

Openness and Licensing Peer Production

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The Handbook of Peer Production

Chapter 9 – Open Licensing Peer Production

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1. Introduction

This chapter traces the evolution of legal conditions meant to support the production and flourishing of “commons-based peer production” (Benkler, 2006) in a diversity of fields covered by copyright, mostly in the digital realm. From software to creative works, including scientific articles, cultural heritage, public sector information, and open data, a wealth of digital, knowledge, intellectual or information commons can be peer produced. The rules which guarantee that they can remain in the commons, under open conditions, have been the subject of heated debates about the politics of technology (Berry, 2008) and heavy legal fine-tuning along the years, opposing different definitions and nuances in openness reflecting underlying philosophies within the peer production political economy, such as liberal and commons-based approaches.

According to the Open Knowledge Definition¹, a standard that proposes minimum criteria to define openness, an open license grants to anyone “permission to access, re-use and redistribute a work, with few or no restrictions”, namely the requirements to attribute authors (BY), to apply the same freedoms to derivative works (Share Alike or SA), or to reserve the right to modify the work (Non Derivative or ND), the right of reserving commercial use (NC for No Commercial use) being excluded from these possible restrictions.

Having well-tailored legal documents setting the rules to access and reuse peer products is key to maintaining their availability in time and allowing their collaborative development. They allow for works to be shared, improved and built upon. Without them, copyright law would apply by default to grant to authors exclusive rights, preventing peers to

¹ <http://opendefinition.org/od/2.0/en/>

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access, reuse or build upon them without prior written authorization, for each use and user.

They help to waive such rights, so as to legally accompany the development of peer production.

Refining them to the specific needs of different formats of works, as well to different ideologies, led to improving them, and to an ecology of licenses. Some are better suited to specific formats, some require only attribution, some require to share alike. Different legal options and conditions set up by peer production authors or platforms to potential users can ensure different levels of openness, leading to the construction of informational, cultural, knowledge, or digital commons.

Roman law set up three categories of property rights: *usus*, the right to use a good; *fructus*, the right to grow or rent it; and *abusus*, the right to dispose exclusively of, destroy, or resell it to others. These rights can belong to a single owner, or to different users, identified or unidentified, actual or potential. They are reflected in open licenses. Tangible commons resources are also managed following a bundle of rights, a related concept of US legal realism, where rights of access, exploitation, management, governance (who takes the decision on who may exercise which of the other rights), exclusion (deciding who will have access rights) and alienation (right to sell or transfer other rights) can be segmented (Ostrom, 1990). In the same way, peer production also follows the legal model of a bundle of rights, where different rights under copyright can be segmented: the right of access only will be the first level of rights (corresponding to *usus*), followed by the right of *fructus*, the right of commercial exploitation (authorization to perform any use including commercial, or reserve those, NC for no commercial use), or modification (authorization to prepare derivative or reserve those, or ND for no derivatives), and the right of *abusus*, exclusion and alienation and the prohibition thereof (further transmission of freedoms to derivative works).

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Originally, Free Software or ‘copyleft’ licenses such as the GNU General Public License (GPL) were standard contracts between the producers of commons, who could trust that other users would not abuse their work, and these other users who were granted the right to modify and distribute this work (provided they also granted these same rights to others). In order to achieve that objective, a legal hack was developed, ‘copyleft,’ or Share Alike (SA), ensuring that copyright applicable by default would be exercised differently, in order to grant rights to users rather than exclude them. The introduction of Open Source software licensing was then intended to make peer production more compatible with firms.

In the early 2000s, free and open licenses have expanded their range of options in order to be fit for purpose to the wider cultural field (including Creative Commons options accepting the reservation of commercial and derivative rights). They also intersected with the growing preoccupation with the access to knowledge or ‘digital rights’ movement, as an alternative to the expansion of intellectual property. The late 2000s and the 2010s have been characterized by a focus on rules which would be more suitable to data, as well as databases, with the development of licenses or clauses aiming to tend to the special needs of functional works, also oscillating between full open access and certain restrictions inspired by the copyleft ethos.

Part 1 will briefly present the legal hack of copyleft and its first application for software licensing, as well as open source licenses. Part 2 will describe the evolution of open licensing to cover cultural works. Part 3 will address open licensing in the open science, open data and open hardware or tangible environments. These fields came into being to answer the needs of the communities and the development of specific licenses tailored to formats. Part 4 will introduce current efforts to develop reciprocity and expand the range of open licensing options and models to emerging needs.

Table 1: Open Licenses (derived from <https://opendefinition.org/licenses/>)

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License	Type or format	BY	SA	Comment
GNU-GPL	software	yes	yes	The first
GNU Free Documentation License	Software documentation	yes	yes	Before Creative Commons
Free software licenses	software	yes	yes	http://www.gnu.org/licenses/license-list.html
Free Art License	Non software works	yes	yes	Equivalent to GNU GPL
Open source software licenses	software	yes	no	https://opensource.org/licenses
Public Domain	any	no	no	A legal state (not a license) characterized by the absence of copyright
CC0	any	no	no	Public domain dedication
Public Domain Mark	works	no	no	Public Domain recognition

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Creative Commons Attribution	Non-software works	yes	no	Similar to open source
Creative Commons Attribution Share Alike	Non-software works	yes	yes	Similar to GNU GPL
CC BY NC SA CC BY NC CC BY ND CC BY NC ND	Non-software works	yes	no	Non Suitable for Free Cultural Works because they allow to reserve commercial use, modifications, or both
Open Database License ODbL	databases	yes	yes	Equivalent to GNU GPL and CC BY SA
Peer Production and Copyfair license	any	yes	yes	Introducing reciprocity
CERN and TAPR open	hardware	yes	yes	For hardware

hardware licenses				
Pico Peering agreement	Internet service providers	no	no	Non copyright based, but similar values
Open Source Seeds	seeds	yes	yes	For seeds

2. Free, Libre and Open Source Software Licenses

Free Libre and Open Source Software Licenses are the first open licenses in history, allowing the development of software as a key area of peer production. They have been analyzed so many times in the literature (Carver, 2005; Liang, 2005; Coleman, 2013; Kelty, 2008) that this part will remain short. They exemplify the political philosophy (Berry, 2008) and political economy (Farchy, 2009) debate between free (open source, no downstream restriction on derivatives, section 2.2) and libre (Share Alike, or copyleft, section 2.1) in the free, libre, open or information commons community.

2.1 Copyleft

MIT computer scientist Richard Stallman and lawyer Eben Moglen created the first legal document enabling copyrighted creative work to be placed into the commons and neutralize the privatization of derivatives. Framed as a legal hack, the GNU General Public License (GPL) embeds four freedoms: the freedom to access the software code, the freedom to copy the software, the freedom to modify it, and the freedom to release modified versions under the same conditions. This was in contrast to proprietary software, where the code is

inaccessible to the majority of users, and cannot be improved for other functionalities; or modified for any reasons such as format; or verified for bugs, or security issues, or Trojan horses; or adapted to special needs. This revolution in both the world of software and of copyright, begun as a subversion of licensing agreements, and became very popular, since most software is now reusable, that is to say released under free or open source conditions.

2.2 Open source

A multitude of other licenses were then drafted for free and then open source software (FLOSS), removing the copyleft requirement to offer open source software on open access conditions without requiring modified versions to be released.

Some controversies accompanied the development of the movement, since this legal innovation. A legal controversy was whether these texts would be enforceable (Guadamuz, 2004, 2009, 2013; Kreutzer, 2011). It became widespread practice for judges to enforce such licenses which passed the test of legal resistance and plasticity, meaning they can be applied to a range of situations and objects. Another issue deriving from the multiplicity of different licenses in the FLOSS ecosystem is the compatibility issues, since it can be difficult to merge software licensed under different even if very close conditions, prompting the dominance of the GNU GPL on the market. Several versions were developed, in the spirit of software, fixing legal bugs or enforcing new user requirements, leading to stability, meaning they do not need more versioning.

Free software and open licensing prompted open collaboration (O’Neil et al., 2016) and peer production to a certain extent, since most projects hosted on GitHub, the largest repository of open source software, have a limited number of contributors and therefore do not engage with a large community of peers (“65% had only one committer, 83% two or less, and 90% three or less”; Kalliamvakou et al., 2014). But there are success stories in terms of peer

production collaboration, quality and wide adoption: the Linux kernel, as well as most Internet servers are free software. In the age of online surveillance, with “good data” practices as an alternative (Daly et al., 2019), free software became a guarantee of transparency, allowing privacy activists to check, under peer production conditions, whether the users’ personal data are protected or not, while closed code would not allow such checking to be collaborative . The ethos of access to code and transparency is also related to the access to information storage?, where governments hold and process public data.

3. Open Licenses for Cultural Works

3.1 First developments

The GNU GFDL, a software documentation license, has been used for non-software works such as Wikipedia, before the encyclopedia switched to the Creative Commons copyleft option in 2009 after a vote by the community of authors. One of the inconveniences of using the GFDL (GNU Free Documentation License) was the requirement to include a list detailing all contributions, which could be very long and cumbersome, and already achieved in wiki history.

Expanding intangible commons to non-software works inspired the drafting of the very first artistic licenses, such as the Free Art License, first written in French and translated into English and other languages without a legal adaptation porting process to other national laws.

3.2 Creative Commons

The Creative Commons organization (CC) was created in 2001 by a group of scholars and activists around Lawrence Lessig based on the Eric Eldred case, as copyright law duration was expanded in US law and no works would be versed into the public domain to be freely available for this reason, in a legal context of enclosure of the public domain (Boyle,

2010). Therefore, CC licenses have initially been designed in order to facilitate the dedication, if not to the public domain, at least to a semi-commons (Pallas-Loren, 2007), a state with various flavors of openness through private means (Dusollier, 2005, 2006; Elkin-Koren, 2007; Chen, 2009) by living authors.

This section is significantly longer than the other sections because of the instrumental role Creative Commons played in the development of a legal standard for peer production, free culture, remix culture, and sharing culture (Aigrain, 2012; Lessig, 2004, 2008;) and the open movement (Cheliotis, 2009). The section will focus on some of the legal questions raised by the licenses, which exist in different flavors combining various licensing elements (Attribution, Commercial rights, Derivative Rights, and Share Alike, the equivalent of copyleft) and have led to several versions, following the model of free software development which collectively corrects ‘bugs,’ including translations, legal adaptations or porting to a large number of national legislations by chapters worldwide.

This diversity of legal rights created policy issues, because of the level of freedoms, but also technical legal issues: interoperability, namely the legal incompatibility among works licensed under the numerous Creative Commons licenses led to executive decisions by CC headquarters. The licenses requiring only Attribution and possibly Share Alike carried a badge of honor, “Approved for Free Cultural Works,”² designed to signal those licenses which full fulfill the criteria of FLOSS activists. Legal porting operations were interrupted, with the most recent version drafted so as to be implemented worldwide without reference to national definitions.

Creative Commons also developed a range of other licenses and licensing instruments, with various degrees of success. The sampling and developing nations licenses, aiming at

² <https://creativecommons.org/share-your-work/public-domain/freeworks/>

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authorizing different levels of sampling, and at only granting rights to users located in countries classified as such, did not take off, and were promptly withdrawn. To the contrary, both the Public Domain Mark and the CC0 Dedication to the Public Domain were maintained as more suitable for data as analyzed in the section dedicated to open licenses for functional works.

The “Share Alike” option allows derivative works to be licensed under the same license as the original work, but also under a later version or a compatible version of the same license. Versions 2.0, 2.5 and 3.0 allowed the use of translated versions that had been transposed into the law of another jurisdiction after validation by the Creative Commons organization. Versions 3.0 and 4.0 provided for compatibility of licenses that have been approved by their home organizations as equivalent in effect and recognized as compatible: currently the “Free Art License” in version 1.3 provides for a similar mutual compatibility clause, with both Copyleft Attitude and Creative Commons organizations having recognized both licenses as compatible and equivalent in effect. The definition of “Share Alike” according to the Creative Commons and the compatibility method have been adopted in the same way by the Open Database License (ODbL) v1.0 which applies Copyleft to databases.

Conversely, the GNU Free Documentation License (GNU GFDL) provided in version 1.3 a unilateral temporary migration clause to the “CC BY SA 3.0” for massively multi-author collaborative sites; the objective was to allow the Wikimedia Foundation, the organization that structures part of the Wikipedia encyclopedia projects, to change its license.

Share Alike applies the Copyleft principle to non-software works and is used by different types of authors of literary and artistic works. First, producers of utilitarian or functional resources, intended to be assembled, combined and derived, such as databases or wikis and Wikipedia, are emblematic examples of creations whose production is based on free software, peer production, and licensed under free conditions. There are also public institutions and

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activists in the Free Culture movement. On the other hand, the combination of the options “Attribution and Share Alike” (CC BY SA), although validated by the label of Free Works (“Approved for Free Culture Work”) as including the freedoms recognized as essential, is not recommended by the open data, open education and open science movements which privilege the sole attribution (CC BY), or even the voluntary public domain (CC0) .

A justification for the Share Alike option is saving transaction costs in collaborative projects, which this license is supposed to protect from private appropriation and enclosure of the commons. The Share Alike option allows forking or bifurcation of projects, as communities can create forks and use the content generated in the previous project to continue in other directions. Thus, when Wikitravel was sold to a company that added ads to the site, the German and Italian versions were able to leave with their content in 2006 and 2007, by creating the WikiVoyage project, before joining the Wikimedia Foundation with other languages in 2012.

However, the Share Alike clause causes some issues of legal incompatibilities among national laws due to the porting strategy (Dulong de Rosnay, 2010). Also, the multiplicity of options results in transaction and information costs (Elkin-Koren, 2005) for the licensor and the licensee of the license and blurring of the message of what constitutes a free or open work. Indeed, not all Creative Commons licenses, including all those with the “Share Alike” option, are considered free in the sense of free software if they reserve commercial rights (NC), not allowing commercial companies or projects such as those of the Wikimedia Foundation to reuse the work without additional authorization. This perspective can be interpreted as a restriction of freedom (in the sense of free software) and a fragmentation of commons, in the sense that the work cannot be reused by all. On the contrary, another perspective is to consider the NC option as a protection of original authors against commercial appropriations of their contribution that could take place without offering them remuneration.

The Share Alike option can lead to discouraging the exploitation of free software for commercial purposes. Indeed, if identical reproduction is free for all, it will be difficult to monetize copies, as the example of Wikipedia shows. However, without the NC option, Share Alike theoretically allows the scrapping of content, a sort of capture that could strengthen commercial sites that value traffic and the exploitation of personal data more than access to the work itself. It should be noted that the Share Alike clause organizes the identical sharing of derivative works (under the same conditions) The peer-to-peer licenses under development (see last section of this chapter) intend to develop more reciprocity than the Share Alike clause, while avoiding the pitfalls of the “No Commercial Use” NC clause.

The lack of interoperability between works under different Creative Commons licenses has been analyzed by the legal doctrine (Dulong de Rosnay, 2010; Dusollier, 2007; Elkin-Koren, 2005; Katz, 2006, Giannopoulou, 2014). If works under free license cannot be mixed together without authorization and a table must be consulted to find out under which license to distribute the derivatives, this leads to a fragmentation of the commons, which has been observed for free software since content licensed under one license can technically not be remixed under another similar but different license if they have not been formally recognized as compatible (Elkin-Koren, 2005; Katz, 2006; Dusollier, 2007, Dulong de Rosnay, 2010).

The Share Alike clause, by providing for compatibility between equivalent licenses, introduces another risk of legal incompatibility, which results from the lack of harmonization between national laws, as the adapted, ported or transposed licenses do not therefore cover exactly the same spectrum of rights. However, if licenses are declared compatible with each other, authors are supposed to consent to future adaptations of their works being licensed under unidentified conditions, which may pose a problem of internal validity and consent under contract law (Dulong de Rosnay, 2010).

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Creative Commons licenses, up to version 4.0, were adapted into national laws. These legal adaptations reflected actual legal differences between national laws, and were supposed to ensure compatibility with domestic legal systems, interpretation by the judges and direct applicability by the courts (Maracke, 2010). Several court decisions have successfully applied the licenses. National transpositions have also led to the creation of a network of Creative Commons affiliates, lawyers, professionals and information commons activists. Nevertheless, the practice of transposition has been abandoned in 2014 since version 4.0, in order to simplify licenses and avoid compatibility problems caused by the “Share Alike” clause, which recognized as downstream compatible licenses that had been transposed into national laws and therefore included substantial differences in the scope of the rights and the definition of the works concerned, besides not accessible in all languages. Despite the end of the national transposition process, which is replaced by a simple translation, there is still a risk of a difference between language versions in the scope of limitation of liability and the absence of a guarantee by the licensor that the work does not constitute an infringement of copyright, a generic clause of free licenses.

In addition, the licenses still include such a clause which provides that the conditions of the license which would contravene national law are not applicable. The scope of the guarantees that can be waived by contract varies according to the place of production of the original and the modification, as this branch of the law is not harmonized internationally. A contractual limitation of the author’s liability as it exists in version 4.0 may be void under French or Italian law. The Share Alike clause can therefore lead to the spread of legal risks for licensees, a source of pollution of the commons and of legal risk and weakening of open licenses if the author does not guarantee that the work offered does not contain any infringement, and a licensor builds upon it in good faith (Dulong de Rosnay, 2013): can more rights be reasonably transferred than one thinks one holds? This contractual problem does not

arise with other Copyleft licenses deemed compatible or in the process of being compatible (Free Art License and GNU GFDL) which remain silent on the issue of the guarantee of non-infringement by the licensor, leaving the choice of jurisdiction outside of the license and therefore determined by applicable law.

3.3 The access to knowledge (A2K), free culture, and public domain advocacy movements supporting digital commons

The promotion of Creative Commons licenses in the 2000s has been ensured, among other supporters, by Free Culture collectives of students within universities. Also, an important tool for local translation, legal adaptation but also legitimation of the digital commons and legal information to digital commons authors and institutions has been provided by CC jurisdictions affiliates, a mix of academics (law, computer science, economy, communications), and digital rights non-profits.

CC supporters and affiliates policy purposes overlap with several broader advocacy communities: digital rights (Postigo, 2012) activists promoting users' rights, privacy, freedom of speech; Access to Knowledge (A2K), a movement addressing not only digital commons, but also Access to Medicine, or Intellectual Property for the Public Interest, a community structured around the yearly eponymous Global Congress on Intellectual Property for the Public Interest. Starting with support for more balanced copyright reform, with broader exceptions and limitations to exclusive rights, the demands of open licensing advocates, if fulfilled, would lead to a generalization of the contractual effect of open licensing in the law: more free access, more transformative rights for artists, authors, researchers and teachers, more exceptions to exclusive rights especially in case of non-commercial uses such as libraries, educational institutions and archives, or associations working with visually impaired persons. If the copyright reform agenda was achieved, open licensing would become less

necessary, because copyright by default would allow a broader range of freedoms and rights to users.

However, the US tax status of the CC organization made it difficult to perform advocacy tasks, and prevented the take-off of CC as one of the most powerful lobbying organization representing the digital commons, a space which has been occupied by other actors such as the Wikimedia foundation, the main user of open licensing worldwide, together with dedicated digital rights not-profit organizations.

Several organizations focusing on digital commons are active in Geneva, where copyright international treaties and policies are designed in multilateral institutions. As the most prominent open content licensing actor, CC applied to get an observer seat at WIPO, the UN World Intellectual Property Organization, and occasionally sends a representative at SCCR (Standing Committee on Copyright and Related Rights) and CDIP (Committee on Development and Intellectual Property) diplomatic conferences in order to promote the inclusion of alternative views of Intellectual Property, that is not only views of IP supporting more exclusive rights, but also a vision of IP supporting digital commons as embodied in open licenses. Several WIPO reports have been drafted by open licensing legal experts on topics such as the preservation of the public domain, the legal feasibility of voluntary dedications to the public domain, applications of open licensing for public sector information and open education.

In 2008, CC joined the Communia International Association for the Digital Public Domain, an association which was incorporated in Europe after a research project (2007-2011) which gathered initially most European chapters together, aiming at performing not only research and promotion about open licensing, but also about the public domain at large, including copyright reform, exceptions and limitations. CC, through its policy and legal staff participation to the work of the association, has been an active contributor to Communia

management, policy briefs, responses to consultations and advocacy work for copyright reform in Europe.

4. Open Licenses for Functional Works

This section will examine the specificities of functional works, such as scientific articles, educational resources, databases (of scientific data, public sector information, or digitized public domain works) and digital commons or Internet-related artefacts, namely computer-generated open hardware, and community networks allowing connections to the Internet or to local area networks. All of them have been relying on specific flavors of open licensing, sometimes adapted to suit their particular needs. All of them have been accompanied by policy guidelines and manifestos advocating for openness and the best ways to achieve such a result in the respective fields.

4.1 Open access, open science, and open education

The movement for Open Access in science began in 2001 with the Budapest Open Access Declaration, which was followed by the Bethesda and Berlin declarations. They have established a number of principles to define and achieve this openness, including a difference between the simple financial freedom to read an article and legal open access, guaranteeing rights to authors and users. Two types of licenses have been validated by the authors of these declarations to ensure open access to publications: those requiring attribution only (such as CC) and those adding a copyleft clause (such as CC BY SA).

Science Commons is the former branch of Creative Commons dedicated to the development of openness and licensing for science. In terms of publications, Science Commons created, together with other non-profit organizations advocating open science such as SPARC, addendums for academics to amend standard copyright licensing agreements

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where authors have to relinquish all of their rights to commercial publishers, and may not have the right to self-archive their own publications, nor to access them if their library does not have, or interrupts its subscription to the commercial publishers' journal bundle.

When it comes to scientific data, Science Commons promoted the use of CC0 in order to reach the closest possible conditions to the public domain and limit liability risks in case of breach of license, in the case of a missing attribution when mining hundreds of databases. Finally, in the case of biological data, Science Commons produced a number of material transfer agreements adapting the core principles of open licensing.

Openness for academic publishing can follow three different models. Green Open Access consists in being able to self-archive a version of one's paper, sometimes the preprint, before publisher layout and copy-editing, on an institutional or a disciplinary repository. Gold Open Access is a commercial practice used by some publishers surfing on the fashion of openness and charging a hefty fee to authors choosing to apply a CC license to their paper to make it open access. Platinum Open Access or freemium are hybrid models, where authors do not pay to have their article freely available, the funding is collected by publishers through library subscriptions based on the number of downloads and in exchange for some services (formatting, statistics), and revenues are shared between platforms and journals. Freemium has been adopted by the Open Edition platform for Social and Human Science Journals.

Funders or government mandates are useful instruments to require the distribution of the results of the research they support under open access conditions equal to open licensing. The open education resources sector has also been employing CC Attribution licenses to distribute textbooks which can be used and adapted by teachers and students for free.

4.2 Open Data

Closely related to the movement for open science reclaiming the reproducibility of scientific results, the movement for Open Data in the field of science, but also public sector information produced by governments or public bodies (see next section), draws its inspiration from the potential unleashed by information technologies to access and process more data, and the expectation it might produce more results for innovation and society.

Open Data refers to openly available digital data, or more broadly the techno-political movement at the origin of the opening of data produced by the public sector and academic mainly, but also growingly the private sector. To be recognized as open, data must be made available in an open standard format and allow free and open reproduction and reuse by all. Government agencies, associations and non-governmental organizations are involved in defining the concept and producing processing platforms and tools (e.g. data mining or visualization) for the reuse and manipulation of this data. According to policy declarations, only a minimum of conditions is acceptable for data to be recognized as open, including obligations to assign a source, to Share Alike, and to respect integrity or avoid derivatives (ND). This mainly concerns public data and data resulting from scientific research, considered as information commons in which case open access can be set up either by mandatory law or through voluntary institutional policies and open licensing.

The benefits of open data for knowledge and democracy are not immediate, the translation of data into policy, business, economic or scientific derivative leading to positive results for society being neither automatic nor easy. The Open Data movement efforts to make data available and reusable are a good stimulus for democracy and the economy. However, care should not be taken only to improve the degree of openness of data, but also to curate them, and incentivize peer production practices based on reuse. Otherwise there is a risk of ending up with portals that are empty shells. Finally, the impact of big data should be pondered, as peer produced information requires more than the processing of data sets made

possible by their openness, a processing that is not accessible to all and can lead to increased inequality.

4.3 Public sector information and open government

The movement for Open Government and Open Data applied to Public Sector Information is based on, in addition to arguments supporting open data for science, the rationale that State transparency, accountability, and freedom of information are clear benefits. Taxpayers have already paid for the production of the data, which could in addition be reused by other services, including other governmental agencies, without legal frictions or copyright royalties.

In addition to fundamental rights and the democratic imperative, there are economic and political justifications (Uhlir, 2004), backed by a technicist and neoliberal discourse: transparency promotes citizen participation in public decision-making and the accountability of governments; the taxpayer financing the production of public and scientific data should be able to access the results; innovation by companies, associations and citizens, and thus economic growth and employment, would be stimulated by the availability of open data, on the basis of which services and applications can be developed; finally, public policies and citizens' decisions should be based on scientific data and evidence, the advancement of scientific knowledge and discoveries being accelerated and facilitated by cross -referencing and searching databases, which must therefore be legally and technically available and open.

Public data cover information contained in administrative documents held by public agencies: this includes the databases they produce or receive, such as general interest data and reference data. The open data produced by public institutions are diverse and varied: statistics and data on transport, the environment, land registry, housing, weather, education, employment, culture, trade, public expenditure, etc. Geographic data are generally the most

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open body of public sector information, with other services building applications upon them. Open data can also be commons-based and peer produced: this is the case with the geographical data of the Open Street Map project, or the scientific data of the human genome (Personal Genome Project).

Open Data actors are government agencies, researchers and associations that will promote the release and reuse of data by facilitating open legal and technical availability, with open formats and standards to link, structure and enrich data. They produce recommendations, criteria and definitions of what constitutes open data. According to the Open Definition already mentioned in the introduction, data will be open if it can be used, modified and shared freely by anyone for any purpose and with only the attribution, integrity, identical sharing, license notice, or source format as acceptable conditions.

Several policy instruments are available to open public sector data: legal implementation can be achieved through copyright laws, public sector information laws, and open licenses. Some countries are directly releasing public sector information in the public domain, while others need open licensing to reach the same objective, in order to facilitate distribution on dedicated platforms, under conditions ranging from contractual dedication in a voluntary public domain, to the use of copyleft. Several associations, including the Open Knowledge Foundation, have developed open licenses specifically for the *sui generis* rights of database producers (the Open Database License, or ODbL).

Government platforms such as data.gov distribute public data under different types of open licenses, which will allow reuse, even for commercial purposes under certain conditions. Australia, the United States, Brazil or Burkina Faso use a Creative Commons Attribution license, while the Dutch government releases its data under CC0, the Creative Commons protocol for voluntary and early dedication to the public domain. France, Great Britain and Italy have chosen to develop their own open government licenses, while declaring them

compatible with Creative Commons Attribution licenses in order to allow interoperability with other data sets.

The use of standard licenses, as opposed to the drafting of vanity open licenses by governments, reduces information and transaction costs, but imposes a fairly heavy contractual obligation to reusers and does not allow the insertion of specific clauses, such as the offer of guarantees or the prohibition to alter data.

4.4 Cultural heritage

Cultural heritage data and digitalized public domain works held by libraries and museums are also part of a broad open licensing movement (Evens, 2016). Europeana is a public sector platform for creative works, but also metadata produced by libraries and museums. An example of peer production by the GLAM community (Galleries, Libraries, Archives and Museums) are the projects developed within Wikimedia Commons by volunteers working with public institutions to provide the high resolution reproductions of public domain works and to make them available with their metadata. Commons-based peer production plays a dual role here, first by providing access to digital collections of public domain works and thus avoiding the enclosure of the commons managed by libraries and museums. Second, the Wikimedia GLAM community has been vocal in several instances of copyright reform. One example is the fight to defend ‘freedom of panorama,’ the right to upload reproductions of works which are on the physical public domain (Dulong de Rosnay & Langlais, 2017).

A counter example to these best practices is the commodification of the public domain and public domain digitized archives by institutions who practice ‘copyfraud’ (Mazzone, 2011) by applying restrictive copyright licensing conditions. Licensing standards recommended in such cases are the Public Domain Mark (PDM), another instrument developed by Creative Commons, where institutions can certify that a work is in the public

domain, meaning that it is no longer covered by copyright because its term of protection expired, typically seventy years after the death of the authors. Metadata added by librarians and documentation professionals to describe and retrieve the work should be licensed under CC0, in the vein of open data recommendations.

4.5 Open Hardware and Open Infrastructure

This section presents licenses developed to accompany the distribution and creation process of other forms of peer produced resources, located between tangible and intangible commons.

As for open design, two open hardware licenses (Pearce, 2016; Powell, 2012) have been developed to address specific issues which were not covered by FLOSS licenses, since many hardware designs are patentable rather than copyrightable.

Open licenses adaptations are also required to fit the specificities of 3D printing generated works (Jee & Sohn, 2018). The hardware can be released under a FLOSS license, and the content files have been experimenting with either software licenses, or CC licenses, some being attracted by the reservation of commercial rights option. The field has not reached mature standardization and trademark, patent or contract issues with third party rights may still arise with complex works gathering several types of intellectual property.

The spirit of openness and peer production has also been exported to open biology and open seeds, to counter the effect of patenting and regenerating a commons through copyleft applied to the generation of seeds extraction of genetic information and enhancement of varieties.³

³ <https://www.opensourceseeds.org/en/licence>

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All of these creations and innovations would otherwise have been submitted to exclusive rights under other subparts of intellectual property than copyright: design, patents, the *sui generis* intellectual property system of plant variety (Deibel, 2013) breeders' rights.

Between open hardware and open infrastructure, community networks, alternative Internet service providers of peer produced connectivity, rely on local activists' volunteer work, and modifiable hardware. In addition to free software and open source routers, based on FLOSS licenses, community networking prompted the drafting of specific legal texts akin to open licenses. The PICO peering agreement,⁴ an open license for community networks, is not subverting intellectual property, since the body of regulation which is touched upon is not a resource, it is dealing with telecommunications law, network neutrality, and quality of service.

Such legal texts can still be included in a broad definition of open licensing for peer production, because they aim at guaranteeing openness, defined as freedom for users, and at securing the rights and responsibilities of peer contributors, exactly like traditional open licenses.

5. Developments in Open Licensing

Finally, beyond the need to legally tailor the ethics of open source and peer production to different outputs, some recent open licensing developments are driven by the reinforcement of some of the original political principles of the commons.

5.1 Copyfarleft, copyfair, and commons reciprocity options

According to Dmitry Kleiner (2007),

⁴ <http://picopeer.net/>

“copyleft cannot allow workers to accumulate wealth beyond subsistence, copyleft alone cannot change the distribution of productive assets, which is what any revolutionary strategy must seek to do (...). A copyleft license should make it possible for producers to share freely and to retain the value of their labour product, in other words it must be possible for workers to make money by applying their own labour to mutual property, but impossible for owners of private property to make money using wage labour.”

The Peer Production license⁵ embeds these anticapitalist principles, allowing commercial commons-based reuse by cooperatives, and non-profit actors, but preventing “commercial entities intent on making profit through the commons without explicit reciprocity.”

The Copyfair principle requires reciprocity in commercial activities, it “aims to subject commercialization of any such knowledge commons to some form of contribution to that commons.”⁶ For instance, open access content could not be scrapped by a predatory commercial website whose business model would rely on the exploitation of user traffic and other personal data.

These new licensing prototypes have to solve many implementation issues. A reciprocity clause “that restricts commercial usage according to how much the user has contributed to the common pool” (Viera & De Filippi, 2014) requires to monitor the existence of actual and past contribution by identified peers, instead of the copyleft provision loose model allowing open-ended possibilities for future, unidentified peers. Such a reciprocity

⁵ http://wiki.p2pfoundation.net/Peer_Production_License

⁶ http://wiki.p2pfoundation.net/CopyFair_License

model would rely on the identification of contributors and the definition of metrics to assess individual contributions and their ethical nature.

5.2 Data commons

The last evolution observed in open licensing is led by practical projects involving personal data. At first, there is a contradiction between open access and personal data, since privacy prohibits sharing or reusing data without consent. But models can be imagined where the wealth of information gathered from personal actions could be re-injected into the commons while maintaining a level of user control rather than privatizing and enclosing it for profit. Many privacy policies inspired by Creative Commons have been started⁷ but none has become a standard yet.

New directions to constitute personal data commons for data (Bassi et al., 2019) generated by users and citizens in social media platforms, in the Internet of Things, or in cities, are being considered, in order to develop alternatives to the smart and surveillance models centralizing and commodifying users' data. They would be exercising their consent in a different way than to agree to restrictive terms of use and the commodified processing of their personal data, and opt in for ways to rather dedicate them to a commons.

Data commons can follow the model of scientific data pools, data trusts or data collaboratives⁸ such as in the projects analyzed by the Governance Laboratory (GovLab) at New York University (Verhulst et al, 2019). While policy guidelines and ethical principles for the management of personal data are numerous, unfortunately, end-user licensing agreements for these projects are not public, beyond standard terms and conditions for reuse. Reasons for

⁷ https://wiki.creativecommons.org/wiki/CC-inspired_projects_for_Terms_of_Service_and_Privacy_policies

⁸ <http://datacollaboratives.org/explorer.html?#data-pooling>

this may be because lawyers prefer to tailor them for each project and market them, or because they have not come to fruition yet, due to the complexity of crossing copyright and personal data laws in order to open them and the lack of international harmonization of personal data legislations.

Data commons can also use decentralized technologies for collection, analysis and storage platforms. Governance principles for commons-oriented data management practices can be found in the European project Decentralised Citizen Owned Data Ecosystems or Decode (Fuster Morell et al., 2017) and are being implemented in Amsterdam and Barcelona. Such principles are framed around consent and security and are to be transposed into ontologies for rights expression languages and licensing terms merging principles of openness and anonymization to enable data to be re-injected into the commons without enclosure nor risks for citizens' privacy.

6. Conclusion

Openness and licensing in peer production have been oscillating between full open access and some restrictions aiming at promoting informational commons and avoiding their enclosure. After a take-off in software, and culture, supporting activists of fairer copyright laws and users' rights, the open licensing movement addressed more functional works and created specialized licenses such as open data and open hardware licenses. The broad acceptance of open licensing by institutions such as libraries and museums for their digitized collections, as well as by governments for public sector information, led to raising awareness of peer production. On the one hand, openness points to a neoliberal vision rather than a social-democratic, commons-based (Broumas, 2017) or Marxist vision (Rigi, 2013), and

possibly open- or commons-washing⁹ can lead to a dilution of the original values of the commons, the ethos of sharing with a community for the common good. On the other hand, the open licensing scene has been trying to develop options refining copyleft, with the copyfarleft and commons reciprocity licensing models proposals aiming at better translating the commons-based peer production ethos into open licensing conditions. They might find applications in fields such as personal or scientific data pools, data generated by tangible applications in cities, or connected homes. The question of the appropriation and co-optation of production platforms and access infrastructure, as well as of user-generated and/or personal data, requires designing further hacks to resist against peer production commodification and enclosure.

⁹ <https://www.netcommons.eu/?q=content/commonswashing-information-technologies-and-online-platforms-semantic-appropriation-commons>

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