

# **The Economics of Open Source Hijacking and Declining Quality of Digital Information Resources: A Case for Copyleft**

by

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This version: 29 April 2004

## **ABSTRACT**

The economics of information goods suggest the need for institutional intervention to address the problem of revenue extraction from investments in resources characterized by high fixed costs of production and low marginal costs of reproduction and distribution. Solutions to the appropriation issue, such as copyright, are supposed to guarantee an incentive for innovative activities at the price of few vices marring their rationale. In the case of digital information resources, apart from conventional inefficiencies, copyright shows an extra vice since it might be used perversely as a tool to hijack and privatise collectively provided open source and open content knowledge assemblages. Whilst the impact of hijacking on open source software development may be uncertain or uneven, some risks are clear in the case of open content works. The paper presents some evidence of malicious effects of hijacking in the Internet search market by discussing the case of The Open Directory Project. Furthermore, it calls for a wider use of novel institutional remedies such as copyleft and Creative Commons licensing, built upon the paradigm of copyright customisation.

**Keywords:** Economics of information and knowledge, intellectual property rights, copyright, copyleft, public domain, open source, open content, hijacking, customisation, Creative Commons, DMOZ, search engine, directory.

**JEL Classification:** H4, K39, L15, L86, O31, O34

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## 1. Introduction and Summary

Digital information resources, expressing ideas, such as creative works, education and scholarly materials, databases and software, are notoriously characterised by massive fixed costs of original production and low marginal costs of reproduction and distribution. As a consequence, the extraction of economic benefits from these goods is tricky and special institutional devices are needed to address the issue and encourage innovation. Awarding private ownership rights in order to allow commercial exploitation is a solution.

While intellectual property right institutions, such as copyright, contribute to the solution of the problem of appropriation of rents, they are marred by few vices such as the monopoly deadweight, as well as inefficiencies regarding cumulative innovation, standardisation and modular development (David, 2000).

I argue that the digital age, in which those who arrange bits in certain order then own the arrangement<sup>1</sup>, calls for an extra vice to be added to the list accompanying copyright. This is the possibility of using copyright maliciously to subtract other people's works from the public domain. This practice is known as hijacking and when undertaken, the very rationale behind copyright protection is abused.

Having spotted this extra weakness, far from considering obsolete the institution of copyright and its justification, I maintain that a degree of flexibility in its design and application would be beneficial in cases in which the social risks of hijacking are unquestionable. Hijacking may show up in different forms, from direct appropriation of content or code, to creation of a proprietary complementary product built upon a public domain work, whose potential developments result in being constrained (e.g. a proprietary application designed for an open source programme).

Moreover, hijacking is not alone but has an accomplice in the plot to privatise scientific information and data that is the general regulatory trend towards extension of IPR protection<sup>2</sup>.

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<sup>1</sup> For instance, with respect to the European regulative framework, the European Commission's Directive on the legal protection of databases (issued 11 March 1996) prohibits copying of a substantial part of a digital content arrangement, regardless of the fact that the originality of arrangement is also copied. This provision, in fact, removes the distinction between protection of ideas and their expressions. Directive available at: <http://europa.eu.int/ISPO/infosoc/legreg/docs/969ec.html> (last accessed 9 April 2004).

<sup>2</sup> This is a related, very important issue which is not discussed in depth in this paper. For an insightful analysis of the international extension of IPR regulation, the advances in self-help protection technologies and their consequences, see David (2003) and Aigrain (2003).

The second paragraph of this paper recalls briefly the peculiar economics of information goods, the problem of appropriation as well as the classical solutions applied to it. It is emphasised that nowadays, hijacking carried out by certain commercial firms may possibly add onto the list of vices marring the scheme of exclusive property rights granted, in order to foster creative productions.

The third paragraph deals with a particular case of actual hijacking that, even though does not generate noisy complaints, is representative of the risks associated with proprietary appropriation of a collective good. The discussed case is that of The Open Directory Project, a pure public good exploited by commercial search engines and directories which incorporate its data in information arrangements whose quality appear, given the market dynamics, more and more dubious.

The fourth paragraph discusses the emergence of new institutions, such as copyleft and think tank or “customisation agencies” (e.g. Creative Commons), capable of exorcising the problem.

Paragraph 5 concludes.

## **2. The Economic Nature of Digital Information Resources: Virtues and Risks of Appropriation Institutions**

Information as a transferable flow of facts and details, communicating concepts or ideas, constitutes an economic good that shows peculiar characteristics.

Information resources share with conventional public goods the properties of non-rivalry, non-excludability and high fixed costs of original production. Non-rivalry means that the amount of good available for consumption does not vary with the number of consumers drawing upon its stock. Non-excludability means that, given the low marginal cost of reproduction and distribution of a public good, it turns out to be tricky to charge a price for every taker. Massive fixed costs of original production imply the unsustainability of a competitive market for this kind of goods.

Apart from these features, information is an experience good whose distribution is asymmetric. Assigning a value to an experience good is troublesome before having consumed it.

A bottle of wine is a typical experience good. Information experience goods such as newspapers, far from being necessarily mellifluous, are characterized by novelty each time

they are consumed (Shapiro and Varian, 1999). Moreover, being asymmetrically distributed, it is not known when a piece of knowledge will be available in codified form (David, 2003).

Another unique feature of information resources is that knowledge, defined as a mix of information and other facts and details more difficult to codify and readily transfer (Polanyi, 1966; Cowan et al., 2000) which constitute cognitive human capabilities, is cumulative and interactive in a way in which advances in state of the art build upon previous findings in unpredictable manners.

The foregoing features render public goods in general and information resources in particular, susceptible to free riding and predisposed to being underprovided.

Public subsidies to firms engaging in certain productions, direct public provision and regulated monopoly are classical solutions for the conventional public good problem.

Analogously, there are three main remedies for the problem of information appropriation. Sometimes recalled as “the three P’s” (David, 2000), these are: *Patronage* that is awarding publicly funded grants based upon the submission of research proposals; *procurement* that is governmental provision or contracting for intellectual work and finally *property*. The last solution consists of the concession of exclusive property rights to new knowledge creators.

Regarding the legal institution meant to solve the problem of appropriation of digital expression of ideas through concession of exclusive rights, namely copyright, some vices emerge to counterbalance the main advantage, say the incentive to innovation. The deadweight of monopoly and the network inefficiencies regarding standardization and modular development are among the main defects. The deadweight of monopoly implies that an information good available for a price higher than its marginal cost cannot be afforded and hence consumed by everyone even though additional supply practically does not cost anything. Inefficiencies with respect to standardization and modularity concern especially software products and indicate that exclusive property rights may oblige agents to pursue alternative, non infringing innovation paths, with consequent proliferation of products and units characterized by incompatibility and technical inseparability.

Apart from these, there is the possibility to wickedly make the most of the appropriation institution and privatise public domain information resources.

This sort of predatory action is known as hijacking, implying taking control and possession of other’s freely accessible works without leaving, in this case, any hope of deliverance.

When an information resource is collectively provided and placed in the public domain, hijacking sounds even more censurable and in theory resembles a real theft.

But what can be the actual economic and social downfalls, if any, of this strategy? After all, we live in a world where *homo homini lupus est* (Plautus, 254-186 B.C.; Hobbes, 1641) and predatory actions are part of the competitive game, nourishing the Smithsonian *invisible hand*. Some reasons why it is argued here that hijacking is undesirable, reside in what will be discussed later on in the paper.

In a way it is paradoxical that the goods most susceptible to being hijacked, say *libre* software and open content works, are the very ones fuelled by a set of diverse motivations (e.g. Lerner and Tirole, 2000; von Hippel and von Krogh, 2003; Mateos Garcia and Steinmueller, 2003a) that render free-riding less relevant or even desirable for their development (Gosh, 1998; Raymond, 1999; Weber, 2000). In other words, in their case, the positive externality, generated by increasing the size of the network outweighs the value of exclusivity as a reason to avoid free-riding (Ciffolilli, 2003).

Free-riding of information does not imply depletion; hijacking is different since it means taking possession of and fencing otherwise freely accessible resources. Hence, hijacking translates in exhaustion with respect to all the individuals and bodies orphaned by the new unwarranted access barrier.

Although open source software endeavours can be definitely hijacked, there is no agreement on the fact that this necessarily constitutes a damaging circumstance. The diffused and rational worry is that the proprietary strategy to copyright a collective produced public good may “hold up” developers that lose the ability to customise a project to their needs (Lerner and Tirole, 2003). However, some commentators and project participants disagree and stress that hijacking is not likely to happen often and, when it does, it bears desirable spillovers (Reese and Stenberg, 2001). The latter claim is based on the belief that hijacking can only be avoided by using copyleft<sup>3</sup>, but the highly restrictive nature of this kind of license may also hinder the development prospects of a project. The rationale behind this claim goes as follows.

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<sup>3</sup> The characteristics of these licenses are discussed in paragraph 4.

While it is true that copyleft was originally designed by Richard Stallman<sup>4</sup> to prevent predatory and anti-cooperative behaviours leading to appropriation of public domain works, it is also a fact that commercial firms planning to exploit open source endeavours must face costs and barriers that make the actual encroachment difficult. In other words, it is not guaranteed that the savings in development and maintenance costs associated with an in-house product as well as other benefits of hijacking will exceed its costs.

In the case of software for instance, the costs and difficulties arising from the search for a useful product, the validation of the found object, its integration, assessment and maintenance may indeed make hijacking a non-profitable option for private firms. On the basis of similar claims, some copyleft opponents argue that there is little evidence of commercial exploitation in the real world and when it happens, consequences can even be positive for virtual communities (Reese and Stenberg, op. cit.)<sup>5</sup>.

If the foregoing considerations are definitely important for software, it may be claimed that in the case of open assemblages, characterized by complementary dependency (Mateos Garcia and Steinmueller, 2003b) and lower costs of exploitation, the argument seems somewhat more dubious.

Thus, even if the general frequency of hijacking as well as its effects on software development are debateable, I would dare to argue that, in the case of certain open content works, hijacking might clearly reveal itself as a real threat with iniquitous consequences. Indeed, when endeavours aiming to contribute to public domain knowledge assemblages are appropriated, outcomes may be spoiled, with possible negative consequences on the spontaneous provision of a public good. The case of The Open Directory Project aims to illustrate this idea.

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<sup>4</sup> For a biography of R. Stallman and a history of copyleft see for example Wikipedia, the free encyclopaedia, at: [http://en.wikipedia.org/wiki/Richard\\_Stallman](http://en.wikipedia.org/wiki/Richard_Stallman), text available under the terms of the GNU Free Documentation License:

[http://en.wikipedia.org/wiki/Wikipedia:Text\\_of\\_the\\_GNU\\_Free\\_Documentation\\_License](http://en.wikipedia.org/wiki/Wikipedia:Text_of_the_GNU_Free_Documentation_License) (last accessed 9 April 2004).

<sup>5</sup> Actually, Reese and Stenberg (op. cit.), two software developers that first used copyleft and then turned away from it because of its limitations, revealed that they have never been interested in making money off their “hijacked” projects, and therefore, did not suffer from free-riding. On the contrary, learning has been their main goal and achievement. Moreover, they emphasize that, when they changed the license of their software to be compatible with the GNU GPL, they did not receive any contribution from the open source people who had requested this change. Instead, contributions were received from commercial corporations, since the license adopted by the two developers allowed making changes at one’s discretion. Clearly, open source contributors may be moved by a variety of motivations from learning to signalling, to inherent communitarianism etc., therefore, the evidence given by Reese and Stenberg is only part of the story.

### 3. Hijacking in Cyberspace: The Case of the Open Directory Project

The Open Directory Project or DMOZ (i.e. Directory Mozilla) is a human edited web directory<sup>6</sup> constructed and maintained by a vast, global community of volunteer editors. It currently comprises over 4.5 million sites, 63,333 editors and more than 590,000 categories<sup>7</sup>.

DMOZ was founded in the spirit of the open source/free software movement and is totally free. There is no cost either to submit a site to the directory or to use its data.

The ultimate vision of DMOZ is to build a definitive catalogue of the Web, therefore providing the means for the Internet to organize itself. At the roots of this ambition is the possibility to exploit *Linux's Law* economies that can be interpreted here as: The more people there are editing the directory, the greater its comprehensiveness becomes and the higher its value in discriminating between the useless and the best web content.

Anybody can sign up and contribute to DMOZ by choosing a category of interest and applying. The project is also characterized by a system of distributed authority (Mateos Garcia and Steinmueller, 2003a) since after editors have gained experience with a specialized subject, they can move up in the hierarchy and edit more general categories. The copyright of the catalogue is owned by Netscape Communications Corporation. The directory is made available to the public under the terms of the Open Directory License, a non-exclusive license that allows free use and download of DMOZ content as long as recognition is given to Netscape<sup>8</sup>.

The Open Directory Project was born mainly in response to the problem of long delays with which the well known directory Yahoo! processes applications and lists websites. Its current dimension and relative success notwithstanding, DMOZ hardly joins the list of the most popular Internet search sites (see Figure 1). This might be due in part to technical troubles<sup>9</sup> thought to plague the directory (Olsen and Hu, 2003), in part to the fact that DMOZ did not actually manage to solve the delay problems affecting commercial players.

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<sup>6</sup> A directory is a web catalogue resembling the table of contents of a book. It is characterized by a specific structure and edited by individuals (e.g. surfers). Differently, a search engine does not have a contents outline and is not human edited but uses an automatic programme to crawl cyberspace in search for keywords or keyword lists defined by webmasters.

<sup>7</sup> See: [www.dmoz.org/about.html](http://www.dmoz.org/about.html) (last accessed 9 April 2004).

<sup>8</sup> The Open Directory License is therefore an attribution license, not a copyleft provision. See: <http://dmoz.org/license.html> (last accessed 10 April 2004).

<sup>9</sup> For example, hardware failures over the 2002 winter holidays caused the directory to be out of commission for several months.

In this respect, congestion costs play an important role. Indeed, some editors<sup>10</sup> observe that fifty percent of the sites submitted for review are spam links. The huge backlog from bad submissions has led to a delay in the process of site reviewing of up to two years.

Moreover, the very vision of building a definitive catalogue of the web appears intrinsically somewhat problematic. In the case of knowledge assemblages characterized by complementary dependence, such as DMOZ, subjective value judgements are heavily involved in the process of submission of contributions and there are problems of agreement in both the directory structure and listing policy.

Despite these downfalls, the Open Directory Project database constitutes a massive and valuable resource, regularly exploited by commercial search engines and directories<sup>11</sup>. Google and AOL (which owns Netscape) are usual “shoppers” and even Yahoo! uses DMOZ data to enhance its relevant search results<sup>12</sup>. All this would not be a big deal, if the search engines market was not going through quick and important changes which are going to be discussed in what follows.

In general, web directories are dropping behind search engines. The latter automatically crawls the Internet and records the sites found on the basis of a certain search algorithm that, at first glance, seems to guarantee better results, either in terms of the reach or the quality of the searched information.

The number of search engines has reduced substantially over the last few years, probably to an extent as a consequence of the New Economy crisis that opened the millennium. In general, there is less advertising money keeping them afloat (Vaughan, 2003). For instance, Open Text started in 1995 and terminated its web search services in 1997; both Magellan and Infoseek, born in 1995, closed in early 2001; Snap ended its internal search technology in 2001, after four years of activity; Direct Hit was born in 1998 and deceased in 2002. Some very popular engines such as WebCrawler, Lycos, Excite and HotBot started outsourcing search technology (Sullivan, 2003). Some others, such as AltaVista, have been acquired and even if they did not disappear completely, they eventually lost their appeal or, better still, their market share.

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<sup>10</sup> The problem is directly addressed by DMOZ volunteer editor Elisabeth Osmeloski, in Olsen and Hu (op. cit.).

<sup>11</sup> For a list of the sites using DMOZ data, see: [http://dmoz.org/Computers/Internet/Searching/Directories/Open\\_Directory\\_Project/Sites\\_Using\\_ODP\\_Data/](http://dmoz.org/Computers/Internet/Searching/Directories/Open_Directory_Project/Sites_Using_ODP_Data/) (last accessed 13 April 2004).

<sup>12</sup> See Overture (owned by Yahoo!) website: <http://www.content.overture.com/d/USm/ps/wspi.jhtml> (last accessed 12 April 2004).

Search engines are characterized by some technical flaws affecting the quality of information retrieval. First of all, the existence of tricks<sup>13</sup> not always allowing search classification procedures to discriminate between a catalogue of quality and a collection of rubbish.

Secondly, a problem of reduced quality may arise naturally from the automatic search algorithm itself. In Google, for example, PageRank, assumes that the most relevant pages are those that attract the greatest number of links. Accordingly, the top results of a search are often online shops (if the searched item can be sold) and, as stressed by Johnson (2003), the reason is probably twofold. It lies either in the fact that, when a product is mentioned on the web, a link to an online-shop is also conventionally inserted, or that there are some sites engaged in tracking prices and online availability of items, creating a great deal of links to stores in the database of search engines. A further problem is so-called “googlewashing”, a phenomenon that happens when a group of prolific linkers can drive the online identification with a certain word. For instance, the search for the word “apache” on Google, produces 20,700,000 results<sup>14</sup>. Most of them are related to the Apache open source web-server. Some results link to websites of organisations whose names contain the word apache.

Where are our American Indian friends then? Is it possible that nobody would be interested in their history? Actually, we must wait for the third page of results to obtain some information we have been looking for, as well as some war news concerning the deadly helicopter called, alas, Apache. The point is that pages dealing with the Apache web-server gather a high concentration of links, simply because the majority of very active Internet users, as well as bloggers, are more interested in the web-server than the American Indian tribe. There might be a great deal of pages dealing with tribes, and swarms of interested surfers seeking them, but none of those pages would ever generate the same amount of hypertext links that only one major Apache web-server portal is able to gather.

Even if the existence of these flaws is unquestionable, at the same time it cannot be denied that a wise use of search techniques makes it possible overcoming most biases. The case of apache is deliberately an exaggeration since it is enough to use the keyword “tribe” in conjunction with apache, for example, in order to retrieve relevant outcomes.

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<sup>13</sup> Some of these tricks are described in Vaughan (op. cit.). For instance, the possibility of embedding the word Republican either in the HTML code, using the background colour, or in the keyword list of a Democratic website resembles a particularly funny case of diverting searchers towards a specific and hated destination.

<sup>14</sup> See: <http://www.google.com/search?hl=en&ie=ISO-8859-1&q=apache> (last accessed 13 April 2004).

A possibly related but much more relevant problem is that free and paid rankings started to be mixed together without the user's awareness and this appears to be likely to become the trend after the latest developments in the market.

In July 2003, Yahoo! launched a 1,6 billion dollar operation to acquire Overture and render it a controlled society. Overture is a leader in the market of paid rankings: The results of a search on Overture are listed according to the money paid by the owners of the interested sites rather than on the basis of different criteria such as relevance with respect to the particular search that has been carried out<sup>15</sup>.

With this acquisition and the development of its own search technology<sup>16</sup>, Yahoo! clearly intend to pursue the ambition of displacing Google's leadership in the search engine market. This is a development that would still have been incredible a few months ago, considering that Yahoo! played a crucial role in the growth of Google, having adopted it as an official search engine on its website since October 2002.

On the other hand, Google had previously entered the market of paid search<sup>17</sup> and Overture fought back by acquiring AltaVista and AllTheWeb with the purpose of undermining Google's leadership in the field of free search.

Before these recent developments, both Google and Yahoo! had already begun selling "real estate" to online stores, a strategy already pursued in the past by Lycos and Infoseek. Yahoo! started in 1999 to require fees from websites in order to retain their listings. Later, Google inaugurated its sponsored links. Negative consequences for information reliability are indisputable, especially for those who use search engines for education and research purposes.

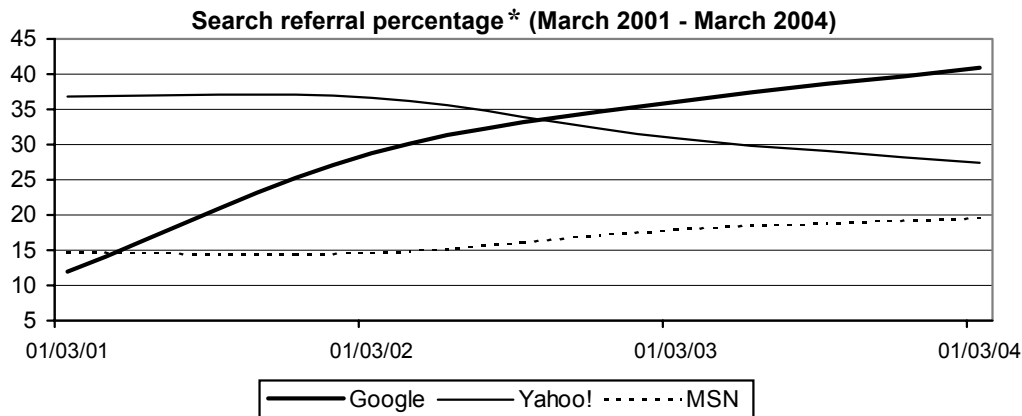
Now, the latest move of Yahoo! (i.e. the acquisition of Overture) outlines a new scenario, characterized by an extremely concentrated market and the contraposition of a few big actors competing in both free and paid searches. Figure 1 provides a snapshot of the Internet search market.

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<sup>15</sup> <http://www.content.overture.com/d/advertisers/p/bjump/?o=UCJ&b=10&AID=9442328&PID=1466800> (last accessed 14 April 2004).

<sup>16</sup> Yahoo! also developed a new algorithm for ranking websites, Web Rank, that equips its toolbar. Web Rank is covered by a patent allowing the use of a weighted average which combines both content and sales revenue to rank websites in results pages. Sponsors might as well bid in order to alter the weights of the search results.

<sup>17</sup> Paid ranks or sponsored links are listed on any page of Google's search results, on the right side of your screen.

**Figure 1.** Some data on the Internet search market

\*Measures the proportion of visitor traffic a search site sends to other sites on the web.

Search engine	Market share (Aug 2003)	resources used		
		Algorithm	Directory	Paid search
Google	31,5%	own	DMOZ	own
Yahoo!	25,7%	own	own (DMOZ enhanced)	Overture
Time Warner (includes AOL)	19,7%	Google, Inktomi	DMOZ	Google
MSN - Microsoft	17,2%	Inktomi	LookSmart	Overture, LookSmart
Ask Jeeves	2,3%	Teoma	own	Google
Others	3,6%	-	-	-

Sources: WebSideStory<sup>♂</sup>, ComScore qSearch<sup>♀</sup>, Olsen and Hu (op. cit.)

<sup>♂</sup> See: <http://www.websidestory.com>

<sup>♀</sup> See: <http://www.comscore.com/metrix/search.asp>

There is a risk that the distance between paid and relevance driven searches is going to fade and the impression is that, in general, the non-commercial roots of directories are drying up and with them the opportunity to distinguish useful and worthless information. The value of a knowledge assemblage characterized by complementary dependence is reduced by the subtraction of a piece of information. Even if this is not detrimental to the usability of the collection, the systematic incorporation of low quality contributions (e.g. the mix between paid and free search) may render the assemblage useless, in the medium term.

The systematic encroachment of the Open Directory Project data, given the recalled market dynamics and the Open Directory attribution license, does not constitute a piece of cool news. Indeed, the very vision of creating the ultimate catalogue of an over congested web is at risk when information may be blended, according to the monetary weight of sponsors rather than to relevance or coherence with respect to a knowledge outline, and eventually included in a “new” copyrighted digital arrangement. All this is likely to undermine an editorial process trying to fight the commercialisation of search and to preserve the *raison d'être* of a directory as an information source.

It seems important that DMOZ tries to defend its uniqueness and integrity, defending its editors' commitment to the construction of a useful and reliable open resource.

A copyleft, rather than a simple attribution licence might be, in this case, a wiser choice. It does not forbid commercial exploitation, but only shields the coherence of the collectively constructed public good and, for instance in the examined case, avoids the undesirable event in which the exploited genuine information is subtracted, once and for all, from the public domain and mixed together with pay-per-play catalogues.

The circumstance of DMOZ is similar to that of a river whose water is clean in the proximity of the source but then gets polluted along its way to the sea. Providing healthy mineral water to a thirsty market implies bottling nearby the source. Those who draw upon DMOZ database are otherwise delivering information “bottled” near the estuary, where a thriving industrialising town is located.

On one hand, the source may dry up that is, in the long term, contributors are discouraged from participating in the project. On the other hand, if those who control proprietary information assemblages embodying DMOZ data, predominate the search market and its distribution channels, DMOZ resources might eventually become accessible in the sole formats in which their blenders are willing to provide them (e.g. mixture of paid and relevance driven information).

In general, beyond the particular case of DMOZ, endeavours aiming to contribute to public domain knowledge can be appropriated, outcomes may be spoiled, with possible negative consequences on the spontaneous provision of a public good. The studied case allows extrapolating clearly what some of the risk of public digital domain exploitation might be. Remedies are discussed in the next paragraphs.

#### 4. The Promise of New IPR Institutions: Copyleft and “Customisation Agencies”

Copyleft is a novel license provision which, thanks to a creative and wise use of copyright law, seems able to permanently affect the development path of digital knowledge assemblages released under its terms<sup>18</sup>. Indeed, if a work is copylefted, everyone can copy, use and modify it, and then distribute the modified versions without asking the copyright holder for permission, as long as the derivative works are also released under the same license terms. Such characteristic, sometimes derogatively referred to as *viral nature*, assures that a work, a piece of knowledge, or an assemblage whose author/s decided to make it freely available, remains as such, and the same is true for its possible improvements. These licenses represent a new paradigm for the design and interpretation of intellectual property rights. On the market of digital information goods, the new paradigm is competing with the traditional one: Copyright. Both aim to solve a certain set of legal and socio-economic issues, namely the appropriation of economic benefits and the promise of a certain life expectancy to collectively created digital goods.

Copyleft does not preclude commercial exploitation of a piece of work. Complementary services and improvements or modifications of the work itself can be sold but the copylefted content will never<sup>19</sup> be subtracted from the conservancy in which it was placed and raised.

All these mentioned features render this path-breaking legal innovation a restrictive<sup>20</sup> provision (Lerner and Tirole, 2003), not completely free from downfalls (Ciffolilli, 2003b). In general, a high degree of restrictiveness<sup>21</sup> can be smoothed by pursuing further IPR customisation. This can be interpreted as either *ad hoc* design of license provisions or application of dynamic licensing (Bezroukov, 2002). The former case resembles the strategy of Creative Commons, the latter implies designing licenses in a way that their terms change according to the life cycle of an information resource.

The next paragraph briefly describes the case of Creative Commons.

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<sup>18</sup> See for example: <http://www.gnu.org/copyleft/copyleft.html> (last accessed 12 April 2004).

<sup>19</sup> If, of course, copyleft proves to be able to survive the test of a trial in court.

<sup>20</sup> Restrictiveness is intended as the ability to prevent licensees of a copylefted software, for example, from distributing a proprietary modified version of the product without releasing the source code.

<sup>21</sup> A high degree of restrictiveness can be intended as the condition, characterising the GNU General Public License, which prevents open source licensees from mingling copylefted source code with non-copylefted code.

## 5. The Creative Commons Approach: Tailoring a Suitable License

The interesting approach of Creative Commons towards licensing proves how the use of restrictive provisions can be made flexible and hence solves the seeming oxymoron of “flexible copyright”.

This is meant to show that, even if the trade-off between pros and cons of a restrictive licence probably cannot be solved once and for all, the friction among positive and negative effects can definitely be smoothed with an innovative approach to licensing that makes flexibility and customisation its main virtues.

### 5.1. *The vision*

Creative Commons (CC) was founded in 2001 and it is housed at Stanford Law School, from which it receives support and shares staff and premises<sup>22</sup>. The organization is conducted by a pool of cyberspace, “cyberlaw” and intellectual property rights experts. CC makes direct reference to US law, but its intellectual property strategies are, in principle applicable anywhere.

US legislative changes of 1976 (i.e. Copyright Act) and 1988 (i.e. Berne Convention Implementation Act)<sup>23</sup> introduced automatic copyright for creative works. It is often emphasized by many that recent tightening of intellectual property law forces, for example, artists, to ask legal experts to sort out their rights. Borrowing artwork from another may nowadays land the borrower in court. Perhaps, if the current copyright laws had been in effect earlier, whole genres such as collage, hip-hop, and Pop Art might have never existed<sup>24</sup>. Although, that would have been a stroke of luck with respect to some of them, the problem is definitely relevant.

CC supporters believe that without the legal provision of “copyright by default”, many authors would have been willing to choose a different degree of protection for their works. In other words, CC declared itself spokesman of all those people that would either like to

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<sup>22</sup> See: <http://creativecommons.org/learn/aboutus/> (last accessed 13 April 2004).

<sup>23</sup> Copyright Law of the United States of America and related laws contained in title 17 of the United States Code, available at: <http://www.copyright.gov/title17/circ92.pdf> (last accessed 9 April 2004).

<sup>24</sup> See: <http://www.illegal-art.org/index2.html> (last accessed 13 April 2004).

dedicate their creations to the public domain or to exercise some, but not all of their legal intellectual property rights<sup>25</sup>.

CC's main goal is to provide an easy mechanism that allows authors to customize copyright law creatively according to their desires of flexibility. The project's vision makes direct reference to the legal concepts of the public domain, the idea of the commons, the open content and the intellectual property conservancies.<sup>26</sup>

The Public Domain is defined as the body of intellectual endeavours unfettered by law. Innovation and creativity rely on this heritage that turns out to be particularly important in the digital age of collaborative creative activities when, it is notwithstanding threatened and retrenched by the expansion of intellectual property protection. This expansion contributes to the implementation of a commodity transaction model of information creation and distribution which endorses the interests of a certain category of economic agents or a certain constituency, whilst utterly disregards others (Mansell and Steinmueller, 2000).

If the Public Domain can be considered a container, the Commons represent its content of inexhaustible resources, in the case of ideas for example, jointly held and accessible without permission. Open content is the philosophy according to which CC intends to develop its menu of licenses, namely a set of legal provisions that allow anyone to use certain works without any specific permission or royalty payment. The final goal of CC is the manufacture of an intellectual property conservancy, where works of particular public importance are prevented from becoming exclusive ownership and protected from obsolescence.

## **5.2. The licenses' menu**

In December 2002, Creative Commons started its activity with the release of a set of copyright licenses free for public use.

Although CC conductors got inspired openly by the GNU GPL, the organization does not deal with software, but designs licenses for other kinds of creative works such as websites, scholarship, photography, films, literature, music etc.<sup>27</sup>

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<sup>25</sup> See: <http://creativecommons.org/learn/legal/> (last accessed 13 April 2004).

<sup>26</sup> See: <http://creativecommons.org/learn/legal/> (last accessed 14 April 2004).

<sup>27</sup> See: <http://creativecommons.org/learn/aboutus/> (last accessed 13 April 2004).

CC does not provide legal advice, but a web application that allows a copyright holder to choose between several license options<sup>28</sup>. Not all CC license provisions are copyleft, indeed, their menu can be adjusted according to several degrees of restrictiveness. The option that gives a copyleft flavour to a CC license is the “share alike” type. It allows others to distribute derivative works only under a license identical to the original work. Figure 2 summarizes the basic features that can be combined, matched and mixed together to obtain a customized *ad hoc* provision.

**Figure 2. Some rights reserved.** Options that can be combined in a Creative Commons license.

<i>name of option</i>	<i>rights given to any taker</i>	<i>rights retained</i>	<i>icon</i>
<b>Attribution</b>	copying, distribution, displaying, performing of original and derivative works	credit	
<b>Noncommercial</b>	copying, distribution, displaying, performing of original and derivative works	commercial exploitation	
<b>No Derivative Works*</b>	verbatim copying, distribution, displaying, performing of the original work	integrity of original	
<b>Share Alike*</b>	distribution of derivative works	invariability of license provision over derivative works	

\*The combination of options Share Alike & No Derivative Works is not possible since the Share Alike condition applies only to derivative works.

Source: Creative Commons website: <http://creativecommons.org/learn/licenses/> (last accessed 12 April 2004)

<sup>28</sup> Currently CC provides a total of eleven licenses to choose from. In addition, it provides bespoke Commons Deed and metadata that can be added to GNU GPL, GNU LGPL, public domain dedications, sampling licenses and founder’s copyright (a license granting exclusive rights for a shorter period than usual copyright). See: <http://creativecommons.org/learn/licenses/> and <http://creativecommons.org/license/> (last accessed 13 April 2004).

When the choice has been made, the applicant obtains: A summary of the chosen license with the appropriate icon<sup>29</sup> – Commons Deed; a fine print that can stand up in court – Legal Code, and finally, a machine readable version able to help search engines to identify the work by its terms of use – Digital Code.<sup>30</sup>

Besides, CC promotes a web-log for general discussion and a “discuss page” in which several groups of people, each coordinated by a Project Lead, engage in a more in-depth research on an issue meant to deserve investigation. The purpose of each discussion group is to produce a workable proposal to be implemented by CC, when needed.

As said, all these innovative features characterizing the activity of CC allow designing, case by case, *ad hoc* licenses that may retain their copyleft strength against hijacking and, at the same time, may soften the side effects of a GPL-style restrictive provision.

Since willingness to be flexible when using copyright must take into account legal system precepts and the international trends towards IPR extension, the case of CC represents a great learning exercise for new knowledge creators as well as policy makers.

## 6. Conclusion

Hijacking and subsequent copyrighting of digital information add onto the list of flaws characterizing the concession of exclusive property rights to new knowledge creators. The possible side effects of hijacking are particularly sinister in the case of collectively produced open content works such as, for example, the Open Directory Project which is, in fact, a pure public good.

The main goal of DMOZ, that is building a comprehensive catalogue of the web which would help in overcoming its congestion costs, seems at risk. Systematic hijacking of DMOZ data by commercial search engines and directories, as well as their inclusion in digital arrangements that tend to mix paid ranks and relevance driven information results, contributes to privatisation and depletion of public domain knowledge.

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<sup>29</sup> An online available work, for example, should include a button or icon linking back to the Commons Deed that acts as a notification for the public.

<sup>30</sup> The so called metadata that allow associating creative works with license status in a machine readable way, hence improving their searchability over the Internet. See: <http://creativecommons.org/learn/licenses/> (last accessed 12 April 2004).

Far from arguing that the institution of copyright is obsolete, this essay suggests that IPR can be customised and adapted to circumstances in which hijacking is likely to reveal itself as disruptive as in the analysed case.

On one hand, the principle of copyleft constitutes a powerful tool available for digital content creators and policy makers, implying that information arrangements built upon freely accessible resources should be distributed under licensing terms similar to those covering those original resources. On the other hand, in the cases in which copyleft appears so restrictive that participation in a collective project may be discouraged, further customisation is always a feasible strategy. The case of Creative Commons illustrates this point and represents a critical learning exercise.

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