things better.

“Members shall confine limitations and exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the rights holder.”

The test may become a constraint to the reduction of copyright law unless the WTO decides that the changes comply with the test (e.g. it was invoked as a justification for refusing some exceptions to copyright that members of the French parliament wanted to include during the examination of the controversial DADVSI copyright bill). This is a hurdle that has to be overcome, perhaps by interpretation but preferably by amendment to the test itself, in order to fulfill some or all of the below proposed amendments.

“Fair use” or “fair dealing” (depending on the jurisdiction) is the main exception to copyright protection and it can be general (and remain guided by statutory factors and/or judge-made analyses of what is “fair”) or purpose-specific. Some of the main factors include, for example, those listed under 17 U.S.C. 107, such as the purpose and character of the use, the nature of the work, the amount and substantiality of the portion used in relation to the work as a whole and the effect of the use upon the potential market for or value of the copyrighted work. The ease and universality of access and copying is effectively broadening common perceptions of what constitutes fair use. Also, there are other factors such as societal/public benefits from sharing and re-use that are not specifically stated although they remain relevant since the factors we listed earlier are non-exhaustive. Even then, they should be enunciated at the very least, if not considered with a view to a change of the fundamental scope of copyright protection, to accommodate modern notions of fairness between copyright holders and users.

i. Distinctive Behavior and Attitude Towards Different Works: The Case for Establishing Specific Copyright Regimes

There should be specific copyright regimes for different media types.⁶⁴ One side does not fit all.⁶⁵ Different formats and subject matter require specific regimes and a fine tuning of their systems of protection to achieve greater fairness in the balancing of interests between relevant parties.

We have seen how TK requires a different type of protection from the existing IP regime (based upon subject matter).⁶⁶ So too should copyright in the digital age, more in relation to how formats and devices have changed and how attitudes and behavior have developed towards them (since the substantive content is largely the same as before, and largely informational in nature). We have already seen this naturally evolve in the example of the ‘software commons’. With these specific carve-outs, the IP regime becomes more versatile, responsive and realistic.

Case Illustration for Musical Works

A moderate option to the radical alternative of overhauling the entire copyright system will be to create a different regime for the type of work to which the digital format has created a compelling argument for change. Musical works, for instance, have become very different from the days when they were tied to a tangible form.⁶⁷ The audio experience and expectations of users have been fundamentally changed by a conglomeration of factors:

⁶⁴ Original works include literary, dramatic, musical and artistic works. There may be more than one copyright in a work.

⁶⁵ Doris Estelle Long, “*Democratizing*” *Globalization: Practicing the Policies of Cultural Inclusion*, 10 *Cardozo J. Int'l & Comp. L.* 217 (2002). The writer examines the “disintegratory trends of regionalism and indigenization which have developed in response to the integratory processes of globalization [and IPR harmonization]”, and argues for the democratization of the harmonization process in the globalization trend.

⁶⁶ *Chander and Sunder* 1354-1372 (examining the attempts at “reorder[ing] the exploitation of the commons”).

⁶⁷ See Michael W. Carroll, *The Struggle for Music Copyright*, 57 *Fla. L. Rev.* 907 (2005); Deborah Tussey, *Music at the Edge of Chaos: A Complex Systems Perspective on File Sharing*, 37 *Loy. U. Chi. L.J.* 147 (2005); and Olufunmilayo B. Arewa, *From J.C. Bach to Hip Hop: Musical Borrowing, Copyright and Cultural Context*, 84 *N.C.L. Rev.* 547 (2006). See also, Yu (*Copyright Divide*) at 374-401, 401-437.

1. The emergence of many different formats and advances in audio compression technology (MP3, MP4, etc.)
2. Time/Space/Format-shifting, ease of transfer (P2P), duplication and cross-transposition through mediums and devices (storage and playing)
3. Versatility in the use of samples, hooks, etc. – by its nature music lends itself to adaptations and re-use, and this effect is even more pronounced in modern hip hop and electronic music.
4. Music is also unique in that the pleasure derived from its use and re-use does not diminish or diminishes very little despite the number of times it is used or re-used (this pleasure can in fact increase or be revived through adaptation/remixing)
5. Same or similar music can even enhance interest symbiotically (e.g. original versions, sampled songs, remixes, etc.) thus contributing to reputation and profit
6. Music is the medium that is transacted most frequently in file sharing networks, and in this sense there is an established practice among users of sharing music files freely

In contrast, other works are different. For example, written works are more one-dimensional, they are still preferred in tangible form, often allow for single use before steep diminishing returns and it is still a strong social taboo to plagiarize. There is hence greater support for protection of author's rights, both commercial and moral. Video/movies are also more single-use in nature before seeing a steep drop in returns and sampling can only make sense in the form of short clips, modified or otherwise, used for reporting, criticisms and review and commentary, parody, satire, etc. Hence the profitability of the 'first cut' is very important commercially for these forms of works.

ii. Adjustments to the Scope of Copyright Protection in the Digital Context

Copyright law is not set in stone. We already see it undergoing constant amendments in both the international and domestic context. The current regime can be fine-tuned in a continuing effort to achieve as fair a balance as possible between all interest parties to creative works.

Currently, the exclusive rights over an original work that is reserved to the copyright holder include the right to reproduce, publish, perform, communicate and adapt the work for a specific period of time.⁶⁸ The right can be assigned at the owner's prerogative in whole or in part and the presumption in the past has been that it will mostly be done for profit.

Adoption of a CC license alone relinquishes the copyright holder's monopoly over the reproduction and distribution of the work concerned. The exercise of showing the popularity of CC licenses evidences the fact that there is a significant number of creators that do not want or need to reserve ownership or all rights over their work in order to maximize commercial value, whatever their motivations may be. The fact that the Non-Commercial (NC) constraint still applies to many CC licenses, however, does show that the element of fairness and a certain degree of profit interest remains. This proposition is further supported by the creation and use of the Share-Alike (SA) function. The advent of the user-creator and the rise of a collective consciousness are other compelling factors that support reducing the scope of protection.

⁶⁸ Generally, under IPR, copyright law consists of five basic protected exclusive rights the violation of which constitutes copyright infringement (see e.g. 17 U.S.C. 106). They are the right to:

- Reproduce the work in copies;
- Prepare derivative works based upon the work;
- Distribute copies of the work to the public (e.g. by sale or other transfer of ownership, or by rental, lease, or lending);
- Publicly perform the work (in the case of literary, musical, dramatic, choreographic works, pantomimes, and motion pictures and other audiovisual works);
- Publicly display the work (in the case of literary, musical, dramatic, choreographic works, pantomimes, and pictorial, graphic, or sculptural works, still images and other audiovisual work).

Certain works consist of multiple copyrights (e.g. musical works can contain copyrightable content in their composition, recording and lyrics, where applicable).

The next question then is: How should the scope of protection be reduced (method) and to what extent (degree)? The following are some suggestions on the approach to the issue (in diminishing order of 'radicalism'). They are offered in the alternative or may be adopted cumulatively (if complementary):

a. When, How and to Whom Protection is Extended

This approach challenges the notion that the optimal/ideal default should be automatic protection with an 'opt-out' approach. For instance, we can redefine the nature and scope of copyright protection such as by offering protection (or extended protection in time) only by registration (the 'opt-in' approach that already exists for trademark and patent protection).

Perhaps there should also be more pre-requisites for opting in such as making it a precondition to show or prove originality and tangible expression (including in digital form) or to explain the reason for requiring protection (e.g. commercial exploitation, to protect moral rights, etc.). The more onerous the requirements, the more difficult it would be to register. The effect is that works are freely available for society's benefit (across jurisdictions), unless otherwise reserved. This also removes the deterrent effect that a default protection may have on use and re-use (reticence due to uncertainty).

b. Commerciality as an Element of Protection or Infringement

Since the foundation of modern IPR (including copyright laws and policy) is the protection of commercial value, ostensibly to promote creativity,⁶⁹ if it is shown that that connection is not as strong as before (or as it was assumed), the commerciality element may be the key for change.

Even in the use of CC licenses, commerciality is a prominent feature in the release of works for copying and distribution. This already gives a strong incentive for commerciality to be made a factor for protection or to establish infringement. This can be done, perhaps, by redefining the limits of protection such as through the expansion of non-commercial infringement exemptions (e.g. experimental exemption) beyond featuring it as just a factor (albeit an important one) in determining the fair use exception (provided that the domestic exception is in fact a broad one rather than a purpose-specific one).⁷⁰

An alternative approach will be to redefine infringement to remove non-commercial uses. For instance, the doctrine of profit-making purpose can be used to exempt end-users from criminal and/or civil liabilities (where applicable),⁷¹ or to distinguish between liabilities (i.e. different degrees of infringement with commercial infringement being of higher culpability). Currently, there are primary and secondary liability for infringement, defined as exercising the rights or encouraging/facilitating/authorizing/etc. (as the case may be) any of the rights that are exclusive to the copyright holder (see, e.g. 7 U.S.C. 501; section 31 Singapore Copyright Act). It should be noted that there are also in existence other forms of infringement, in the context of the physical world, which feature commerciality as an element of the offence (but not solely, see 7 U.S.C. 501; sections 32-33 of the Singapore Copyright Act on "distribution" and "prejudice"). The approach will

⁶⁹ The main motivation for the recent extension of copyright protection through time and space is monetary benefits.

⁷⁰ In some jurisdictions fair use is defined with respect to particular purposes, e.g., academic/educational, etc.

⁷¹ See Wei Yanliang and Feng Xiaoqing, *Comments on Cyber Copyright Disputes in the People's Republic of China: Maintaining the Status Quo While Expanding the Doctrine of Profit-Making Purposes*, 7 Marq. Intell. Prop. L. Rev. 149, 150-151 and 185-198 (2003), available at: <http://law.marquette.edu/ip/Yanliang.pdf>. The doctrine was noted to have been accepted in the 1997 Criminal Code of China although civil rules could still provide a platform for legal action against such individuals. The authors advocated the expansion of the doctrine to Internet transactions. They argue from the perspective of protecting Chinese interests in the light of foreign pressures to conform to their notions and versions of copyright protection.

depend on how significant the loss of commercial advantage is as compared to the importance of permitting as extensive a use or benefit of a work to society as possible.⁷²

In any event, the approach taken on the consequences and enforcement of infringement should also be revisited. The increase in civil liability and the introduction of criminal penalties serve to stigmatize and deter acts (e.g. 17 U.S.C. 506), some of which the actors do not consider morally wrong. The offence and punishment should reflect and be proportionate to the 'wrongness' of the act as defined by societal norms.

c. Clearly Defining User Freedoms

In the context of the Internet we already see concessions and adaptations made to the digital era under copyright law, particularly in relation to the release of personal copying and distribution rights. There are provisions made on duplication of digital works, in particular information, such as over the Internet in updated copyright laws of many countries in order to reconcile copyright protection with modern forms of electronic interaction. Hence, copying as a function of the Internet is customarily, and legally where statutorily provided, not considered an infringement. In fact, it may also be argued that placing something on the Web without any qualifications or measures of protection implies a general relinquishment of exclusive rights to copying and distribution (perhaps within reasonable limits, such as copying or distribution that are in the same nature as the original source, similar to the share-alike principle and Copyleft licenses (e.g. non-commercial, if the source rendered it for free)).

There should be international harmonization and statutory enactment of clear user exceptions in other cases, particularly dealing with paid products/services, whether digital or otherwise, in such a manner that the transfer of a creative work should be done with the same rights whatever the 'packaging' or lack thereof (i.e. whether in tangible form or digital). They include:

1. Clarifying user freedom to time- and format/space-shift (such as recording a television program to watch at another time, to rip music from a Compact Disc to a computer digital player and to transfer songs between devices).
2. Removing the confusing distinctions between licenses of such works, such as disparate End-User License Agreements (EULAs), perhaps through the regulation and standardization of licenses to reduce proliferation of license permutations/variations for use of digital songs which are subject to varying degrees and types of, and sometimes unreasonable, restrictions and that are also different from the rights attached to music sold in tangible form such as on Compact Discs, including the first sale doctrine (or exhaustion of rights), back-up copying, personal use copying, etc.
3. Specifying freedoms for *user-creators* re-using for non-commercial purposes (which introduces an automatic share-alike function as the same freedoms will apply to similar subsequent re-uses).

d. Expanding Cultural Freedom

The results in this paper show that authors are generally keen to allow for the creation of derivative works, except for some cases where authors are very protective of their content. We have argued that this form of user-motivated protectionism, when it does occur, surprisingly more so for non-commercial derivatives, is irrational, as non-commercial derivation has only indirect and marginal, if any, negative consequences on the author's utility.⁷³

As the act of derivation is central to the Internet age and digital media culture, non-commercial derivatives should be considered for carving out from protection as the current reliance on fair

⁷² This is because the loss of profit may not be tied to commercial use by others, hence free distribution and sharing can and do affect commerciality of a product. So the change to be considered will depend on whose interest is more important.

⁷³ Moral rights-related concerns, i.e. an author's desire to protect the work from misuse, may be a factor why some authors choose to forbid derivation.

use or dealing and specific factor analysis or purpose-specific exemptions may not be sufficient. The suggestions for freedom to adapt can include the following (in decreasing order of severity):

1. Completely remove adaptation from protection.
2. Expand exemptions for adaptations. For example, (a) regarding the use of samples in accordance with acceptable sampling practices; or (b) by exempting non-commercial adaptations for creative re-use such as art, commentary, parody and satire; or (c) by applying the exemption narrowly for specific works, such as for musical works or film clips (although non-substantial use of either can still constitute fair use and is thus not considered infringement).

iii. License Development: Usefulness for CC License Evaluation

Statistics are useful for CC license creation or adaptation as they form a basis for the improvement of existing license permutations and also for the introduction of new forms of licenses (which have to be weighed against the disadvantages of license proliferation). The different versions of CC licenses available today are the direct outcome of improvements sought after the study of license usage and selection. For example, attribution is not even made an option any more, as it was determined that the number of people not selecting it is insignificant. It is hoped that this study will contribute to the data that will help CC license creators of generic and country-specific licenses in the drafting of future licenses, both in relation to type and version.

One interesting facet of license choice that our analysis has revealed pertains to the authors' choice of No-Derivatives (ND) licenses. We notice that by-nc-nd is much more popular than by-nd, even if it is the case that allowing non-commercial derivatives introduces much less of a disadvantage (if any) to the author. It is conceivable that some of the authors who select by-nc-nd would prefer a license permitting commercial copying and distribution but forbidding commercial derivation. These would be authors who expect royalty fees for use in derivative works to be their main source of compensation for the work. They would have an incentive to let third parties promote the work, even commercially, so that the work spreads as much as possible, with the expectation of getting compensated in the future by licensing the work for use in advertising and other profit-oriented activities.

Similarly (although perhaps less likely), some authors may want to maintain exclusive rights to commercial copying and distribution, while allowing for commercial derivatives. These authors would presumably be motivated by a desire or expectation to profit from the distribution of their work and an additional wish to promote creative re-use in all its forms. Allowing third parties to freely create commercial derivatives of one's work can in theory be very beneficial for the original author as it increases third party incentives to improve upon the work and promote the derivative product, so that the author's sales of the original work may also benefit from the success of the derivatives. Imposing the NC constraint on derivatives will likely discourage many from attempting to re-use the work with the expectation of an uncertain commercial gain. Large music labels and movie studios will be able to take that risk, but peer producers with limited funds will be less motivated to do so.

The way the licenses are currently structured, the NC clause applies both to copying/distribution and to derivation. Partially decoupling the two, so that an author may choose an NC constraint for either or both would provide much more flexibility for the users of CC licenses and only introduce two additional licenses: one permitting non-commercial distribution only *but* both commercial and non-commercial derivation and one permitting commercial and non-commercial distribution *but* only non-commercial derivatives⁷⁴. We would in any case recommend conducting a user survey to collect feedback from the community before introducing such changes. It is up to the community to evaluate whether the introduction of one or two new license types is justified effort for the

⁷⁴ Some amendments may be required in the NC clause of CC-licenses to make it consistent with this new, more flexible licensing

benefit of decoupling commerciality constraints on sharing/distribution and derivatives. Adding new license types might also require renaming the rest of the licenses in the CC framework.

Even without the introduction of these new licenses, we believe that renaming the currently supported license types can improve clarity (although one argument against doing so would be that authors are already used to the current nomenclature and introducing a new notation may cause some confusion). CC licenses are meant to be used not only by the professional but also by the ordinary person who should be able to make a sound licensing decision without legal advice. This is why 'deeds', simplified descriptions of the licenses, have been introduced for each license type and each license has been named in way that is meant to be self-descriptive. Unfortunately the current names of the licenses do not convey as much information as they could.

For example, the most liberal license is named 'by', because it contains only one constraint: 'by attribution'. But arguably far more important than this one constraint are the freedoms that this license makes possible, and these are not reflected in the current naming scheme. Similar arguments can be constructed for the other licenses. In our study of CC license usage so far we have encountered a few cases of misinterpretation of the licenses by users, so having meaningful names for the licenses is of great importance and also a matter of responsibility towards the users of CC who should be fully aware of the freedoms and constraints associated with each license type before they elect to use it for their work.

Implications for free culture movement

The global spread of CC licenses, across jurisdictions with very different sociopolitical makeup and economic backgrounds, is encouraging evidence for the global appeal of the promotion and protection of a 'free culture'. Nevertheless, to dispel some myths on the motivations behind CC licensing, we have discussed how the motives of CC adopters may not always be altruistic/ideological after all, and sometimes may not be consistent with the ideals of 'free culture'. It appears that many authors are still driven, at least partially, by profit or by expectations of future rewards, whereas in countries with very lax enforcement of copyright law some authors may be using the licenses as a means of asserting more control over their works rather than relinquishing some of it. These motivations should be recognized and accepted as factors which likely influence (we do not know exactly to what extent) the mindset of CC adopters.

A large share of CC's broad appeal is probably due to the very fact that CC provides tools and options to a set of authors who are very diverse not only in their use of different media types, but also in their attitudes and values in relation to their creations, instead of having a prescribed set of rules determining what is or is not an appropriate approach to the treatment of their works. However, CC licenses do appear to have strong supporters within more critical (and sometimes more radicalized) parts of the global information society which tend to be more outspoken opponents of the current copyright regime or even of notions of intellectual property in general, either because of their ideological conviction, such as a firm belief that information and cultural production should be free for all, or because they live in developing regions of the world where economic limitations naturally lead to a higher reliance on communal/peer-based forms of production. This avant-garde of volunteers, activists and outspoken copyright critics perpetrating the notion of a 'social commons', as Ronaldo Lemos puts it,⁷⁵ is critical to the promotion and success of CC, as their support for CC is strongly intrinsically motivated and to the best of our knowledge they are usually among the early and most enthusiastic adopters in any jurisdiction.

CC will therefore have to continue on a path of striking a balance between offering tools and options for a broad population of authors and catering to the sensitivities of some of its most passionate supporters who may be more radical in their thinking and approach than many of the authors adopting the licenses. Failing to maintain this balance will result in either the gradual mar-

⁷⁵ In Ronaldo Lemos, *From Legal Commons to Social Commons: Brazil and the Cultural Industry in the 21st Century*, Centre for Brazilian Studies, University of Oxford (Working Paper).

ginalization through radicalization of the movement or, on the other extreme, the loss of a significant part of the movement's core supporters. This is because CC may be politically moderate or even somewhat 'apolitical' at its core (Lawrence Lessig sometimes refers to the Creative Commons as "a set of tools"), but is supported by and dependent on a much broader social and political movement which in many ways is a movement for social change. The CC agenda can play an important role in reconciling the more extreme positions currently taken by proponents and opponents of the existing copyright framework (e.g. the industry lobbyists and the Free Software movement respectively), and thus offer realistic solutions such as the voluntary use of its licenses (in the short term) and perhaps as the catalyst for copyright law and policy reform (in the longer term).

Acknowledgements

We thank Mike Liknsvayer, the participants of the 2007 iCommons Summit, Narayan Ramasubbu, and Desai Narasimhalu for their helpful inputs and comments. This work is supported by SMU Research Grant 06-C220-SMU-007.