



Food | Consumer | Health
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**Horizon 2020
INFRADEV-1-2014 - Design studies**

**RICHFIELDS Working Package 13
Deliverable D13.1**

IPR Design

**Date delivered:
M36**

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**Deliverable lead beneficiaries:
Stichting Wageningen Research
(formerly DLO)**



Project	
Project acronym:	RICHFIELDS
Project full title:	Research Infrastructure on Consumer Health and Food Intake for E-science with Linked Data Sharing
Grant agreement no.:	654280
Project start date:	01.10.2015
Document:	
Title:	IPR Design
Deliverable No.:	D13.1
Authors:	Javier de la Cueva
Reviewer:	Karin Zimmermann – Project Coordinator Pieter van 't Veer – Scientific Coordinator
Start date:	01.10.2015
Delivery date:	29.10.2018
Due date of deliverable:	31.01.2018
Dissemination level:	PU
Status:	Final

Change history:		
Version	Notes	Date
001	Initial version.	05.02.2018
002	<p>Added:</p> <ul style="list-style-type: none"> • Content and references to most recent EU Commission Open Access and Open Science publications: Commission Staff Working Document, Implementation Roadmap for the European Open Science Cloud (14/03/2018). • In item 2.5, citizen science term origin and definitions. • Subsection in item 2.4 related to European Union principles on open data. • Answers to questions 16, 17, 18, 20, 48, 63, 65, 82, 84, 90, 100, 119, 170, 172, 267, 278, 281, 303 and 306 of file "RICHFIELDS_Issues and advices on content_v2FEB2018.xlsx" circulated to the members of phase 3 for The Hague workshop (13-14/02/2018). 	30.03.2018

	Fixed: <ul style="list-style-type: none"> • Typographic errors. 	
003	Included comments from Indira Carr and Krijn Poppe. Added: <ul style="list-style-type: none"> • Commission Recommendation of 25.4.2018 on access to and preservation of scientific information. 	12.06.18
004	Version after Wilke van Ansem review. Final version.	21.08.18



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Summary

Based on best practices in other Research Infrastructures (RI) and considering the latest developments in European and national legislation on data ownership and privacy regulations, the purpose of this WP is to describe the rules and policies for the RI on how to deal with data ownership and privacy issues, this last item jointly with the ethics and governance design. As stated in the Richfields' Document of Action (DOA), an important rule could be that consumers own their data, but there are probably also ownership rights with Information and communication (ICT) companies, research institutes and (retail) companies that compute those data. Anonymous datasets have their own owners and new goods have appeared due to ICT existence. Developments in E- Science, open data and open access (OA) must be taken into account in designing a policy for the RI data access by researchers and Intellectual Property Rights (IPR) on software and research results. We should not only take care of Richfields future data or software regulations but also in this report we will advise on the current requirements set forth by the European Union related to Horizon 2020 projects. To address these purposes, a prior description of core intellectual property concepts and information regulation will be explained, introducing a synthesis of the foundations of the open access movement and the digital commons, focusing afterwards in the specific regulations for Richfields project, both in terms of IPR compliance and liability as a data storage, ending with an enumeration of recommended good practices.

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1 Introduction

1.1 Intellectual Property core concepts

Definition

According to the WIPO (World Intellectual Property Organization), *Intellectual property refers to creations of the mind: inventions; literary and artistic works; and symbols, names and images used in commerce. Intellectual property is divided into two categories: Industrial Property, which includes patents for inventions, trademarks, industrial designs and geographical indications, and Copyright, which covers literary works (such as novels, poems and plays), films, music, artistic works (e.g., drawings, paintings, photographs and sculptures) and architectural design. Rights related to copyright include those of performing artists in their performances, producers of phonograms in their recordings, and broadcasters in their radio and television programs.* (WIPO, n.d., 2).

IPR creation

The birth of intellectual property rights does not need further requirements different than the creation of a work, the *creation of the mind* to use WIPO's terminology. Thus, the act of creation of a work triggers the application of the regulation of intellectual property and the birth of the author's rights. Furthermore, in order for these rights to be born, a work does not need to be included in a special registry nor needs any type of adhered declaration (such as a licence) or the usage of the © icon indication. Pure and simple, when a work is created the author is entitled with certain rights over the created object. A common mistake is to think that a work must be registered in a public or a private registry in order to begin its legal existence but, although the registry of a work is a useful instrument to produce evidence in the case of future conflicts over the ownership, as then the burden of proof falls on the non registered rightholder, the registry is not a requirement for the creation of the rights. Rights are created simultaneously to the work creation.

IPR categories

Intellectual property rights can be grouped into two categories: moral rights and economic rights. The first group, the moral rights, are inalienable, non waivable and are related to the reputation (or personality aspects) of the author. They are not specified in all legislations but their recognition is admitted by courts. As examples of these rights we can consider the right of when and how to disclose the work, under the author's name, pseudonym or sign or anonymously, the right to be known as the author of the work (attribution), the right to the

integrity of the work or to alter it, the right to withdraw the work from the market and the right to access the unique or rare copy.

The second group, the economic rights, can be transferred by the author to third parties, who can market the works in return for compensation or who can disseminate the works for free (for example in cases of scholar dissemination, works searching public visibility, works that look for viral dissemination...). These rights are also named *Exclusive rights*, as it is the author the only person who has the right to authorise or prohibit their exercise.

IPR European regulation

The European frame regulation of the exclusive rights is contained in the *Directive 2001/29/EC of the European Parliament and the Council, of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society*, which includes three exclusive rights: reproduction right, right of communication to the public and distribution right. European members must include in their domestic regulation these three rights and in certain cases they include the right to alter the work, which could be considered a *subspecie* of the reproduction right. The regulation offered by the Directive must be developed by the EU Member States within their internal regulation, which means that, when considering the existence of an IPR, we should analyse the European frame plus national development.

The right to use a work

The nature of the exclusive rights defines the main rule of intellectual property: if a user of a work has no authorization from the rightholder to operate with it, then the user can do nothing but the exceptions regulated by the law. This implies that in order to legally *reproduce, communicate to the public, distribute or alter* a work that has not fallen into public domain due to IPR expiration, the user of the work needs either the rightholder's consent or a legal authorization. This legal authorization is called a *limitation* or an *exception* to IPR and the closed catalogue of these limits can be found in the article 5 of the Directive 2001/29/EC.

How is this consent obtained? Although different jurisdictions require varied formats the most common ones are an agreement signed between the rightholder and the user and the unilateral consent which we can find in a License or in Terms and conditions, where the usage of the work implies the acceptance of the requirements set forth by the grantor or rightholder.

Except for the limitation of temporary acts of reproduction part of a technological process *whose sole purpose is to enable a transmission in a network between third parties by an*

intermediary or a lawful use (article 5.1), the Directive 2001/29/EC does not impose to the Member States the transposition of the limitations. Thus, in order to use a work without the rightholders consent but supporting the use under a limitation, national legislation on IPR of the country where the use of the work is intended should be previously analysed.

Database European regulation

In order to analyze Richfields' intellectual property aspects we also have to take into consideration the *Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases*. According to this Directive, 'database' shall mean a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means (article 1.2).

The rights of the author of a database fall into two categories: the exclusive rights (article 5), which are *mutatis mutandis* the equivalent of the exclusive rights applicable to literary or artistic works but now applicable to databases, and the *sui generis* right (article 7), which is a peculiar right only applicable to databases. This *sui generis* legal concept consists in the right granted to the maker of the database to *prevent extraction and/or re-utilization of the whole or of a substantial part of the database, provided that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents*, which is the Richfields case. The rationale behind the *sui generis* right is the protection of the financial investment incurred by the maker of the database.

In summary, databases as such and independently of their content, are under the protection of the copyright laws, although they have a specific regulation due to their nature as a work.

Different actors concurrence

It is needless to say that if the intellectual work is a Richfields creation then these rules apply to third parties and it will be the user of the work who should request Richfields' consent. Nevertheless, the reality offers a complex perspective as the actors of the information society play simultaneously different roles: as creators of original or derivative works, as users that create a derivative work based on a third party creation, and as mere users of a third party creation. A consent is needed for each role based on third party creations.

1.2 Information cycle and the limits to the transmission of information

The current legal regulation of IPR inherits the old understanding of an intellectual work as a static model, a fixed *oeuvre* where little changes were made. Book editions, sculptures, paintings or sheet music presumed that a *corpus mysticum* was formalized and inserted into a *corpus mechanicum*. Therefore, the fixation of the ideas inside a physical object allowed none or little changes. This is no longer valid with the new digital types of intellectual works, where a world of dynamic creations is the result of a chained activity and where a work is altered *ad infinitum* to produce derivative outcomes. This characteristic can be clearly appreciated in the contrast between the traditional encyclopedias and the digital Wikipedia. While the former needed a new edition to accept a modification, lasting years inbetween different versions, on the contrary the latter is constantly altered by its users¹. Due to these characteristics, to complete our introduction we need to bring in a brief description on how the information cycle occurs, how the activities that build the information landscape are the keys that may facilitate or disturb the openness and transmissibility of the data and how IPR is one of these keys through legal regulation.

Information is a dynamic material and its typical cycle

includes the following phases: occurrence (discovering, designing, authoring, etc.), transmission (networking, distributing, accessing, retrieving, transmitting, etc.), processing and management (collecting, validating, modifying, organizing, indexing, classifying, filtering, updating, sorting, storing, etc.), and usage (monitoring, modelling, analysing, explaining, planning, forecasting, decision-making, instructing, educating, learning, etc.) (Floridi, 2010, 8).

These four phases of *occurrence*, *transmission*, *processing–management* and *usage* are common for all the activities where data, information or knowledge are the building blocks. All workers whose activities are symbolic–based are continuously creating, transmitting, managing and using data in a net woven and twisted with other participants. Following Nonaka *et. al.* (2008, 242), *since knowledge is created by human beings in relationships, knowledge based theory of the firm has to broaden its perspective from the static, atomistic, substance-based worldview typical of conventional economic theory, to a view of the firm as a dynamic entity in flow.*

But this flow has limits that depend on external factors to the participants and which enable, impede or hamper the information cycle. These limits are legal, economic and technical and, although it is out of the scope of this deliverable the economic and the technical (or interoperability) aspects, it is necessary to understand their existence as they

¹ A visualization on time of the changes made by unregistered users of the Wikipedia can be found in the project at <http://rcmap.hatnote.com/#en> Accessed 31st January 2018.

form the playground where Richfields activity is going to operate. According to the general rule described in item 1.1. before – a user can do nothing with others’ work except if she has the consent from the rightholder – the scenario where the actors of the information play is very limited and risky if this consent is not clearly obtained. Moreover, in case of IPR infringement the burden of proof rests on the alleged offender, therefore it will be necessary to develop and follow a continuous and strict information management proceeding in order to keep track of the different consents obtained for every block of information Richfields will use.

2 Towards open access to science

As noted in the Introduction, *Intellectual property refers to creations of the mind*, a realm where we can find two different categories of works which protection would need opposed perspectives: entertainment industry and scientific research. Industry dealing with entertainment intellectual works is interested in business models where markets can arise. For this purpose, the creation of barriers to the transmission of information is crucial, as opening a barrier can produce a levy for each allowed use of the work. Control is the entertainment industry business model (Patry, 2009, 26) and the more granulated a market is, the more possibilities to impose and collect a levy. On the opposite, scientific research is interested in a totally different perspective: the less barriers, the better for knowledge; *We’d have less knowledge, less academic freedom, and less OA [Open Access] if researchers worked for royalties and made their research articles into commodities rather than gifts* (Suber, 2012, 14). The problem arises when the same legislation is applicable to both models, industry of entertainment and scientific research.

As all legal institutions, IPR are an historical product. It was clear already in the nineteenth century that it is not the authors’ interest that is at stake, but the big business of IPR transactions between countries. Quoting Hesse (2002, 40):

Positions on copyright were clearly not the product of disinterested jurisprudential reflection. By the nineteenth century it became clear that nations that were net exporters of intellectual property, such as France, England, and Germany, increasingly favored the natural rights doctrine as a universal moral and economic right enabling authors to exercise control over their creations and inventions and to receive remuneration. Conversely, developing nations that were net importers of literary and scientific creations, such as the United States and Russia, refused to sign on to international agreements and insisted on the utilitarian view of copyright claims as the statutory creations of particular national legal regimes. By refusing to sign international copyright treaties, the developing nations of the nineteenth century were able to simply

appropriate the ideas, literary creations, and scientific inventions of the major economic powers freely.

Consequently, instead of guaranteeing the free dissemination of science, the IPR turned into focusing on the interests of the entertainment industry, allied in the twentieth century with software and drug companies (Drahos & Braithwaite, 2002), ending for the time being with the entering into force the first of January of 1995 of the TRIPS Agreement² (the Agreement on Trade-Related Aspects of Intellectual Property Rights) signed by the members of the World Trade Organization (WTO). According to this agreement, IPR are a commodity object of trade and as such must be protected, as lobbied by the following North American organizations: the International Intellectual Property Alliance; the Pharmaceutical Manufacturers Association; the Chemical Manufacturers Association; National Agricultural Chemicals Association; Motor Equipment Manufacturers Association; Auto Exports Council; Intellectual Property Owners, Inc.; the International Anti-counterfeiting Coalition; and the Semiconductor Industry Association (Sell, 2003, 76). The interest of this lobby was to incorporate the trade-based conception into the protection of the IPR, which they finally succeeded on a global scale (*ibid.*, 75-95).

2.1 Budapest, Bethesda and Berlin declarations

In this context of an IPR business model based on control, with the need of the rightholder consent in order to legalize the transmission of any formalized knowledge, being IPR but a commodity, dated as of 14th February 2002 a group of persons, involved in scholar publishing and worried about knowledge, promoted what was to be the known as the Budapest Open Access Initiative³ (Chan *et al*, 2002). This declaration was followed shortly after by the Bethesda Statement on Open Access Publishing⁴ (20 June 2003) and by the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities⁵ (22 October 2003). The three declarations addressed the difficulties faced by the dissemination of knowledge, surprisingly in the Internet era where access to information is promiscuous. As the Budapest Open Access Initiative declared in its first paragraph,

An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the

2 https://www.wto.org/english/docs_e/legal_e/27-trips.pdf Accessed 31st January 2018.

3 <http://www.budapestopenaccessinitiative.org/read> Accessed 31st January 2018.

4 <http://legacy.earlham.edu/~peters/fos/bethesda.htm> Accessed 31st January 2018.

5 <https://openaccess.mpg.de/Berlin-Declaration> Accessed 31st January 2018.

world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.

The same ideas can be found in the Bethesda and the Berlin declarations, and in the three of them the solution proposed to comply with their willingness was twofold: first, self archiving academic articles, and second, the *launch [of] a new generation of journals committed to open access* (Chan et al, 2002).

Related to the limits imposed by copyright and price, the legal and economic barriers to the transmission of knowledge, they stated:

Because journal articles should be disseminated as widely as possible, these new journals will no longer invoke copyright to restrict access to and use of the material they publish. Instead they will use copyright and other tools to ensure permanent open access to all the articles they publish. Because price is a barrier to access, these new journals will not charge subscription or access fees, and will turn to other methods for covering their expenses.

The underlying philosophy of the Budapest Open Access Initiative is not different from the ideas that had inspired Henry Oldenburg, Secretary of the *The Royal Society of London for Improving Natural Knowledge*, when he proposed in 1665 changing how the experiments were to be documented. Instead of using a secret register to avoid the so called *usurpatio* (term used then for piracy) he introduced a public journal where the scientific experiments were published to allow their replicability and challenge, being thus born the *Philosophical Transactions*, the first scientific journal (Jones, 2011, 62). Scientific method depends on public scrutiny and experimentation replicability and these conditions could not be met by a secret publication. If *replication is the set of technologies which transforms what counts as belief into what counts as knowledge* (Shapin & Schaffer, 2011, 225), only an open model could provide the necessary conditions for its accomplishment.

2.2 Creative Commons licences

Actions speak louder than words could be the motto that moved a North American foundation to provide legal tools to the open access movement. Inspired by the solutions provided by the General Public License (GPL) to the Free Software movement, the foundation Creative Commons released its first set of copyright licenses for public use ten months after the Budapest Open Access Initiative. Their initial press release, dated 16

December 2002, described their purposes and the three components of the licences: a deed publicly readable, the legal text and a machine readable code of the license⁶:

San Francisco, CA — Creative Commons, a non-profit dedicated to promoting the creative reuse of intellectual works, launched its first product today: its machine-readable copyright licenses, available free of charge from creativecommons.org. The licenses allow copyright holders to easily inform others that their works are free for copying and other uses under specific conditions. These self-help tools offer new ways to distribute creative works on generous terms — from copyright to the public domain — and are available free of charge.

“People want to bridge the public domain with the realm of private copyrights,” said Stanford Law Professor and Creative Commons Chairman Lawrence Lessig. “Our licenses build upon their creativity, taking the power of digital rights description to a new level. They deliver on our vision of promoting the innovative reuse of all types of intellectual works, unlocking the potential of sharing and transforming others’ work.”

Creative Commons licenses help people express a preference for sharing their work — on their own terms. Copyright holders who decide to waive some of their rights but retain others can choose a license that declares “Some Rights Reserved” by expressing whether they require attribution or allow commercial usage or modifications to their work. Additionally copyright holders may select to waive all their rights and declare “No Rights Reserved” by dedicating their work to the public domain. After the copyright holder chooses their license or public domain dedication, it is expressed in three formats to easily notify others of the license terms:

1. Commons Deed. A simple, plain-language summary of the license, with corresponding icons.
2. Legal Code. The fine print needed to fine-tune your copyrights.
3. Digital Code. A machine-readable translation of the license that helps search engines and other applications identify your work by its terms of use.

The three barriers, legal-economic-technical, were taken into consideration by the Creative Commons licenses, providing the authors with a six standardised licences with which they could allow the users of the works to take advantage of the creations. Regarding the legal aspects, the six licences are built using an obligation – give attribution to the author (By) –, and three parameters: (i) prohibit commercial use of the work (NC – Non Commercial), (ii) prohibit derivative works (ND – No Derivatives), and (iii) oblige to use the same licence

⁶ <https://creativecommons.org/2002/12/16/creativecommonsunveilsmachinereadablecopyrightlicenses/>
Accessed 31st January 2018.

when creating a derivative work over the original one (SA – Share alike). Thus, the six licences are By, By-NC, By-ND, By-SA, By-NC-ND and By-NC-SA. Regarding the economic aspects, the licenses are free to use for no price and finally, regarding the technical issues, the Creative Commons website offers a page where the licence provides a code written in Resource Description Framework (RDF)⁷, a standard model for data interchange on the Web, code that copied and pasted in the digital work can be read by search engines or by any other program that could spider or scrape the digital file.

On the 25th of November 2013, Creative Commons released version 4.0 of the licences, and introduced as a novelty the database *sui generis* right, which was not present in prior versions of the licences. With this amendment, the usage of a Creative Commons licence by the creator of a database could allow the transmission of the exclusive rights related to these special type of works.

Today there is no doubt that the licences Creative Commons are the most used worldwide to share content. A study made in 2014 indicated that 882 million works used these kind of licences (Github, 2014). They are also mentioned by the European Commission (2018a) in their last document as an example of the licenses that can be used for the reusability of the resources available in the European Open Science Cloud (EOSC).

2.3 Principles of open government data

The framework for sharing scholar knowledge was built by the BBB declarations (Budapest, Bethesda, Berlin) and the Creative Commons licences, but still remained problems for sharing data. Although data *per se* could be related to facts, then no IPR would be born as mere facts compose no work subject to IPR, on December 2007 a group of thirty open government advocates met in Sebastopol, California, to write what was called the eight principles of open government data. The main intention that led the participants to draft these rules was setting the basis on how public data should be available to society in general, pointing the difficulties that governmental bodies were to face when producing open data. The eight principles are⁸:

1. Complete

All public data is made available. Public data is data that is not subject to valid privacy, security or privilege limitations.

2. Primary

⁷ <https://www.w3.org/RDF/> Accessed 31st January 2018.

⁸ https://public.resource.org/8_principles.html Accessed 31st January 2018.

Data is as collected at the source, with the highest possible level of granularity, not in aggregate or modified forms.

3. Timely

Data is made available as quickly as necessary to preserve the value of the data.

4. Accessible

Data is available to the widest range of users for the widest range of purposes.

5. Machine processable

Data is reasonably structured to allow automated processing.

6. Non-discriminatory

Data is available to anyone, with no requirement of registration.

7. Non-proprietary

Data is available in a format over which no entity has exclusive control.

8. License-free

Data is not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be allowed.

Notwithstanding that these principles referred to public data, they can serve as a guide for every private organization whose intention is to serve open data. Therefore, these principles can be used as hints for designing the open data boundary for any informational infrastructure based on ICT. From this edge to the opposite one (we could call it from *open data to closed data*) could be found the territory where an organization like Richfields would be able to configure its business model. Data that will be used and curated by Richfields will be subject to economic, legal and technical issues and it is configuring these issues – grading its openness – how Richfields can develop the model that suits best its purposes.

2.4 European Union principles on open access, open science and open data

Open access to scientific publications

We can trace the European Union principles on open access back to an announcement made by the Commission in its press release⁹ of 17th July 2012, release that attached the

⁹ http://europa.eu/rapid/press-release_IP-12-790_en.htm Accessed 31st January 2018.

Memo 12/565¹⁰ of the same date entitled “Open access to scientific data – Communication and Recommendation – background”. The announcement clearly asserted that all scientific articles based on research financed by public European funds in the framework Horizon 2020 should be released under the conditions of open access to the public:

As a first step, the Commission will make open access to scientific publications a general principle of Horizon 2020, the EU's Research & Innovation funding programme for 2014-2020. As of 2014, all articles produced with funding from Horizon 2020 will have to be accessible:

- articles will either immediately be made accessible online by the publisher ('Gold' open access) - up-front publication costs can be eligible for reimbursement by the European Commission; or
- researchers will make their articles available through an open access repository no later than six months (12 months for articles in the fields of social sciences and humanities) after publication ('Green' open access).

The background of the press release and the Memo 12/565 were two communications from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions named “Towards better access to scientific information: Boosting the benefits of public investments in research” (COM(2012) 401 final)¹¹ and “A Reinforced European Research Area Partnership for Excellence and Growth” (COM(2012) 392 final)¹², both dated as the announcement, 17th July 2012. The Commission aim to develop a European Research Area (ERA) was made explicit in the COM(2012) 392 final, where

In view of open innovation and the increasingly collaborative nature of science, completing ERA also means realising the 'fifth freedom' - free circulation of researchers and scientific knowledge, including via digital means. The following definition of ERA is based on the Lisbon Treaty and European Council Conclusions: *a unified research area open to the world based on the Internal Market, in which researchers, scientific knowledge and technology circulate freely and through which the Union and its Member States strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address grand challenges.*

The Commission's so called *pragmatic approach to completing ERA* focused on 5 main points: (i) more effective national research systems, (ii) optimal transnational co-operation

10 [http://europa.eu/rapid/press-release MEMO-12-565_en.htm](http://europa.eu/rapid/press-release_MEMO-12-565_en.htm) Accessed 31st January 2018.

11 http://ec.europa.eu/research/science-society/document_library/pdf_06/era-communication-towards-better-access-to-scientific-information_en.pdf Accessed 31st January 2018.

12 http://ec.europa.eu/research/science-society/document_library/pdf_06/era-communication-partnership-excellence-growth_en.pdf Accessed 31st January 2018.

and competition, (iii) open labour market for researchers, (iv) gender equality and gender mainstreaming in research, and, what is of our main interest here, (v) optimal circulation, access to and transfer of scientific knowledge:

Research and innovation benefit from scientists, research institutions, businesses and citizens accessing, sharing and using existing scientific knowledge and the possibility to express timely expectations or concerns on such activities. A major challenge is to broadly implement Open Access - i.e. free internet access to and use of publicly-funded scientific publications and data - given the uneven state of advancement of Member State policies in this area. More generally, to increase the economic impact of research, we need to foster Open Innovation, links between research, business and education (the knowledge triangle) as via EIT and in particular knowledge transfer between public research institutions and the private sector while respecting intellectual property rights. As most knowledge creation and transfer uses digital means, all barriers preventing seamless online access to digital research services for collaboration, computing and accessing scientific information (e-Science) and to e-infrastructures must also be removed by promoting a digital ERA. The different types of knowledge transfer, circulation and access should also be judiciously factored into research cooperation with non-EU countries. (COM(2012) 392)

Thus, the document invited the research stakeholder organisations to *adopt and implement open access measures for publications and data resulting from publicly funded research*, while the Commission would *establish open access to scientific publications as a general principle for all EU funded projects in Horizon 2020* and, in relation to research data, the Commission would *develop a flexible approach that takes into account different scientific areas and business-related interests*.

Summarising the above, the informational elements object of the Commission communication were scientific publications and research data. So, from a strict legal perspective, not all texts produced by the Horizon 2020 project but only the articles that were to be published in scientific journals should be obliged to be open access. In relation to research data, no fixed approach was chosen.

On the 21st December 2017, the Commission (2017) published an Information Note entitled “Towards a Horizon 2020 platform for open access” with the main *aim to offer Horizon 2020 beneficiaries a free and fast publication possibility for peer reviewed articles as well as pre-prints resulting from Horizon 2020 funding*. The main goals of the platform would be (2017, 3):

1. Offer a reliable, easy and fast open access publishing venue, which is free to Horizon 2020 grantees at the point of delivery (the costs being fully

covered by this tender), thus providing them with another option to fulfil the open access obligations in Horizon 2020.

2. Reinforce the position of the Commission as leading by example in operationalising open science through Horizon 2020, by providing not only open access but also a form of open peer review, pre-prints support and innovative ('alternative') metrics services as part of the Platform.

3. Contribute to a more diversified and competitive open access publishing market, by being fully transparent as regards the costs and cost allocation.

Last, on the 25th April 2018, the Commission (2018b) published its Recommendation on access to and preservation of scientific information, where it reinforces the above ideas and recommends the Member States *to implement clear policies (as detailed in national action plans) for the dissemination of and open access to scientific publications resulting from publicly funded research, and reinforce the preservation and re-use of scientific information (publications, data sets and other research outputs), in between other measures.*

Open science

In relation to item 2 of the above text we can find a mention to the concept *open science*, which implies a broader concept than open access. There is no consensus on the definition of an *open science*, but we can approach its meaning through what has been proposed by diverse institutions, even though certain scholars understand that science, *per se*, is open and if it is not open it is not science¹³. Between July and September 2014, the European Commission held a public consultation under the terms “Science 2.0 / open science”¹⁴ which led to a final report entitled “Validation of the results of the public consultation on Science 2.0: Science in Transition” (2015), where one of the questions was regarding the term preferred by the stakeholders. Inquiring about the term of open science, the report states that ‘*Open science*’ appeared to be the most popular alternative term. It was selected from among six options by 43% of respondents and discussed during the workshops as the most viable alternative (2015, 6). Inquiring about the concept of ‘Open science’ the report reproduces the statements held by the participants:

In position statements, stakeholders emphasised that Open science refers to multiple, related developments. For instance, LERU described it as ‘an umbrella term for a series of movements in research’ (p. 1). Science Europe said it is a ‘series of related practices’ (p. 2) and the Public Library

13 As per the presentation by Eva Méndez, from University Carlos III of Madrid, at the conference “Publish or perish. Science under pressure” held in Bilbao (Spain) the 31st March 2017 during her intervention titled *Open Science vs Closed Science*.

14 <https://ec.europa.eu/digital-single-market/news/final-report-science-20-public-consultation> Accessed 29th March 2018.

of Science (PLOS) said it is a ‘system of related changes that must be considered in relation to one another’.

Science Europe identified three essential aspects of Open science: its relation to digital technology, the idea that it explores changing research practices and their impact on the research system as a whole, and the fundamental importance of “a certain vision of science as a community of practice” (2015, 6).

So, despite of the initial lack of definition, European Union has introduced this terminology in his official documentation (European Commission, 2016, 2 and 2018a).

The 4th and 5th of April 2016 was held the Amsterdam Presidency Conference on Open Science (Enserink, 2016). The conference concluded with twelve concrete actions to be taken¹⁵ which later served as input to the Competitiveness Council of the European Union on 26-27 May 2016. The Council expressed that open science involves *moving from a system in which it is difficult to access and locate the results of scientific research to one that openly disseminates results to all kinds of users, such as researchers, knowledge institutions, companies, patient, organisations, teachers, students, farmers and citizens in general*¹⁶ and referred to the twelve concrete actions proposed by the Amsterdam group under five cross-cutting themes that *follow the structure of the European Open Science Agenda proposed by the Commission*. The twelve actions are:

Removing barriers to open science.

1. Change assessment, evaluation and reward systems in science.
2. Facilitate text and data mining of content.
3. Improve insight into IPR and issues such as privacy.
4. Create transparency on the costs and conditions of academic communication.

Developing research infrastructures.

5. Introduce FAIR and secure data principles.
6. Set up common e-infrastructures.

Fostering and creating incentives for open science.

7. Adopt open access principles.
8. Stimulate new publishing models for knowledge transfer.

¹⁵ <https://wiki.surfnet.nl/display/OSCF/Amsterdam+Call+for+Action+on+Open+Science> Accessed 31st January 2018.

¹⁶ <http://www.consilium.europa.eu/media/22779/st09357en16.pdf> Accessed 31st January 2018.

9. Stimulate evidence-based research on innovations in open science.

Mainstreaming and further promoting open science policies.

10. Develop, implement, monitor and refine open access plans.

Stimulating and embedding open science in science and society.

11. Involve researchers and new users in open science.

12. Encourage stakeholders to share expertise and information on open science.

Only item 7 is directly related to open access, referring the other issues to a new way of producing science which is in line with was proposed nearly 25 years ago by Gibbons *et al.* (1994), named by them *Mode 2 of science production*:

Socially distributed knowledge production is tending towards the form of a global web whose numbers of inter-connections are being continuously expanded by the creation of new sites of production. As a consequence, in Mode 2 communications are crucial. At present this is maintained partly through formal collaborative agreements and strategic alliances and partly through informal networks backed up by rapid transportation and electronic communications. But this is only the tip of the iceberg. To function the new mode needs to be supported by the latest that telecommunications and computer technologies have to offer. Mode 2, then, is both a cause and a consumer of innovations which enhance the flow and transformation of information. (Gibbons *et al.* 1994, 14).

Open science is the model envisaged by the European Union to achieve an improved research and innovation system and its relationship with IPR is evident. It is a model where the barriers to knowledge transmission must be turned into bridges and as such the Commission published on the 14 march 2018 the *Commission Staff Working Document, Implementation Roadmap for the European Open Science Cloud (EOSC)* where the path towards open science is clearly presented:

[T]he objective of the Commission is to create a policy framework that enables data to be used throughout the value chain for scientific, societal and industrial purposes. As such, the EOSC will be a fundamental enabler of Open Science and of the digital transformation of science, offering every European researcher the possibility to access and reuse all publically funded research data in Europe, across disciplines and borders (2018, 3).

Open Data

The third aspect that is relevant for the infrastructure designed by the European Union is open data. In 2016 the European Commission analysed the reasons why Europe was not using the full potential of data in scientific developments and its conclusion signalled five

main factors: first, the lack of a clear structure of incentives; second, the lack of data interoperability; third, the fragmentation of data-driven science; fourth, the lack in Europe for a world-class High Performance Computing (HPC) infrastructure to process data and, fifth, data re-usage. As stated in its report:

Finally, scientific data producers and users must be able to re-use data and to use advanced analytics techniques, such as text and data mining, in an environment that is at least as dependable as their own facilities. [...] Any use and re-use of scientific data needs to ensure that personal data are adequately protected according to the EU data protection rules. These and forthcoming revision of EU Copyright legislation provide general frameworks which are relevant in this context (European Commission, 2016, 5).

Addressing this issue, the solution proposed by the Commission was the development of the afore mentioned EOSC. Interoperability, as remarked in the FAIR principles, and open data where necessary points. Regarding open data, the report asks to

Make all scientific data produced by the Horizon 2020 Programme open by default. This will extend the current pilot, whereby projects implement Data Management Plans to make research data findable, accessible, interoperable and re-usable (FAIR principles) (2016, 6).

But open by default does not impose openness. As footnote 34 to above assertion makes clear,

The existing opt-out options, where open access to data would be contrary to future commercial application or data privacy and personal data protection, security and protection of EU classified information will be maintained. The analysis of the pilot showed that most projects apply open data, but that opt-out options are also important (2016, 6).

Interoperability comes with the exigence of the accomplishment of the FAIR principles. These, as described by Wilkinson *et al.* suppose a reformulation for scientific activities of the before mentioned open government data and by Wilkinson *et al.* (2016, 4), are summarized as follows:

To be Findable:

- F1. (meta)data are assigned a globally unique and persistent identifier.
- F2. data are described with rich metadata (defined by R1 below).
- F3. metadata clearly and explicitly include the identifier of the data it describes.
- F4. (meta)data are registered or indexed in a searchable resource.

To be Accessible:

A1. (meta)data are retrievable by their identifier using a standardized communications protocol.

A1.1 the protocol is open, free, and universally implementable.

A1.2 the protocol allows for an authentication and authorization procedure, where necessary.

A2. metadata are accessible, even when the data are no longer available.

To be Interoperable:

I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

I2. (meta)data use vocabularies that follow FAIR principles.

I3. (meta)data include qualified references to other (meta)data.

To be Reusable:

R1. meta(data) are richly described with a plurality of accurate and relevant attributes.

R1.1. (meta)data are released with a clear and accessible data usage license.

R1.2. (meta)data are associated with detailed provenance.

R1.3. (meta)data meet domain-relevant community standards.

2.5 New owners, new goods: public participation in E-science

One aspect that must be considered in the digital age is the appearance of what has been called by certain scholars, *social production*, based on *the move to a communications environment built on cheap processors with high computation capabilities, interconnected in a pervasive network [...] that allows for an increasing role for nonmarket production in the information and cultural production sector* (Benkler, 2006, 3). The typical examples cited by all studies are Wikipedia, the free encyclopedia, and Openstreetmaps, a free cartography of the world. Following Benkler and Nissenbaum:

Commons-based peer production is a socio-economic system of production that is emerging in the digitally networked environment. Facilitated by the technical infrastructure of the Internet, the hallmark of this socio-technical system is collaboration among large groups of individuals, sometimes in the order of tens or even hundreds of thousands, who cooperate effectively to provide information, knowledge or cultural goods without relying on either market pricing or managerial hierarchies

to coordinate their common enterprise (Benkler & Nissenbaum, 2006, 394).

The idea of citizen collaboration for science production is not new. As examples, it can be mentioned when Thomas Jefferson, prior to his office as president of the newly founded United States, developed a plan in 1776 where twice a day a deputy in all counties in Virginia logged observations of temperature and wind direction (Cooper, 2012), when on 1847 an American naval officer, Matthew Fontaine Maury, published “Wind and Current Chart”, based on the 1842 crowdsourced data recorded by sailors: *Ships were mobile weather stations, accumulating a standardized set of weather variables with the strictest regularity at 15 minute intervals* (Cooper, 2012a), and when on 1835 William Whewell, a British scholar,

[...] coordinated thousands of people in nine nations and colonies on both sides of the Atlantic in the synchronized measurement of tides. At over 650 tidal stations, volunteers followed Whewell’s instructions for measuring tides every 15 minutes, around the clock, during the same two week period in June 1835 (Cooper, 2012b).

This type of production poses nowadays two challenges regarding IPR: who is the owner of the collective work and what is the nature of these collective goods.

New owners: social production and citizen science

In 1986 a group of technically skilled authors incorporated the Internet Engineering Task Force to continue the production of what was called the “Request for Comments” (RFC), documents where an internet protocol standard was proposed by any author and was expected to be commented by others, with the same proceeding as the one followed in 1665 by the Royal Society. This collaboration ended creating internet and even though it is the most important and the wealthiest intellectual work built in the last times, it seems to be invisible. Although free works (free as in freedom, not as in *gratuit*) are the core of our society, their nature as intellectual property is not in the public discourse. Internet, as such, is a collection of nearly ten thousand documents where the authors agreed the standards used for allowing the computers transmit and receive information. In order to communicate, a common standard used by all computers had to be built and this work was created by a collectivity.

Differently from the creations of eighteenth and nineteenth century described before by Cooper, nowadays collective creations are subject to IPR. According to intellectual property rules, the authors of the RFC documents hold rights on them but in order to progress, it was necessary to allow third parties to introduce modifications to the original documentation, creating derivative works. Thus, the RFC were licensed to allow modification of the original

texts.¹⁷ The same strategy has been followed by other collective digital creations: Linux kernel source is licensed under the General Public Licence (GPL)¹⁸, licence which introduced the concept of Copyleft, a clause that allows the authors of derivative works to legally distribute their creations under the condition of subsequently allowing other third parties to introduce modifications into their code; Wikipedia is licensed under a Creative Commons Attribution-Share Alike (CC BY-SA), Openstreemaps licences its database under the Open Data Commons Open Database License (OdbL) and the cartography in their map tiles and their documentation under the Creative Commons Attribution-Share Alike license (CC BY-SA).

It is necessary to mention that not all digital creators have followed the same strategy. Digital activists have produced very diverse licenses some of them widely used as the mere sentence "All rights reversed", a pun on the "All rights reserved" notice available in the restrictive Copyright licences, some as social as the Beer-Ware licence¹⁹ or as radical and vulgar as the DWTFYW licence²⁰, otherwise this last one perfectly legal but which demonstrates the diversity of the available standardized licenses. Apart from these last licences, the licence BSD²¹ supposed a qualitatively difference from the GPL. While the purpose of the GPL licence was to keep the source code open, the BSD licence used a different strategy, allowing the author to close its work, even though it could be based on prior works of which it was a derivative creation.

Jointly to this social production has appeared what has been called "Citizen science", terms that had a twofold origin in 1995 and which refers to the same phenomenon.

The first usage of "Citizen science" was made by the English scholar Alan Irvin in his book entitled *Citizen Science* (1995). Irvin focused on four issues (1995, 2-8): the first one was the *tragedy of technology*, a classic item subject matter of Science, Technology and Society studies (STS), which asserts that the scientific and technical developments are used in an

17 For intellectual property conditions applicable to RFCs, see *IETF Trust Copyright Policy and Trust Legal Provisions (TLP)*. *Frequently Asked Questions*. June 22, 2010. <http://trustee.ietf.org/docs/Copyright-FAQ-2010-6-22.pdf> Accessed 31st January 2018.

18 See <https://www.gnu.org/licenses/gpl-3.0.en.html> Accessed 31st January 2018.

19 The Beer-Ware License reads: "<phk@FreeBSD.ORG> wrote this file. As long as you retain this notice you can do whatever you want with this stuff. If we meet some day, and you think this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp" <https://people.freebsd.org/~phk/> Accessed 31st January 2018.

20 Do What the Fuck You Want to Public License. The conditions of this licence are: "Everyone is permitted to copy and distribute verbatim or modified copies of this license document, and changing it is allowed as long as the name is changed. Do what the fuck you want to public license. Terms and conditions for copying, distribution and modification: 0. You just do what the fuck you want to." <http://www.wtfpl.net/> Accessed 31st January 2018.

21 See <http://www.lininfo.org/bsdlicense.html> Accessed 31st January 2018.

acritical manner although they have both faces. Using Irwin's good part of his example, *Information technology [...] offers us vastly improved communication systems, greater efficiency, easy (at a price) access to databases and knowledge systems* but, using our words, it also provides us with privacy invasions as the Cambridge Analytics scandal, which all has to be said, happened without infringement of the users consent to Facebook terms and conditions. The second item raised by Irwin was how to channel the voices of individuals and groups of individuals to be heard *in the face of technical 'progress'*, question that would need *to unravel the concept of citizenship and the issues of knowledge, trust and identity upon which it hinges*. The third issue pointed by Irwin referred to how to address the gap between the necessary specialization for policy makers and the citizen knowledge so to build science for the people. Last Irwin point was how citizen science should face the necessary sustainability as *there will be no 'sustainability' without a greater potential for citizens to take control of their own lives, health and environment*. As we may foresee, Irwin concept of Citizen science is a wide abstraction that makes questions in the anthropological, sociological, political and epistemological domains.

The second usage of the expression "Citizen science" came from the North American scholar Rick Bonney. His understanding of the term was rather practical and long away from Irwin's perspective. With "Citizen science" Bonney made reference to the big amount of projects hosted by the Cornell Lab of Ornithology where the intervention of the public was of nuclear importance (1996). Although his text was published after Irwin's book, years later Bonney stated that when he published his study *he was unaware of the use of the term by Irwin [1995] to refer to citizen engagement in science policy* (Bonney et al. 2009, p. 15).

Further meanings can be found nowadays. The North American Citizen Science Association (CSA) uses the Oxford English Dictionary concept, *scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions*²², avoiding in this way the political view of the concept, whereas for the European Citizen Science Association (ECSA), Citizen science is a flexible concept which can be adapted and applied within diverse situations and disciplines²³. Finally, for the Australian Citizen Science Association (ACSA),

Citizen science involves public participation and collaboration in scientific research with the aim to increase scientific knowledge. It's a great way to harness community skills and passion to fuel the capacity of science to answer our questions about the world and how it works. To be involved in

22 <http://citizenscience.org/about/>

23 https://ecsa.citizen-science.net/sites/default/files/ecsa_ten_principles_of_citizen_science.pdf

citizen science you don't need a science degree. Citizen scientists work with scientists or the scientific framework to achieve scientific goals²⁴.

As a last example of the existence of both meanings of "Citizen science", the German association GEWISS (Citizens Create Knowledge – Knowledge Creates Citizens (BürGER schaffen WISSen – Wissen schafft Bürger) refers in his *Green Paper Citizen Science Strategy 2020 for Germany* (GEWISS, 2016) to both semantic frameworks and finally supports Irwin's vision:

In Germany, the term "Citizen Science" is increasingly used to describe both the long tradition of civic commitment to and engagement with science, as well as the numerous new formats for participating in research. While the Anglo-American approach to Citizen Science usually emphasises public participation in data collection for environmental research, there is a broader understanding of the term in Germany.

Citizen science encompasses the active participation by citizens in the various phases of the research process in the natural and social sciences and in the humanities. Participation ranges from generating research questions and developing a research project, to the collection and scientific analysis of data, right through to communicating the research results. In the process, collaborative efforts between the research institutions and independent individuals who are not connected to those institutions can be structured in quite different ways. This can range from projects developed completely independently within individual volunteer initiatives, to collaborative transdisciplinary work, to formalised instructions and guidance provided by scientific facilities. Over all, the common aim of all Citizen Science projects is to generate new knowledge. Research projects result in knowledge gains for science and often answer questions of very practical or socio-political relevance. Citizen science represents an approach in which scientists and voluntary experts are able to create mutual learning opportunities in a partnership of respect and at eye level. In the process, framework conditions are established from which all of the participants benefit (GEWISS, 2016, 13).

Whether we call it social production or we understand by "Citizen science" any of the significances of the semantic fields it refers to, what is clear is that public participation, either in a political sense or in an accrued participation observing, gathering, interpreting or analysing data, inquiring, concluding or disseminating any kind of scientific activity implies the production by a collectivity. And according to intellectual property legislation, this collectivity will own the IPR of their inputs.

24 <https://www.citizenscience.org.au/who-we-are/>

New goods: the digital commons

The collective digital creations were studied by the scholars due to their singularity and the problems they produced for the traditional IPR understandings of a work done by individuals or, at least, a controlled or controllable group of authors. Following Hess and Ostrom (2003, 144),

Governments, market forces, publishers, and traditional academic libraries can influence, but are not able to stop, the international movement of distributed information. The physical and virtual characteristics of distributed digital information have created a completely new type of information artifact.

By 'artifact' these authors understood *a discreet, observable, nameable representation of an idea or set of ideas as articles, research notes, books, databases, maps, computer files, and web pages* (ibid., 129), where IPR played a new perspective:

The meta-analysis of existing field cases helped to identify five property rights that individuals using a common-pool resource might cumulatively have: (1) Access – the right to enter a specified property, (2) Withdrawal – the right to harvest specific products from a resource, (3) Management – the right to transform the resource and regulate internal use patterns, (4) Exclusion – the right to decide who will have access, withdrawal, or management rights, and (5) Alienation – the right to lease or sell any of the other four rights (Ostrom, 2009).

Therefore, new goods were operating within communities, based on copyright-holder consent, which was enough to create a commons although not enough to create an open access commons. For that to happen, works should be digitized and published online (Suber, 2007, 181). As Hess and Ostrom noted, knowledge itself is a commons. Using this frame helped scholars *to conceptualize new dilemmas they were observing with the rise of distributed, digital information* (2007, 4). The traditional perspective dividing goods according to their owners into public or private had to be completed with a third category, the common goods, which in the digital realm happened to be increased, boosted, implemented by individuals who were part of communities. Individuals agreed to enrich the commons through their contributions and licensed their work under conditions that allowed third parties to access, withdraw, manage, exclude or alienate the goods, to use Ostrom terminology, or to copy/reproduce, disseminate, distribute or alter/transform, to use traditional intellectual property legal terminology.

To summarize this section, the idea that there are public, private and common goods can be supported, each of the goods with its own characteristics. Data donated by a collectivity of users who is interested in fostering and propelling scientific research is a good example of a digital commons (not private, not public, but a commons) that can enrich Richfields goals

and materialize its intervention in the E-science domain. Making the public understand that the donated data will be part of a digital commons where all researchers, professional and amateur, have the right to access, could enhance public visibility and, therefore, increase Richfields digital assets while, at the same time, accomplish the European Commission main objectives in the development of Open science.

3 Richfields Intellectual property issues

As per the DOA, Richfields' objective is *to design a world class research infrastructure [...] that will serve as an open access, distributed data-platform to collate and connect collect, align and share innovative and existing data [...]. This design will enable ESFRI, member states and other funding bodies to decide on the further preparation and implementation of the research infrastructure* (item 1.1 of Richfields DOA).

Thus, Richfields role in the IPR realm can be screened through three different perspectives:

- Richfields as creator of works from scratch (design a data-platform, innovative data).
- Richfields as creator using a third party pre-existing work, that is, Richfields as a creator of a derivative work (existing data).
- Richfields as a mere user of third parties creations.

But not only Richfields' DOA objective should be taken into account when analysing IPR, in such case future rights, but also the materials produced by the project members during the months Richfields has been developing contents, which should be appropriately licensed.

Thus, first, there is a compulsory regulation framework according to European Union open access rules; second, there is material already produced during the development of Richfields Project and third, there are works to be developed according the design created by Richfields which terms and conditions could now be proposed in order to accomplish the project's goals. Aside, there is a common procedure to be always followed when managing information, which is the clearance of IPR.

3.1 Application of open access principles to Richfields Project

In accordance with European Union open access principles, Richfields' consortium members project received on the 05/05/17 11:14 an email *automatically generated by the Grant Management Service of the European Commission* regarding the obligations related to the dissemination of knowledge generated with EU funding. The content of the message was:

Dear Horizon 2020 participant,

Robert-Jan Smits, Director-General at Research and Innovation Directorate-General of European Commission addressed a letter to you about the open access obligations in Horizon 2020, which apply to peer reviewed scientific publications. Please follow the link http://ec.europa.eu/research/participants/data/ref/h2020/other/comm/170406_open-access_en.pdf to access and read the letter on the Participant Portal. For more information about open access, download our infographic at http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-infograph-oa-sci-publ_en.pdf or consult the participant portal at http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access_en.htm

Regards,

Participant Portal Grant Management Service

Please do not reply to this message

This message has been automatically generated by the Grant Management Service of the European Commission.

The letter²⁵ to which the email made reference is included as Appendix and declared the principles of the European Union related to access to knowledge:

Open access to scientific publications produced with public funding is beneficial not only for science but also for speeding up innovation and involving citizens and society. This is why under Horizon 2020, each participant must ensure open access to all peer-reviewed scientific publications relating to their results (Article 29.2. of the Model Grant Agreement).

It should be noticed that the letter contained a novel perspective in the second paragraph of second page, where it stated clearly that open access is not only a matter of principles but that the infringement of these principles could someday include sanctions. Therefore it seems that there will be a step further in the obligation of knowledge dissemination path when the research that leads to this knowledge is financed with public funds.

The Commission will continue to provide support for open access to publications and it will also strengthen the monitoring of compliance. The Commission foresees sanctions in case of non-respect.

The Commission right to sanction infringements of the obligation to publish under open access the results of the Horizon 2020 project would be based in article 29 of the Model Grant Agreement.

25 http://ec.europa.eu/research/participants/data/ref/h2020/other/comm/170406_open-access_en.pdf
Accessed 31st January 2018.

ARTICLE 29 — DISSEMINATION OF RESULTS — OPEN ACCESS — VISIBILITY OF EU FUNDING

29.1 Obligation to disseminate results

Unless it goes against their legitimate interests, each beneficiary must — as soon as possible — ‘disseminate’ its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium).

[...]

29.2 Open access to scientific publications

Each beneficiary must ensure open access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results.

In particular, it must:

(a) as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;

Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b) ensure open access to the deposited publication — via the repository — at the latest:

(i) on publication, if an electronic version is available for free via the publisher, or

(ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c) ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

As we may analyse, the open access principles have been crystallized in the Model Grant Agreement through its article 29, where we can find an additional obligation for the parties, article 29.1, to ‘disseminate’ its results. Although what we could understand by results is a matter of discussion, a broad approach by the Richfields partner to this obligation would avoid conflicts with the European Commission and its foreseen sanctions. Therefore, publication in Richfields’ website of all non confidential deliverables would be a recommendable action. A list of all deliverables is included as appendix as to ease track of IPR conditions, if any.

3.2 Licensing already produced works

As per today, Richfields participants have created deliverables, produced content in communication channels, schemes of data models, obtained data from public institutions, produced software developments, presentations, texts, videos, images and scholar articles. It is unusual to find an IPR indication or licence in them so, as stated in the general rule explained in the introduction of this deliverable, nobody could legally use any of the creations except in case of consent from the author or in case of using a limitation to the intellectual property laws. In this last instance, as these limitations are very specific, the only possibility for others to build on Richfields productions would be to quote the contents, which in some cases could not be enough for a dissemination purpose or for the continuation of the project.

It is important to consider the regulation set forth in article 26 of the Model Grant Agreement:

ARTICLE 26 — OWNERSHIP OF RESULTS

26.1 Ownership by the beneficiary that generates the results

Results are owned by the beneficiary that generates them.

‘**Results**’ means any (tangible or intangible) output of the action such as data, knowledge or information — whatever its form or nature, whether it can be protected or not — that is generated in the action, as well as any rights attached to it, including intellectual property rights.

26.2 Joint ownership by several beneficiaries

Two or more beneficiaries own results jointly if:

- (a) they have jointly generated them and
- (b) it is not possible to:
 - (i) establish the respective contribution of each beneficiary, or
 - (ii) separate them for the purpose of applying for, obtaining or maintaining their protection (see Article 27).

The joint owners must agree (in writing) on the allocation and terms of exercise of their joint ownership (**‘joint ownership agreement’**), to ensure compliance with their obligations under this Agreement.

Unless otherwise agreed in the joint ownership agreement, each joint owner may grant non-exclusive licences to third parties to exploit jointly-owned results (without any right to sub-license), if the other joint owners are given:

- (a) at least 45 days advance notice and
- (b) fair and reasonable compensation.

Once the results have been generated, joint owners may agree (in writing) to apply another regime than joint ownership (such as, for instance, transfer to a single owner (see Article 30) with access rights for the others).

26.3 Rights of third parties (including personnel)

If third parties (including personnel) may claim rights to the results, the beneficiary concerned must ensure that it complies with its obligations under the Agreement.

If a third party generates results, the beneficiary concerned must obtain all necessary rights (transfer, licences or other) from the third party, in order to be able to respect its obligations as if those results were generated by the beneficiary itself.

If obtaining the rights is impossible, the beneficiary must refrain from using the third party to generate the results.

[...]

26.5 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to the any of the other measures described in Chapter 6.

In identical sense, Richfields parties signed the “RICHFIELDS Consortium Agreement, version 1.1 dated 2015-08-11” where Section 8, Results, is in accordance to the rules set forth by the Model Grant Agreement, stating the following:

8.0 Ownership of Results

Results are owned by the Party that generates them.

8.1 Joint ownership

Unless otherwise agreed:

- each of the joint owners shall be entitled to use their jointly owned Results for non-commercial research activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and
- each of the joint owners shall be entitled to otherwise Exploit the jointly owned Results and to grant non-exclusive licenses to third parties(without any right to sub-license), if the other joint owners are given:

(a) at least 45 calendar days advance notice; and

(b) Fair and Reasonable compensation.

The legal prescriptions of Article 26 of the Model Grant Agreement and of Section 8 of the Consortium Agreement imply that the beneficiary who created a work will be the rightholder of the IPR attached to his production, which by the way are the general intellectual property law rules explained in the introduction of this deliverable. If the participant creation is strategic for further developments of the project, then the beneficiary will hold the key to them. Such strategic condition could undermine open access and open science principles or the interests of the project in full so it will be recommendable that all the beneficiaries of the different works produced during Richfields project would finally either transfer their rights to the inheriting institution, either licence their works to third parties under general terms and conditions that do not hamper further developments.

3.3 Licensing Richfields dataset model

Richfields' purpose is to *serve as an open access, distributed data-platform to collate and connect collect, align and share innovative and existing data* (item 11. of Richfields DOA) while *[t]he core of RICHFIELDS is the design of the RI Consumer Data Platform for linking and sharing data on consumer behaviour and lifestyle in the food and health domain* (item 1.3.1 of the mentioned DOA). Data provenance can be from any actor in the food domain. Therefore, Richfields activity, when obtaining, processing or disclosing data, must follow certain legal rules which will be imposed by the owner of the data or the creator of the database, whoever it may be. In some cases the rules will not be set up at all, as for example in anonymous datasets.

Licensing Richfields dataset model will depend on different scenarios where diverse parameters can be of importance, so no general rule can be assessed in advance. In order to understand how these variables operate it is possible to exemplify certain cases where we can play with who produces the data, who builds the database where the data is inserted, and which are the material objects involved, leading us to the following different possibilities:

1. Richfields obtains primary data, for example via recording audio question and answers to customers in supermarket entrances. In this case, Richfields produces the data but a database does not exist. As the data is merely factual, there is no data rightholder but Richfields has created a work subject to IPR, the set of recordings.
2. Richfields obtains primary data, processes it and inserts the data in a database created by Richfields. In this case, the IPR are the *sui generis* rights on the created database.

3. A third party supplies data to Richfields but no database exists. For example, a freedom of access to information is exercised by a Richfields partner and the data obtained are pdf files non machine readable. Richfields parses the files, extracts the data and creates a database, where it inserts the data. In this case, the supplier is the rightholder of the pdf files IPR, if any, and Richfields is the rightholder of the database structure IPR *sui generis*.
4. A third party supplies data to Richfields, data which is already inserted in a database. IPR of the content and right *sui generis* of the database are from the supplier.

From the before examples we are able to envisage:

- Data merely factual.
- Public data contained in pdf files provided by a public administration, which can be data merely factual that must be extracted from a document subject to IPR rights.
- IPR related to a creative work as the audio recordings.
- IPR related to a database, the *sui generis* right.
- IPR rights related to pdf files.

Due to this plurality, during Richfields life it will be necessary to analyse each work case by case. Nevertheless, all instances will correspond to one of the before mentioned possibilities:

- Richfields as creator of works from scratch.
- Richfields as creator using a third party pre-existing work, that is, Richfields as a creator of a derivative work.
- Richfields as a mere user of third parties creations.

Regarding the licence of the work, Richfields will be able to choose the licence for the creations it has developed from scratch, but in the cases Richfields creates a derivative work, then its licence election will be subject to the prior licence chosen by the rightholder of the pre-existing work. In this last case, the first task to accomplish when in possession of a third party dataset is to verify who is its rightholder and what are the legal conditions under which the dataset is licensed. And, in order to manage the licences automatically by a machine, a description of the legal conditions should be inserted as metadata in the dataset curated by Richfields, as shown in image .

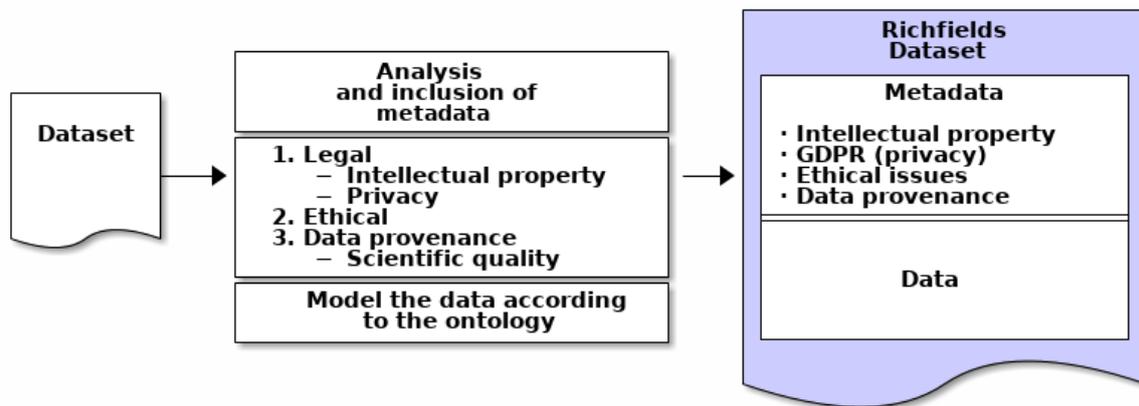


Image 1: Richfields dataset modelling

Richfields curated dataset should include not only the metadata related to IPR, but also all data that would be considered as relevant, such as privacy and ethical aspects, subject matter of deliverable 13.2, and data provenance, matter of deliverables related to technical developments.

In all cases where Richfields is the creator of the original work, as it is the rightholder of the *exclusive rights*, then it will have the possibility of deciding how to licence the creation so to develop any type of business model designed in deliverable 12.1, “Alternatives of business model concepts for the RI Consumer Data Platform”.

3.4 Intellectual property rights clearance. Terms and conditions

Richfields should introduce into its proceedings a very strict IPR clearance policy attending to the following conditions:

- For each of the activities described in item 3.3, where Richfields could use third party works, it is convenient to obtain the consent of the rightholder in a way there is no doubt this consent has been granted. Although verbal consents on IPR could be valid legally speaking, they should not be accepted as it is very uncertain they could be used as an evidence in court in case of a legal conflict.

Obtaining the permissions will depend on the data supplier and must be analysed case by case. Some suppliers will use a public licence, where the conditions would be clearly stated, some public licences will have not addressed all possible uses so the supplier should be contacted and some other suppliers will not express publicly the conditions and thus a direct contact will be needed in order to draft a document where the conditions are regulated.

- For each of the activities described in item 3.3 where Richfields is the collector of the data and the creator of the database, it is convenient to express publicly in a way no doubt could arise, what are the permissions that Richfields offers to the rest of the actors of the informational playground.

It has to be taken into account that although there is a European legal framework related to intellectual property, as described in the Introduction, every country has a specific normative. Thus, a design where different subsidiaries can exist will need to assure with local experts that the proceedings designed to collect or publish data do accomplish local legal requirements.

4 Richfields as a data storage supplier

Aside from intellectual property issues, it is necessary to analyse Richfields liabilities in case it decides to store data and allow public or private access to the platform. Regulation then to be aware of is the *Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market* (Directive on electronic commerce). This Directive is of application to all internet service providers established within the boundaries of the European Union. As per the Directive Whereas 19,

the place of establishment of a company providing services via an Internet website is not the place at which the technology supporting its website is located or the place at which its website is accessible but the place where it pursues its economic activity;

The Directive is of application to a new type of organization appeared with the digital economy, the providers of an information society service, which definition comes from prior Directives (Directive 98/34/EC as amended by Directive 98/48/EC). What is of interest to us is the liability Richfields would incur in if in the future decides to host data to serve it to its customers. The Directive on electronic commerce establishes a limited liability for information society providers if they accomplish certain requirements introduced by the Whereas 46:

(46) In order to benefit from a limitation of liability, the provider of an information society service, consisting of the storage of information, upon obtaining actual knowledge or awareness of illegal activities has to act expeditiously to remove or to disable access to the information concerned; the removal or disabling of access has to be undertaken in the observance of the principle of freedom of expression and of procedures established for this purpose at national level; this Directive does not affect Member

States' possibility of establishing specific requirements which must be fulfilled expeditiously prior to the removal or disabling of information.

The Directive regulates in its section 4, articles 12 to 15, the limitation of liability of the intermediary service providers. The normative that could be of application to Richfields platform in case it decides to store data would be related to the hosting function:

Article 14. Hosting

1. Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that:

(a) the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or

(b) the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.

2. Paragraph 1 shall not apply when the recipient of the service is acting under the authority or the control of the provider.

3. This Article shall not affect the possibility for a court or administrative authority, in accordance with Member States' legal systems, of requiring the service provider to terminate or prevent an infringement, nor does it affect the possibility for Member States of establishing procedures governing the removal or disabling of access to information.

What we should understand by a *recipient of the service* is regulated in article 2, Definitions, of the Directive:

(d) 'recipient of the service': any natural or legal person who, for professional ends or otherwise, uses an information society service, in particular for the purposes of seeking information or making it accessible;

Article 14 must be interpreted in conjunction with the rule set forth in article 15 of the Directive, introduced previously by Whereas 47, about a non specific obligation to monitor the contents publicly exposed in the website:

(47) Member States are prevented from imposing a monitoring obligation on service providers only with respect to obligations of a general nature; this does not concern monitoring obligations in a specific case and, in particular, does not affect orders by national authorities in accordance with national legislation.

The literal regulation of the non monitor obligation reads as follows:

Article 15. No general obligation to monitor

1. Member States shall not impose a general obligation on providers, when providing the services covered by Articles 12, 13 and 14, to monitor the information which they transmit or store, nor a general obligation actively to seek facts or circumstances indicating illegal activity.

2. Member States may establish obligations for information society service providers promptly to inform the competent public authorities of alleged illegal activities undertaken or information provided by recipients of their service or obligations to communicate to the competent authorities, at their request, information enabling the identification of recipients of their service with whom they have storage agreements.

The interpretation of what we should understand by the non-obligation to monitor has been the object of several European Union Court of Justice (EUCJ) judgments, beginning with the case *L'Oréal vs eBay*. The ruling of 12th July 2011 was the first decision to study the limits that can be imposed to an intermediary of the information society. In this case, the company L'Oréal sought liability of eBay for selling on its website ebay.co.uk seventeen counterfeit items that infringed Lancôme rights, a subsidiary of L'Oréal. The analysis provided by the EUCJ about eBay's obligation to monitor the content of its website and the products offered in it was stated in paragraphs 139 and 140:

139. First, it follows from Article 15(1) of Directive 2000/31, in conjunction with Article 2(3) of Directive 2004/48, that the measures required of the online service provider concerned cannot consist in an active monitoring of all the data of each of its customers in order to prevent any future infringement of intellectual property rights via that provider's website. Furthermore, a general monitoring obligation would be incompatible with Article 3 of Directive 2004/48, which states that the measures referred to by the directive must be fair and proportionate and must not be excessively costly.

140. Second, as is also clear from Article 3 of Directive 2004/48, the court issuing the injunction must ensure that the measures laid down do not create barriers to legitimate trade. That implies that, in a case such as that before the referring court, which concerns possible infringements of trade marks in the context of a service provided by the operator of an online marketplace, the injunction obtained against that operator cannot have as its object or effect a general and permanent prohibition on the selling, on that marketplace, of goods bearing those trade marks.

Further judgements had the opportunity to insist on the interpretation of these limits to monitoring obligation. In the case *Scarlet Extended*, an internet provider, vs the Belgian intellectual property collecting agency SABAM, the debate was over the following facts:

19 SABAM sought, first, a declaration that the copyright in musical works contained in its repertoire had been infringed, in particular the right of reproduction and the right of communication to the public, because of the unauthorised sharing of electronic music files by means of peer-to-peer software, those infringements being committed through the use of Scarlet's services.

20 SABAM also sought an order requiring Scarlet to bring such infringements to an end by blocking, or making it impossible for its customers to send or receive in any way, files containing a musical work using peer-to-peer software without the permission of the rightholders, on pain of a periodic penalty. Lastly, SABAM requested that Scarlet provide it with details of the measures that it would be applying in order to comply with the judgment to be given, on pain of a periodic penalty.

The answer given by the EU CJ, judgement dated 24th November 2011, was based on L'Oréal preceding ruling:

36 In that regard, the Court has already ruled that that prohibition applies in particular to national measures which would require an intermediary provider, such as an ISP, to actively monitor all the data of each of its customers in order to prevent any future infringement of intellectual-property rights. Furthermore, such a general monitoring obligation would be incompatible with Article 3 of Directive 2004/48, which states that the measures referred to by the directive must be fair and proportionate and must not be excessively costly (see L'Oréal and Others, paragraph 139).

37 In those circumstances, it is necessary to examine whether the injunction at issue in the main proceedings, which would require the ISP to install the contested filtering system, would oblige it, as part of that system, to actively monitor all the data of each of its customers in order to prevent any future infringement of intellectual-property rights.

38 In that regard, it is common ground that implementation of that filtering system would require

- first, that the ISP identify, within all of the electronic communications of all its customers, the files relating to peer-to-peer traffic;
- secondly, that it identify, within that traffic, the files containing works in respect of which holders of intellectual-property rights claim to hold rights;
- thirdly, that it determine which of those files are being shared unlawfully; and
- fourthly, that it block file sharing that it considers to be unlawful.

39. Preventive monitoring of this kind would thus require active observation of all electronic communications conducted on the network of

the ISP concerned and, consequently, would encompass all information to be transmitted and all customers using that network.

The judgement ended interdicting a general monitoring system due to the fact that it would not respect a fair balance between *the right to intellectual property, on the one hand, and the freedom to conduct business, the right to protection of personal data and the freedom to receive or impart information, on the other*:

51 It is common ground, first, that the injunction requiring installation of the contested filtering system would involve a systematic analysis of all content and the collection and identification of users' IP addresses from which unlawful content on the network is sent. Those addresses are protected personal data because they allow those users to be precisely identified.

52 Secondly, that injunction could potentially undermine freedom of information since that system might not distinguish adequately between unlawful content and lawful content, with the result that its introduction could lead to the blocking of lawful communications. Indeed, it is not contested that the reply to the question whether a transmission is lawful also depends on the application of statutory exceptions to copyright which vary from one Member State to another. Moreover, in some Member States certain works fall within the public domain or can be posted online free of charge by the authors concerned.

53 Consequently, it must be held that, in adopting the injunction requiring the ISP to install the contested filtering system, the national court concerned would not be respecting the requirement that a fair balance be struck between the right to intellectual property, on the one hand, and the freedom to conduct business, the right to protection of personal data and the freedom to receive or impart information, on the other.

Hence, there is no general obligation by the intermediary of the information society neither to monitor content (L'Oréal judgment) nor communications (Scarlet Extended judgment). But, what about data storage? The answer to this question was given by the EU CJ by its judgement dated 16 February 2012, in the case SABAM vs the company Netlog, the former being the Belgian intellectual property collecting agency and the latter an internet provider that hosted a social media website where the users shared audio files. The description of the conflict can be found in paragraphs 16 to 18, and 22 to 24 of the judgment:

16 Netlog runs an online social networking platform where every person who registers acquires a personal space known as a 'profile' which the user can complete himself and which becomes available globally.

17 The most important function of that platform, which is used by tens of millions of individuals on a daily basis, is to build virtual communities through which those individuals can communicate with each other and

thereby develop friendships. On their profile, users can, inter alia, keep a diary, indicate their hobbies and interests, show who their friends are, display personal photos or publish video clips.

18 However, SABAM claimed that Netlog's social network also offers all users the opportunity to make use, by means of their profile, of the musical and audio-visual works in SABAM's repertoire, making those works available to the public in such a way that other users of that network can have access to them without SABAM's consent and without Netlog paying it any fee.

22 In that regard, Netlog submitted that granting SABAM's injunction would be tantamount to imposing on Netlog a general obligation to monitor, which is prohibited by Article 21(1) of the Law of 11 March 2003 on certain legal aspects of information society services, which transposes Article 15(1) of Directive 2000/31 into national law.

23 In addition, Netlog claimed, without being contradicted by SABAM, that the granting of such an injunction could result in the imposition of an order that it introduce, for all its customers, in abstracto and as a preventative measure, at its own cost and for an unlimited period, a system for filtering most of the information which is stored on its servers in order to identify on its servers electronic files containing musical, cinematographic or audio-visual work in respect of which SABAM claims to hold rights, and subsequently that it block the exchange of such files.

24 It is possible that introducing such a filtering system would mean that personal data would have to be processed which would have to satisfy the provisions of EU law relating to the protection of personal data and the confidentiality of communications.

In *SABAM vs Netlog* resolution the EUCJ repeated its previous decisions, insisting on a right balance between IPR and privacy:

43 More specifically, it follows from paragraph 68 of that judgment that, in the context of measures adopted to protect copyright holders, national authorities and courts must strike a fair balance between the protection of copyright and the protection of the fundamental rights of individuals who are affected by such measures.

44 Accordingly, in circumstances such as those in the main proceedings, national authorities and courts must, in particular, strike a fair balance between the protection of the intellectual property right enjoyed by copyright holders and that of the freedom to conduct a business enjoyed by operators such as hosting service providers pursuant to Article 16 of the Charter (see *Scarlet Extended*, paragraph 46).

Therefore, concludes the EUCJ in this case, such a filtering system would infringe not only the privacy rights of the users but also the freedom of information:

48 Moreover, the effects of that injunction would not be limited to the hosting service provider, as the contested filtering system may also infringe the fundamental rights of that hosting service provider's service users, namely their right to protection of their personal data and their freedom to receive or impart information, which are rights safeguarded by Articles 8 and 11 of the Charter respectively.

49 Indeed, the injunction requiring installation of the contested filtering system would involve the identification, systematic analysis and processing of information connected with the profiles created on the social network by its users. The information connected with those profiles is protected personal data because, in principle, it allows those users to be identified (see, by analogy, *Scarlet Extended*, paragraph 51).

50 Moreover, that injunction could potentially undermine freedom of information, since that system might not distinguish adequately between unlawful content and lawful content, with the result that its introduction could lead to the blocking of lawful communications. Indeed, it is not contested that the reply to the question whether a transmission is lawful also depends on the application of statutory exceptions to copyright which vary from one Member State to another. In addition, in some Member States certain works fall within the public domain or may be posted online free of charge by the authors concerned (see, by analogy, *Scarlet Extended*, paragraph 52).

The last judgment from the EUCJ that analyses the monitor obligation was dated 15th September 2016 in the case *Tobias Mc Fadden vs Sony Music Entertainment Germany*. The facts of the case are detailed in paragraphs 22 to 25 of the ruling:

22 Mr Mc Fadden runs a business selling and leasing lighting and sound systems.

23 He operates an anonymous access to a wireless local area network free of charge in the vicinity of his business. In order to provide such internet access, Mr Mc Fadden uses the services of a telecommunications business. Access to that network was intentionally not protected in order to draw the attention of customers of near-by shops, of passers-by and of neighbours to his company.

24 Around 4 September 2010, Mr Mc Fadden changed the name of his network from 'mcfadden.de' to 'freiheitstattangst.de' in reference to a demonstration in favour of the protection of personal data and against excessive State surveillance.

25 At the same time, by means of the wireless local area network operated by Mr Mc Fadden, a musical work was made available on the internet free of charge to the general public without the consent of the rightholders. Mr Mc Fadden asserts that he did not commit the infringement alleged, but does not rule out the possibility that it was committed by one of the users of his network.

Regarding the monitoring obligation, the judgment concludes:

87 As regards, first, monitoring all of the information transmitted, such a measure must be excluded from the outset as contrary to Article 15(1) of Directive 2000/31, which excludes the imposition of a general obligation on, inter alia, communication network access providers to monitor the information that they transmit.

In summary, a data provider who hosts the information in a server managed by its organization in European Union territory, is considered an intermediary of the information society. The applicable Directive and the interpretation made by the EUCJ sets forth a limited liability by the provider who will only be responsible once it is *aware of facts or circumstances from which the illegal activity or information is apparent or the provider, upon obtaining such knowledge or awareness acts expeditiously to remove or disable access to the information* (article 14 of the Directive 2000/31/EC). No prior control through filtering or monitoring should be installed in the server.

Although the legislation and the jurisprudence may be clear, in practice what is important is not to be right but not to have a judicial case. Therefore, the incorporation of strict policies on IPR of the hosted data is very recommendable.

5 Privacy issues

Until now we have analysed IPR attached to the creation, transformation and distribution of data but our analysis would not be complete if we forget privacy or the right of third parties to the data due to its nature of 'personal data', which according to the definition provided by the article 4.1 of the *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)* known as the GDPR consists in any

information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.

What this means in practice is the need of a special precaution when the data managed by Richfields consists *also* in personal data, introducing then an additional complexity to the proceedings that should be set up by the governance of the project. At this step, when data are not only mere facts but also personal data, the RI will deal with the IPR of all the elements of the platform as enumerated in the immediately before point, with the IPR *sui generis* of their databases, plus the GDPR normative. Hence, this is another reason to recommend that the metadata of the model must keep track not only of the rights based on Intellectual Property but also the rights related to privacy. Due to the importance of this item, Deliverable 13.2 of Richfields project reports on these issues.

It must be emphasised that the policy object studied in this deliverable is only applicable to IPR. To accomplish GDPR requirements related to privacy as may be the right to basic information, the right of access, the right of rectification, the right to erasure (the right to be forgotten) or the right to restrict processing, specific forms will have to be drafted and used in accordance to the general GDPR requirements and the European state members national laws. This will have to be taken into account in cases where, for example, a consent will be obtained through the usage of mobile or desktop applications, aspects related to geolocation or traceability of the data donor, obtaining data through loyalty cards, addressing petitions of the right to be forgotten, posing restrictions for specific data, time period or research purpose, sharing partially data depending on the capacity of the mobile device, etcetera.

It must also take into account that the relationship between law and ethics has been a topic of discussion since the historical beginning of all philosophical enquiries. The accomplishment by a RI of all legal requirements regarding intellectual property law and privacy does not imply a correct ethical behaviour. To accomplish the law is not an absolute guarantee of a correct moral behaviour. As an example, although Facebook could be strictly accomplishing the law, the labyrinthine design of its website privacy settings hampers the building of a correct informed consent by the user, who also finds that some of his permits have been granted through the automatic acceptance of terms and conditions where certain consents are buried inside multiple clauses or is granted through accepted APIs whose behaviour produce unclear effects not completely understood.

6 Intellectual property good practices for public dissemination of E-science

The following good practices related to IPR are proposed. Apart from these practices, issues related to scientific, ethical, privacy and data provenance aspects should be taken into account and included in a common list. The exact licensing model is not proposed as it

should be a decision to be taken by the project members depending on the business model of the research infrastructure.

- 1. Obtaining data.**
 - 1.1.** Identification of the authorship of the data.
 - 1.2.** Clearance of previous IPR and/or other terms and conditions. If consent on IPR, terms or conditions are not met, then the data should not be used.
- 2. Managing or processing data.**
 - 2.1.** Respect of third parties IPR and/or terms and conditions.
- 3. Publishing data.**
 - 3.1.** Respect of third parties IPR and/or terms and conditions.
 - 3.2.** Related to data: for each dataset, machine readable and human readable metadata should be provided, indicating IPR and/or terms and conditions.
 - 3.3.** Related to data-platform:
 - 3.3.1.** Provision of clear IPR and/or terms and conditions for the usage of the platform.
 - 3.3.2.** Provision of clear proceeding for third parties IPR claims.
 - 3.3.3.** Provision of a clear proceeding for privacy claims.
 - 3.3.4.** Licence of the web page.
 - 3.4.** Related to access of third parties to data: facilitate data mining or access of data through an API.
- 4. Deployment of software applications, if any.**
 - 4.1.** Appropriate IPR licence should be attached.
 - 4.2.** Source code of the applications should be uploaded to a version control repository.
- 5. Specifically related to Richfields: all key assets produced by the members should be assigned to the inheriting institution if IPR on the assets could hamper future scientific developments contrary to European Union open science principles.**

7 Conclusion

In this deliverable, IPR aspects have been taken into account, describing how a worldwide legal regulation has been developed in favour of a trade-based design of IPR and how advocates of the dissemination of knowledge have created solutions using technology and free licences. This last approach is being impulsed in the European Union due not only to economical reasons of making public what has been funded with public money, but on the conviction of the necessity of openness when science is at stake. In order to develop these principles and accomplish with the Horizon 2020 legal requirements, the scientific publications based on Richfields' results should be made public under open access. Regarding further activities based on datasets curated by Richfields, a strict policy on IPR clearance should be established, along with an adequate insertion of metadata in each dataset where legal, ethical, privacy and provenance issues could be traced.

References

- Benkler, Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Cambridge (Massachusetts): Yale University Press.
- Bonney, R. (1996). «Citizen science: A Lab tradition». *Living Bird*, 15(4), 7–15.
- Bonney, R.; Ballard, H.; Jordan, R.; McCallie, E.; Phillips, T.; Shirk, J. & Wilderman, C. C. (2009). *Public Participation in Scientific Research: Defining the Field and Assessing Its Potential for Informal Science Education*. A CAISE Inquiry Group Report Center for Advancement of Informal Science Education (CAISE), Center for Advancement of Informal Science Education (CAISE).
- Chan, L.; Cuplinskas, D.; Eisen, M.; Friend, F.; Genova, Y.; Guédon, J.-C.; Hagemann, M.; Harnad, .; Johnson, R., Kupryte, R.; La Manna, M.; Rév, I., Segbert, M.; Souza, S. de; Suber, P.; Velterop, J. (2002), *Budapest Open Access Initiative*. Available at <http://www.budapestopenaccessinitiative.org/>
- Cooper, C. (2012). «Life, Liberty, and the Pursuit of Data». *Scientific American Blog Network*. Available at <http://blogs.scientificamerican.com/guest-blog/life-liberty-and-the-pursuit-of-data/>
- (2012a). «Retro Science, Part 1». *Scientific American Blog Network*. Available at <http://blogs.scientificamerican.com/guest-blog/retro-science-part-1/>
- (2012b). «Victorian-Era Citizen Science: Reports of Its Death Have Been Greatly Exaggerated». *Scientific American Blog Network*. Available at <http://blogs.scientificamerican.com/guest-blog/victorian-era-citizen-science-reports-of-its-death-have-been-greatly-exaggerated/>
- Drahos, P. & Braithwaite, J. (2002). *Information Feudalism. Who owns the Knowledge Economy?* New York: The New Press.
- European Commission. (2018a). *Commission Staff Working Document. Implementation Roadmap for the European Open Science Cloud*. SWD(2018) 83 final. Available at http://ec.europa.eu/research/openscience/pdf/swd_2018_83_f1_staff_working_paper_en.pdf
- (2018b). Commission Recommendation of 25.4.2018 on access to and preservation of scientific information. C(2018) 2375 final. Available at http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=51636
- (2017). *Information Note. Towards a Horizon 2020 platform for open access*. Available at http://ec.europa.eu/research/openscience/pdf/information_note_platform_public.pdf
- (2016). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*.

- European Cloud Initiative - Building A Competitive Data And Knowledge Economy In Europe* (SWD(2016) 1069 (SWD(2016) 107). Available at http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=15266
- (2015). *Validation of the results of the public consultation on Science 2.0: Science in Transition*. Available at http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=9407
- Enserink, M. (2016). “Dutch push for a quantum leap in open access”, in *Science*, Vol. 352, Issue 6283, p. 279.
- Floridi, L. (2010). *Information. A very short Introduction*, New York: Oxford University Press.
- GEWISS. (2016). *Citizen Science Strategie 2020 für Deutschland*. http://www.buergerschaffenwissen.de/sites/default/files/assets/dokumente/gewiss-gruenbuch_citizen_science_strategie.pdf. English version: *Citizen Science Strategy 2020 for Germany*. http://www.buergerschaffenwissen.de/sites/default/files/assets/dokumente/gewiss_cs_strategy_englisch_0.pdf
- Gibbons, M.; Limoges, C.; Nowotny, H.; Schwartzman, S.; Scott, P. & Trow, M. (1994). *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. London: SAGE Publications.
- Github. (2014). “State of the Commons: Notes and additional resources. Number of Creative Commons–licensed works”. Available at <https://github.com/creativecommons/stateofthe/blob/master/data/notes.md>
- Hess, C. & Ostrom, E. (2007). “Introduction: An Overview of the Knowledge Commons”, in *Understanding Knowledge as a Commons. From Theory to Practice*. Hess, C. & Ostrom, E. (editors). Cambridge (Massachusetts): The Mit Press.
- (2003). “Artifacts, Facilities, and Content: Information as a Common-pool Resource”, in *Law and Contemporary Problems*, Vol. 66:111 Winter/Spring 2003.
- Hesse, C. (2002). “The Rise of Intellectual Property, 700 B.C.-A.D. 2000: An Idea in the Balance”, in *Daedalus*, Vol. 131, n. 2, pp. 26-45. Available at <http://www.anthonypwarnick.com/dockdrop/files.pdf>
- Irwin, A. (1995). *Citizen Science: A Study of People, Expertise and Sustainable Development*. London and New York: Routledge.
- Jones, A. (2011). *Piracy. The Intellectual Property Wars from Gutenberg to Gates*. Chicago and London: The University of Chicago Press.
- Nonaka, I; Toyama, R. & Hirata, T. (2008). *Managing Flow. A Process Theory of the Knowledge-Based Firm*. Hampshire (UK) and New York: Palgrave Macmillan.

- Ostrom, E. (2009). "Beyond Markets and States: Polycentric Governance of Complex Economic Systems". Prize Lecture, December 8, 2009. Workshop in Political Theory and Policy Analysis, Indiana University, Bloomington, IN 47408, and Center for the Study of Institutional Diversity, Arizona State University, Tempe, AZ, U.S.A.
- Patry, W. (2009). *Moral Panics and the Copyright Wars*. Oxford: Oxford University Press.
- Sell, S. K. (2003). *Private Power, Public Law*. New York: Cambridge University Press.
- Shapin, S. & Schaffer, S. (2011). *Leviathan and the Air-Pump. Hobbes, Boyle, and the Experimental Life*. Princeton and Oxford: Princeton University Press.
- Suber, P. (2012). *Open Access*. Cambridge (Massachusetts): The Mit Press. Available at <https://www.dropbox.com/s/5cxsyzs58a5yx5q/9286.pdf?dl=0>
- (2007). "Creating an Intellectual Commons through Open Access", in *Understanding Knowledge as a Commons. From Theory to Practice*. Hess, C. & Ostrom, E. (editors). Cambridge (Massachusetts): The MIT Press.
- Wilkinson, M. D. et al. (2016) "The FAIR Guiding Principles for scientific data management and stewardship". *Sci. Data* 3: 160018, doi: [10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18).
- WIPO. (n.d.), *What is Intellectual property?* Available at http://www.wipo.int/edocs/pubdocs/en/intproperty/450/wipo_pub_450.pdf

Appendix

Appendix 1. List of public deliverables.

To serve as guide in case of need of IPR audit of RICHFIELDS deliverables (authorship and IPR details to be completed as the final versions are available).

Deliverable Number	Title	Authorship	IPR
D1.1	Minutes of the Plenary Project Meetings and Project Advisory Board Meetings		
D1.2	Position and final paper of RICHFIELDS		
D2.1	Project dissemination plan	Christina Sadler, Siân Astley	
D2.2	Project identity (logo, poster, email, Word & PowerPoint templates and website)	Christina Sadler	
D2.3	Dissemination materials (a flyer, a leaflet, a press release, Food Today articles, infographics and a roll up)		
D2.4	Web-based dissemination (eufic.org, podcast/webinar/video, Twitter/Facebook/ LinkedIn and e-newsletter)		
D2.5	Final dissemination report		
D3.1	Report from first Stakeholder Platform meeting	Siân Astley, Paul Finglas	
D3.2	Report from second Stakeholder Platform meeting		
D3.3	Report from first Stakeholder workshop		
D3.4	Report from second Stakeholder workshop	Siân Astley, Paul Finglas, Charo Hodgkins, Lada Timotijevic	
D3.5	Report from third Stakeholder workshop		
D4.1	Outline methodology for research and inventory	Kerry Ann Brown, Lada Timotijevic	

Deliverable Number	Title	Authorship	IPR
	development of data types		
D4.2	Report on synthesis of the findings for WP5-7		
D4.3	Report on the synthesis of the findings for WP8-WP10		
D4.4	Open Architecture Platform Design – initial concepts		
D4.5	Overall Synthesis report		
D5.1	Report on inventory of types of purchase data and data collection	Susanne Ekman, Anne Normann, Erik Baderstedt, Naomi Klepacz, Marcus Maringer, Anouk Geelen, Muriel Verain, Monique Raats	
D5.3	List of quality criteria - WP5	Anne Normann, Susanne Ekman, Naomi Klepacz, Marcus Maringer, Anouk Geelen, Muriel Verain, Monique Raats	
D5.4	Paper on quality criteria and overview of criteria applied to available data/methods - WP5		
D5.5	Report on gaps and needs - WP5	Anne Normann, Susanne Ekman, Marcus Maringer, Naomi Klepacz, Anouk Geelen, Muriel Verain, Monique Raats	
D6.1	Report on inventory of types of preparation data and data collection methodologies		
D6.3	List of quality criteria - WP6		
D6.4	Paper on quality criteria and overview of criteria applied to available data/methods - WP6		
D6.5	Report on gaps and needs - WP6		
D7.1	Report on inventory of types of consumption data and data collection methodologies	Marcus Maringer, Susanne Ekman, Anne Normann, Naomi Klepacz, Muriel Verain, Monique Raats, Anouk Geelen	
D7.3	List of quality criteria - WP7	Marcus Maringer, Naomi Klepacz, Susanne Ekman, Anne Norman, Monique Raats, Muriel Verain, Anouk Geelen	

Deliverable Number	Title	Authorship	IPR
D7.4	Paper on quality criteria and overview of criteria applied to available data/methods - WP7		
D7.5	Report on gaps and needs - WP7	Marcus Maringer, Susanne Ekman, Anne Normann, Naomi Klepacz, Monique Raats, Anouk Geelen	
D8.1	Report from case studies	Bent Egberg Mikkelsen, Kwabena Titi Ofei, Haris Hondo, Erik Kaunisto	
D8.4	Report on recommendations on future research and policy		
D9.3	Scientific manuscript on overall case study outcomes and future framework		
D10.1	Position document "Laboratories and research facilities in the field of food and health consumer behaviour and lifestyle" (M 20)	Sophie Hieke, Tamara Bucher, Bent E. Mikkelsen, Paul Finglas, Jos van den Puttelaar	
D10.4	Integrated report of WP10 activities for Synthesis Report of Task 4.2	Sophie Hieke, Tamara Bucher, Bent E. Mikkelsen, Paul Finglas, Jos van den Puttelaar	
D11.3	Standardisation requirements for RI Consumer Data Platform (An overview of standards in relation to the RI Consumer Data Platform)	Barbara Koroušić Seljak, JSI; Krijn Poppe, WUR; SP, AAU, GS1 and AALTO	
D11.4	Roadmap RI Consumer Data Platform		
D12.1	Alternatives of business model concepts for the RI Consumer Data Platform	Golboo Pourabdollahian, Giacomo Copani, Krijn Pope, Kerstin Lienemann, Sophie Hieke, Barbara Koroušić Seljak	
D13.1	IPR design	Javier de la Cueva	
D13.2	Ethical design	Indira Carr	
D13.3	Governance design for RI platform for consumer behaviour and lifestyle		

Appendix 2. List of confidential deliverables

Deliverable Number	Title	Authorship	Observations
D5.2	Report on user practices - WP5		Report Confidential, only for members of the consortium (including the Commission Services)
D6.2	Report on user practices - WP6		Report Confidential, only for members of the consortium (including the Commission Services)
D7.2	Report on user practices - WP7		Report Confidential, only for members of the consortium (including the Commission Services)
D8.2	Report on IC options		Report Confidential, only for members of the consortium (including the Commission Services)
D8.3	Report on 4 cases stakeholder workshop WP8 8 - AAU	Kwabena Titi Ofei, Bent Egberg Mikkelsen, Haris Hondo, Erik Kaunisto, Sophie Hieke	Report Confidential, only for members of the consortium (including the Commission Services)
D9.1	Integrated report on four case studies and proposed data outputs for RI Consumer Data Platform	Mark Roe, Rachel Berry, Barbara Koroušić Seljak, Nadia Slimani, Julie-Anne Nazare, Martine Laville, Todor Ginchev, Jose Costa-Requena, Edward Mutafungwa, Sophie Hieke, Hwayoung Noh, Heinz Freisling, Paul Finglas	Report Confidential, only for members of the consortium (including the Commission Services)

Deliverable Number	Title	Authorship	Observations
D9.2	Final report with recommendations for a new framework for future collaboration and interfacing between existing Ris and the RI Consumer Data Platform		Report Confidential, only for members of the consortium (including the Commission Services)
D10.2	Vision document "Purchase behaviour data and information to be used by the RICHFIELDS data cloud"	Jos van den Puttelaar, Tamara Bucher, Bent Egberg Mikkelsen, Muriel Verain, Sophie Hieke	Report Confidential, only for members of the consortium (including the Commission Services)
D10.3	Vision document "Out of home consumption data and information for the RI Consumer Data Platform"		Report Confidential, only for members of the consortium (including the Commission Services)
D11.1	User requirements' specification		Report Confidential, only for members of the consortium (including the Commission Services)
D11.2	Semantic data model of the RI Consumer Data Platform	Tome Eftimov, Barbara Koroušič Seljak, Gordana Ispirova, Peter Korošec, JSI	Report Confidential, only for members of the consortium (including the Commission Services)
D12.2	Preliminary assessment of business model concepts alternatives		Report Confidential, only for members of the consortium (including the Commission Services)
D12.3	Detailed business model design		Report Confidential, only

Deliverable Number	Title	Authorship	Observations
D12.4	Roadmap on the RI Consumer Data Platform		for members of the consortium (including the Commission Services) Report Confidential, only for members of the consortium (including the Commission Services)
D13.4	Final Design of RI platform for consumer behaviour and lifestyle		Report Confidential, only for members of the consortium (including the Commission Services)
D13.5	Roadmap and recommendations		Report Confidential, only for members of the consortium (including the Commission Services)

Appendix 3. Letter dated as of 27th March 2017 from the Director General of the Directorate-General for Research & Innovation on open access.





Brussels, **27 MARS 2017**
rtd.ddg1.a.6(2017)1430458

Subject: The open access to publications obligations in Horizon 2020 (*mailing to all Horizon 2020 Participants*)

Dear Horizon 2020 Participant,

Following up on my earlier letter of 15 February 2017 on project communication and the acknowledgement of EU funding, I would like to draw your attention to another very important matter related to the dissemination of knowledge generated with EU funding.

Open access to scientific publications produced with public funding is beneficial not only for science but also for speeding up innovation and involving citizens and society. This is why under Horizon 2020, each **participant must ensure open access to all peer-reviewed scientific publications relating to their results** (Article 29.2. of the Model Grant Agreement). However, we realise that there is no "one size fits all" solution, which is why participants can choose between two routes towards open access, namely:

- **Self-archiving** (also referred to as 'green' open access), meaning that a published article or the final peer-reviewed manuscript is archived (deposited) in an online repository before, alongside or after its publication. If this route is chosen, beneficiaries must ensure open access to the publication within a maximum of six months (twelve months for publications in the area of social sciences and humanities).
- **Open access publishing** (also referred to as 'gold' open access) means that an article is immediately placed in open access mode (on the publisher/journal website). Publishers often charge so called Article Processing Charges to make articles open. Such costs are eligible for reimbursement during the lifetime of the project as part of the overall project budget. For gold open access publishing, open access must be granted *at the latest on the date of publication*. A copy should, at the same time, be deposited in a repository.

We have recently analysed the state of play of compliance with our open access obligation in Horizon 2020. Currently, 68% of publications produced with Horizon 2020 funding are subject to open access, the majority through the green route.¹

¹ See <https://data.europa.eu/euodp/en/data/dataset/open-access-to-scientific-publications-horizon2020>

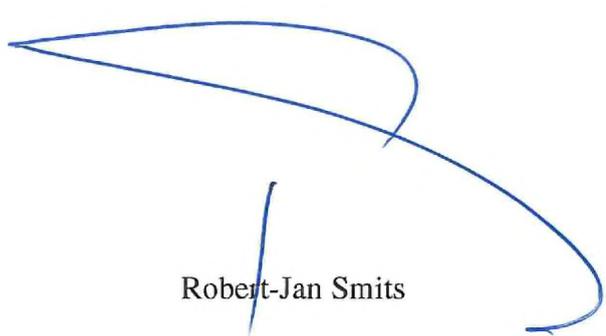
Given that not yet many publications have been published so far in Horizon 2020, this is an encouraging start. But we should not forget that we need to reach 100% open access by 2020, which is why I want to draw again your attention to this obligation.

The Commission will continue to provide support for open access to publications and it will also strengthen the monitoring of compliance. The Commission foresees sanctions in case of non-respect.

Of course, we would also be interested to hear from you which action we should take to increase compliance and for this you can contact us at our functional mailbox RTD-OPEN-ACCESS@ec.europa.eu. You will find more information about the open access requirement in Horizon 2020 on the participant portal at:

http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access_en.htm

Best regards,



Robert-Jan Smits

