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Data in Legal Limbo: Ownership, sovereignty, or a digital public goods regime?

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SOUTH CENTRE

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DATA IN LEGAL LIMBO: OWNERSHIP, SOVEREIGNTY, OR A DIGITAL PUBLIC GOODS REGIME?[1]

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NOTE

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ABSTRACT

The legal characterization and design of a legal regime for data poses one of the most important contemporary challenges to law professionals and policy makers. How such a framework is designed matters for what kind of insertion a society will have in the digital economy, and the extent to which a country will be able to benefit from the opportunities opened by big data. The current policy space to devise legal regimes adapted to national circumstances allows countries to seek for new solutions that take into account differences in legal systems, levels of economic and technological development, and national objectives and priorities.

L'élaboration d'une définition et d'un cadre juridique applicables aux données posent l'un des plus importants défis contemporains aux professionnels du droit et aux décideurs politiques. La manière dont un tel cadre est conçu est essentielle en ce qu'elle détermine la capacité d'insertion d'une société dans l'économie numérique et la mesure dans laquelle un pays peut tirer parti des opportunités offertes par les données massives (Big Data). L'espace politique actuel, propice à l'élaboration de régimes juridiques adaptés à la situation nationale de chaque pays, favorise la recherche de solutions nouvelles qui tiennent compte des différences de systèmes juridiques, des niveaux de développement économique et technologique, et des objectifs et priorités à l'échelle nationale.

La calificación jurídica y el diseño de un régimen jurídico relativo a los datos generan uno de los desafíos actuales más importantes para los profesionales del derecho y los responsables de la formulación de políticas. El modo de diseñar dicho marco influye en la clase de inserción que tendrá una sociedad en la economía digital, y en la medida en que un país será capaz de beneficiarse de las oportunidades que brindan los macrodatos. El actual espacio de políticas para concebir regímenes jurídicos adaptados a las circunstancias nacionales permite a los países buscar nuevas soluciones que tengan en cuenta las diferencias de los sistemas jurídicos, los niveles de desarrollo económico y tecnológico, y los objetivos y las prioridades nacionales.

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INTRODUCTION

The legal characterization and design of a legal regime for data poses one of the most important contemporary challenges to law professionals and policy makers. This is, of course, not the first time—nor will it be the last—that technological developments have demanded new legal approaches and solutions.

The introduction of new plant breeding methods at the beginning of the last century required the creation of a new set of rules, ultimately enshrined in the International Union for the Protection of New Varieties of Plants (UPOV),[3] to protect plant varieties.[4] When IBM was forced in 1969 by the US Department of Justice to unbundle its marketing of hardware and software (computer programs), intense debates arose about the basic legal framework for software protection. The matter was finally settled in favor of copyrights (and patents in the case of the USA).[5] Developments in modern biotechnology generated new and complex issues concerning the legal protection of genetic information and genetically modified living forms, which led to the adaptation of patent rules. Today, microorganisms can generally be patented, and animals and plants are also eligible in many jurisdictions.[6] The expansion in the production and use of integrated circuits prompted the search for a modality of protection—actively sought by the US producers in the 1980s—for 'chips' designs or 'topographies,' which culminated in the adoption of a *sui generis* regime.[7] The digitization of copyrightable works prompted questions about the future of an almost three-centuries-old legal regime, which was, however, able to adapt to the digital environment through new mechanisms such as anti-circumvention disciplines and technological protection measures.[8] More recently, patent laws confronted the issue of whether to recognize inventions made through the use of artificial intelligence, a possibility so far rejected by the US patent office and the European Patent Office.[9]

These are only some examples of the legal tensions and challenges created by technological change. The massive production, processing, transmission, and use of digital data, generally termed 'big data,' represent one example of far-reaching implications. Data has long been widely available, but the increases in storage and processing capacity facilitated by artificial intelligence, the Internet of things, and cloud computing, among other developments, have transformed the big data situation drastically.[10]

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[3] Available from: https://www.upov.int/upovlex/en/upov_convention.html.
[4] See, e.g., Cary Fowler, "The Plant Patents Act of 1939: a sociological history of its creation", *Journal of the Patent & Trademark Office Society*, vol. 82 (2000), p. 621.
[5] P. Samuelson, "A case study on computer programs", in *Global Dimensions of Intellectual Property Rights in Science and Technology*, Wallerstein, Mogee, and Schoen, eds. (National Academy Press, 1993), pp. 284-294.
[6] See, e.g., S. Miller, "Intellectual property and biotechnology: biological inventions", *Journal of Commercial Biotechnology*, vol. 14 (2008), pp. 349-351. Available from: https://doi.org/10.1057/jcb.2008.15.
[7] See, the Semiconductor Chip Protection Act of 1984, and Carlos Correa, "Intellectual property in the field of integrated circuits: implications for developing countries", *World Competition*, vol. 14 (1990–1991), p. 83.
[8] See, e.g., Dana Beldiman, "Copyright and the challenges of the digital age—can all interests be reconciled?", in *Legal Issues in the Global Information Society* (Oceana Publications Inc. of Dobbs Ferry, 2005). Available from: https://ssrn.com/abstract=2049074.
[9] The US Patent and Trademark Office—similarly to the European Patent Office—decided that AI programs cannot be 'inventors.' See https://www.uspto.gov/sites/default/files/documents/16524350_22apr2020.pdf, https://www.epo.org/news-issues/news/2020/20200128.html.
[10] Padmashree Gehl Sampath. "Regulating the digital economy: dilemmas, trade offs and potential options". Research Paper, No. 93 (South Centre, March 2019). Available from:

While in most of the examples mentioned above, debates have mainly addressed the legal and economic issues affecting specific sectors or technological fields, and have particularly focused on the situation of developed countries, the case of big data is one of a global nature and raises social issues such as the protection of privacy, as well as political concerns, namely, how states can exercise sovereignty over data—both structured and unstructured[11]—produced or stored within their jurisdictions.

The dominant position of a few companies operating digital platforms for the collection, processing, transmission, and for-profit use of data,[12] along with the asymmetric capacity of developed and developing countries in managing their data resources, as well as concerns about privacy and cybersecurity, have triggered demands for the legal characterization of data and for clarification about who can access and use it, in which manner, and for what purposes. Importantly, a number of countries are seeking, in the context of the World Trade Organization (WTO), to develop new rules[13] that, *inter alia*, would ensure the 'free flow of data.' This objective, however, raises concerns among countries that lack the capacity to exploit the data generated in their territories and who, for a variety of reasons including the development of local industries, wish to retain national control over certain categories of data.[14] As noted by UNCTAD, '[c]ountries at all levels of development risk becoming mere providers of raw data to those digital platforms while having to pay for the digital intelligence produced with those data by the platform owners.'[15]

This paper focuses on the legal aspects of data, including what legal status they have under general principles of law and intellectual property, and what alternative legal frameworks may apply. The paper examines the following points: first, some basic distinctions between data, the facts they may refer to, and information; second, how data can be classified; third, the legal applicability of copyright to data; fourth, what other rights may be claimed over data; and, finally, who could claim such rights.

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https://www.southcentre.int/wp-content/uploads/2019/03/RP93_Regulating-the-Digital-Economy-Dilemmas-Trade-Offs-and-Potential-Options_EN-1.pdf, p. 3.

[11] "Structured data broadly refers to data generated by machines, such as IoT applications, sensors, machine logs, among others, which can be accumulated over time to create large data sets (quote ommited). Unstructured data, in contrast, is created by humans transacting or using the internet" (Sampath, op. cit., p. 4).

[12] See, e.g., T.P. Barwise and L. Watkins, "The evolution of digital dominance: how and why we got to GAFA", in *Digital Dominance: The Power of Google, Amazon, Facebook, and Apple* (Oxford University Press 2018), pp. 21-49.

[13] See, e.g., Arun S. Nair, "E-commerce issues at the WTO discussions and in India" (RIS, 2020). Available from: http://www.ris.org.in/sites/default/files/E-commerce%20issues%20at%20the%20WTO%20discussion%20and%20in%20India_0.pdf.

[14] For instance, the Reserve Bank of India requires the local storage of payment data generated in the country. See, e.g., https://www.lawfareblog.com/key-global-takeaways-indias-revised-personal-data-protection-bill.

[15] UNCTAD, *Digital Economy Report 2019 Overview* (2019). Available from: https://unctad.org/en/PublicationsLibrary/der2019_overview_en.pdf. p. 8.

SOME BASIC DISTINCTIONS

A first important consideration to be made in examining the legal treatment of data is the distinction between facts recorded by data and data itself.

'Data' refers to acts, situations, or values such as characters and numbers; they may be quantitative or qualitative and provide a more or less complete representation depending on the technology used to record them and on the scope of the intended 'capture.' The distinction between the object of data and its recording was discussed in a leading case by the US Supreme Court in *Feist Publications Inc v. Rural Telephone Service Co,* 499 US 340 at 347, 1991.[16]

Both Feist Publications Inc. and Rural Telephone Service Co. published telephone directories. To obtain "white pages listings for its area-wide directory, Feist approached each of the 11 telephone companies operating in northwest Kansas and offered to pay for the right to use its white pages listings. Of the 11 telephone companies, only Rural refused to license its listings to Feist … Unable to license Rural's white pages listings, Feist used them without Rural's consent."[17] The plaintiff argued that the defendant had infringed on the copyright protection that it deemed was available to its directory's white pages. In analyzing the circumstances of the case, the Court distinguished between the facts, as an objective reality, and the recording of those facts. It noted that "many compilations consist of nothing but raw data—i.e., wholly factual information not accompanied by any original written expression. On what basis may one claim a copyright in such a work? Common sense tells us that 100 uncopyrightable facts do not magically change their status when gathered together in one place."[18]

While facts and data can, hence, be distinguished, data is also different from 'information.' Data becomes information when it is processed, organized, structured, or presented in a given context. Information is, in essence, contextualized data. While data is deemed to be an 'asset' or a 'factor of production,' it is useful and acquires value when it becomes information, mainly through aggregation or combination. The enormous increase in the capacity to collect, store, process, transmit (locally or across borders), and use data in the last few decades, however, has generated a strong demand to identify or develop an appropriate legal framework for data as such and not as information.

A basic question is whether particular rights (and corresponding obligations) can be attached to data, or whether data is 'legally inert,'[19] that is, whether or not data can be captured by the legal regime as the distinct subject matter of a right. As discussed below, the idea that data may be 'owned' has gained traction and is often mentioned as one possible way for individuals to exercise their rights (e.g., regarding access to and use of data) and for countries to control the collection, storage, processing transmission, and use of data generated in their jurisdictions.

[16] See, https://cyber.harvard.edu/people/tfisher/1991%20Feist.pdf.
[17] Ibidem.
[18] Ibidem.
[19] See, Richard Kemp, Paul Hinton, and Paul Garland, "Legal rights in data" (2001) CLSR 142.

CATEGORIES OF DATA

Conceptualizing data from a legal perspective requires better identification of different types of data, and whether the same legal regime would be suitable to all of them or if different treatments would be required. While an elaborated reply to this question is beyond the remit of this paper, it is useful to mention some of the possible categories of data.

First, data may be categorized as 'public,' i.e., produced (or collected for public purposes) by governments, or 'non-public,' i.e., generated by individuals, communities, enterprises, and other entities. The distinction between these two categories may be blurred in some cases, such as in relation to personally identifiable information (e.g., social security or fiscal identification). Many governments have embraced the policy of 'open government data' as a means "to promote transparency, accountability and value creation by making government data available to all."[20] This policy assumes that the government has the full right to dispose of the data it generates and controls, including the right to make data public or to keep it restricted and outside public access.[21] No argument about 'ownership' of such data has apparently been made in the past. An open question is whether governments will become less inclined to open their data to the public in view of their possible use by the digital companies that manage a large segment of the data produced globally.[22]

Non-public data may be personal or non-personal/commercial. An elaborated legal framework has been developed and adopted in many countries in relation to personal data. According to UNCTAD, 66% of countries have put in place legislation to secure the protection of data and privacy.[23] The European Union (EU) General Data Protection Regulation (GDPR)[24] has been particularly influential in shaping a model for the protection of privacy in the digital environment.[25]

The introduction of regulations for non-personal/commercial data has been slower than those for personal data, which shows not only a sentiment of urgency to protect individual interests but perhaps also the complexities inherent in the design of rules for non-personal data. The EU has come forward with a regulation centered on the regulation of the flow of data within the Union, which heavily relies upon the self-regulation of stakeholders. EU Regulation 2018/1807 of 14 November 2018, on a framework for the free flow of non-personal data in the European Union[26] and applicable as of May 28, 2019, aims at creating a 'single market' for such data by removing obstacles to the free flow of non-personal data across Member States (see Box 1).

[20] See, https://www.oecd.org/gov/digital-government/open-government-data.htm.
[21] Certain categories of government data (including those produced by contractors) are 'classified' or 'sensitive' and kept secret under specific regulations and cybersecurity standards.
[22] See, e.g., UNCTAD, 2019, op. cit.
[23] See, https://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Legislation/eCom-Data-Protection-Laws.aspx. See also, https://www.cnil.fr/en/data-protection-around-the-world.
[24] See, https://gdpr-info.eu/.
[25] See, e.g., https://www.lexology.com/library/detail.aspx?g=872b3db5-45d3-4ba3-bda4-3166a075d02f.
[26] See, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018R1807.

Box 1. EU Regulation on the free flow of non-personal data

The Regulation aims at ensuring:

- Free movement of non-personal data across borders: every organization should be able to store and process data anywhere in the European Union.
- The availability of data for regulatory control: public authorities will retain access to data, even when it is located in another Member State or when it is stored or processed in the cloud.
- Easier switching of cloud service providers for professional users. The Commission has started facilitating self-regulation in this area, encouraging providers to develop codes of conduct regarding the conditions under which users can port data between cloud service providers and their own IT environments.
- Full consistency and synergy within the cybersecurity package. Any security requirements that already apply to businesses storing and processing data will continue to do so when businesses store or process data across borders in the EU or in the cloud.

Source: https://ec.europa.eu/digital-single-market/en/free-flow-non-personal-data

A further distinction should be made between personal data and 'anonymized personal data.' Recital 26 of the GDPR, for instance, defines anonymized data as "data rendered anonymous in such a way that the data subject is not or no longer identifiable." Data anonymization ensures the protection of private data by erasing or encrypting identifiers that connect an individual to stored data. When anonymized, data leave the category of protected personal data and become subject to other regulations, if any, as non-personal data. [27]

Based on the content of data, a further classification can be made into three categories: 'representative' data (e.g., measurement of a variable, such as temperature),[28] 'implied' data (based on inferences from raw data), and 'derived' data (produced from other data).[29]

Depending on the source or 'creator,' data may be further classified as either 'human' or 'machine-generated' data.[30] The former include, for instance, data resulting from emails, spreadsheets, presentations, images, audio, and video files, while the latter include data automatically generated by computer processes, applications, or other mechanisms, such as sensors, without direct human intervention. The legal treatment of these categories of data varies significantly, as the former can be protected by the existing modalities of intellectual property rights.

[27] See, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, "Building a European data economy", COM (2017) 9 final, 10.1.2017. Available from: https://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-9-F1-EN-MAIN-PART-1.PDF. p. 9.

[28] The European Commission has noted that "data generated by home temperature sensors may be personal in nature if it can be related to a living person, while data on soil humidity is not personal" (Communication from the Commission to the European Parliament, op. cit., p. 9).

[29] See, Kitchin (2014). *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences* (Sage).

[30] Further sub-categories may be defined in this regard. See, Daniel Abadi, "Machine v. human generated data" (DBMS Musings, 30 December 2010). Available from: http://dbmsmusing.blogspot.com/2010/12/machine-vs-human-generated-data.html.

The categories of data mentioned above may be subject to variations or re-classifications. Governments have policy space to define data categories at their discretion, including specifying different legal treatments for various categories so as to pursue their public policy objectives. In some cases, the difficulties in providing definitions of such categories may be overcome by a default approach. Under the EU legislation, for instance, commercial data are those which are 'non-personal,' that is, not related to an identified or identifiable natural person. In the case of the Indian Data Protection Bill (2019),[31] the following data categories are defined:

- *Sensitive*: information on financials, health, sexual orientation, genetics, transgender status, caste, and religious belief.
- *Critical*: extraordinarily important, such as military or national security data.
- *General*: the remaining data.

The bill introduces different treatments for such categories. "Critical personal data" must be stored and processed only in India while "sensitive personal information" must be stored within India but can be copied elsewhere provided that certain conditions are met, notably that the destination country applies privacy protections to the data and does not prevent Indian law enforcement access to the data.[32]

[31] Available from: https://www.insideprivacy.com/wp-content/uploads/sites/6/2019/12/India-Personal-Data-Protection-Bill-2019-Redline-of-Changes-2.pdf.
[32] See, e.g., Arindrajit Basu and Justin Sherman, "Key Global Takeaways From India's Revised Personal Data Protection Bill" (23 January 2020). Available from: https://www.lawfareblog.com/key-global-takeaways-indias-revised-personal-data-protection-bill.

DATA UNDER COPYRIGHT LAW

As illustrated by the *Feist* case mentioned above, the analysis about the legal status of data calls for the consideration of the applicability of the existing regimes of intellectual property, notably copyright.[33] Interestingly, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) suggests that data (as contained in compilations) may be subject to copyright protection. Article 10(2) [compilations of data] provides that:

> *… Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyright subsisting in the data or material itself.*

It is unclear, however, what kind of "copyright subsisting in the data" the drafters of the agreement were thinking of.

Of particular relevance to the discussion on data protection is the expression/idea dichotomy. With its incorporation into article 9.2 of the TRIPS Agreement, this doctrine has become a general principle of copyright law: "Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such." In the *Feist* case, the US Supreme Court noted that "[a]ll facts—scientific, historical, biographical, and news of the day, may not be copyrighted and are part of the public domain available to every person."[34] The court added that

> … the act/expression dichotomy limits severely the scope of protection in fact-based works. More than a century ago, the Court observed: "The very object of publishing a book on science or the useful arts is to communicate to the world the useful knowledge which it contains. But this object would be frustrated if the knowledge could not be used without incurring the guilt of piracy of the book." Baker v. Selden, 101 U.S. 99, 103 (1880). We reiterated this point in Harper & Row: "No author may copyright facts or ideas. The copyright is limited to those aspects of the work—termed 'expression'—that display the stamp of the author's originality.

The idea/expression dichotomy is either expressly provided for in many countries in their legislation or has been otherwise recognized through case law.[35] However, in some countries, that principle has been narrowed down by the 'mergers doctrine, in accordance to which "[w]here the expression of a fact or an idea merges with that fact or idea (for example, where there is only one or a very limited number of ways to express it), there can be no copyright protection since the practical result of any such protection would be to give a monopoly over the fact or idea."[36]

Some case law has further limited the idea/expression dichotomy based on some characteristics of data. In *New York Mercantile Exchange Inc. v. Intercontinental*

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[33] The protection of 'trade-secrets' or, more generally, undisclosed information can also be relevant, but it is not discussed in this paper. See, e.g., Gianclaudio Malgieri, "Trade secrets v personal data: a possible solution for balancing rights", *International Data Privacy Law*, vol. 6, No. 2 (2016), pp. 102-116. Available from: https://ssrn.com/abstract=3002685.

[34] *Feist Publications Inc v Rural Telephone Service Co* [1991] 499 US 340, 111 S Ct 1282 at 348.

[35] In the case of Canada, for instance, case law has established that '[c]opyright protection only extends to the expression of ideas as opposed to the underlying ideas or facts." Facts are in the public domain as "trite law" (*CCH Canadian Ltd v Law Society of Upper Canada* [2004] 1 SCR 339, 2004 SCC 13, CanLII), para 25. See also, A. Drassinower, "A rights-based view of the idea/ expression dichotomy in copyright law", *Canadian Journal of Law & Jurisprudence*, vol. 16, No. 1 (2003), pp. 3-21.

[36] See, Teresa Scassa (2018). "Data ownership". CIGI Papers No. 187. CIGI. Available from: https://www.cigionline.org/sites/default/files/documents/Paper%20no.187_2.pdf. p. 9.

Exchange Inc., the US Court of Appeal for the Second Circuit considered that "the defendant's copying of settlement prices generated by the plaintiff's algorithm amounted to copyright infringement. Ultimately, the court characterized the issue as one of determining 'the line between creation and discovery,' in other words, whether the plaintiff was the author of the settlement prices or merely their discoverer …"[37] In *BanxCorp v. Costco Wholesale Corp.*, "the court considered arguments that calculated percentages were original and therefore protected by copyright. The court seemed to accept the possibility that some facts could be authored."[38] It observed that

> If the data purports to represent actual objective prices of actual things in the world … it is an unprotectable fact; if the data purports to represent an estimated price of a kind of idealized … then the hypothetical price may be eligible for some form of copyright protection in the right circumstances.[39]

In another case, the Canadian Supreme Court elaborated on the concept of 'processed data.' It defined processed data as

> any product derived, generated or created from the data, including, but not limited to any and all processed and reprocessed data, interpretations, maps or analyses, regardless of the form or medium on which it is displayed or stored.[40]

A different issue is whether a compilation or aggregation of data, which may be collected and organized in huge quantities, is protectable under copyright. While in the EU non-original databases can claim a *sui generis* protection aimed at rewarding investment,[41] in most other countries a compilation—whether digital or not—can only be protected if the selection or arrangement of the data or materials is original. In the *Feist* case mentioned above, the court stressed that "the *sine qua non* of copyright is originality." It held the following:

> Facts, whether alone or as part of a compilation, are not original and therefore may not be copyrighted. A factual compilation is eligible for copyright if it features an original selection or arrangement of facts, but the copyright is limited to the particular selection or arrangement. In no event may copyright extend to the facts themselves.

The European Directive on databases mentioned above remains an exception, as it does not require originality. Its model, however, has not inspired legislative changes in other countries. Importantly, the resources used to create data are outside the EU *sui generis* protection; only resources used to seek and collect the data are within the directive's scope.[42] The European Commission's evaluations of the effectiveness, efficiency, relevance, coherence, and EU added value of the directive, have not been encouraging in this regard: "[d]espite providing some benefits at the stakeholder level, the sui generis right continues to have no proven impact on the overall production of databases in Europe, nor on the competitiveness of the EU database industry."[43]

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[37] Idem, p. 8.
[38] Ibid.
[39] *Corp v Costco Wholesale Corp* [2013] SDNY 978 F Supp (2d) 280. For an anlysis of the Canadian case law, see Teresa Scassa, op. cit., p. 8-10.
[40] 2017 CanLII 80435 (SCC) *Geophysical Service Inc.*
[41] See The Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases. Available from: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0009:EN:HTML
[40] See, Ana Ramalho, "Data producer's right: power, perils & pitfalls" (2018). Available from: https://cris.maastrichtuniversity.nl/en/publications/data-producers-right-power-perils-amp-pitfalls.
[43] European Commission, *Executive Summary of the Evaluation of Directive 96/9/EC on the legal protection of databases*, p. 1. Available from: https://ec.europa.eu/digital-single-market/en/news/staff-working-document-and-executive-summary-evaluation-directive-969ec-legal-protection.

In summary, copyright legislation and case law have generally made it clear that protection under that regime does not extend to data as such, but only to original expression. However, the ‘mergers doctrine,’ where recognized, may introduce a partial and possibly limited exception. The concept that ‘processed data’ may be copyrightable opens up the possibility of claiming protection, which in any case would be subject to the requirement of originality. This includes when an aggregation or data, whether small or large (as allowed by digital technologies) is made. In this latter case, copyright protection does not cover the data as such, but only the way in which they are organized.

WHAT OTHER RIGHTS OVER DATA?

A key issue to elucidate is what kind of other rights, beyond intellectual property, exist or can be recognized over data. As examined above, copyright may be deemed applicable in some circumstances, but these may be limited and irrelevant in the case of 'raw data.' Are there alternatives, or should data remain in a legal limbo? An important concern is that the *status quo*, that is, the lack of a definition of such rights, may consolidate the control of data markets by the biggest digital companies, notably Google, Amazon, Facebook, and Apple (collectively known as 'GAFA') both in developed [44] as well developing countries.[45] This concern is aggravated by questions about the extent to which those companies comply with competition, consumer protection, and tax laws.[46]

This section will discuss some possible options regarding the recognition of rights over data. The discussed options are not exhaustive, as there are many ways in which private data rights (including rights to access, remuneration, portability, rectification, erasure, objection to sharing, etc.) and public rights may be recognized. Possible *ex lege* solutions can also be complemented by contract law.[47]

Data ownership

One of the approaches that has recently seen some traction, notably in economic and policy analyses, is based on 'ownership' of data, namely the idea that data may be 'owned' by individuals, entities, or governments. This would mean not only that human persons could decide, for instance, on access to and use of personal data, but that states could exercise rights to regulate how data is stored, processed, accessed, or used within their respective jurisdictions.

From a legal perspective, ownership of an intangible like data is problematic. Unlike the case of copyrightable works, patented inventions, etc., data is produced and flows at a staggering speed and in huge volumes[48] and is processed and reprocessed in multiple forms. While ownership might be claimed on a set of data, it would still be difficult to determine the boundaries of the protected 'subject matter.' Even in the realm of intellectual property, there are differing interpretations of the concept of 'property' which can affect the scope of protection under the law for copyrights, patents, trademarks, and

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[44] For instance, around 19 in every 20 European internet searches are carried out on Google. See "Big tech faces competition and privacy concerns in Brussels", The Economist (23 March 2019). Available from: https://www.economist.com/briefing/2019/03/23/big-tech-faces-competition-and-privacy-concerns-in-brussels. The European Commission has also been active in fighting tax elusion and claiming the payment of taxes to by GAFA. See, e.g., "The European Union and the GAFA issue". Available from: https://www.eyes-on-europe.eu/the-european-union-and-the-gafa-issue/.

[45] See, e.g., Parminder Jeet Singh and Anita Gurumurthy, "Data sharing requires a data commons framework law", DGN Policy Brief 02, 2020, Data Governance Network. Available from: https://itforchange.net/data-sharing-requires-a-data-commons.

[46] For instance, the European Commission has been active in fighting tax elusion and claiming the payment of taxes to by GAFA to European governmets. See, e.g., "The European Union and the GAFA issue". Available from: https://www.eyes-on-europe.eu/the-european-union-and-the-gafa-issue/.

[47] See, e.g., Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services. Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L0770.

[48] "Global Internet Protocol (IP) traffic, a proxy for data flows, grew from about 100 gigabytes (GB) per day in 1992 to more than 45,000 GB per second in 2017 (figure). And yet the world is only in the early days of the data-driven economy" (UNCTAD, 2019, op. cit p. 1). By April 2020, every day 2.5 Quintillion bytes of data were created. See, https://www.dihuni.com/2020/04/10/every-day-big-data-statistics-2-5-quintillion-bytes-of-data-created-daily/.

confidential information.[49] While a patent, trademark, or design may be 'owned,' ownership in this case refers to the titles to the exclusive rights conferred rather than to the inventions or signs *as such* that are protected under those titles. While in common law countries the concept of property or ownership is broad and encompasses both rights *in rem* as well as any legally enforceable claim and interest, including a diversity of rights *in personam*, the concept is narrower under continental law. But even in common law countries, the application of the concept of 'property' to trade secrets—with respect to which exclusive rights are not granted—has been controversial. For instance, it has been held that:

> neither information in general, nor confidential information in particular, are property in the strict understanding of that term, and that terminology associated with property while maybe useful in a descriptive sense, is best avoided in the interests of conceptual certainty.[50]

Notably, the TRIPS Agreement does not refer, as it does in the case of trademarks and patents, to 'owners' of undisclosed information (such as technical know-how or secret commercial information) but to ''information lawfully within their control" (article 39.2).[51] As discussed above, data is the factual material upon which information is built and, in this sense, is less prone to a property right than any form of information.

One of the main advantages of ownership as applied to data is that it may facilitate its tradability or exchange.[52] The recognition of 'ownership' of data may present some problems and have some systemic implications. For instance, if ownership were deemed to entail the right to give consent or not to platforms and other suppliers for every use of personal data, a person "would spend their lives doing nothing else."[53] It would also mean that the measurement of the current temperature is 'owned' by somebody and cannot be used by others without the owner's authorization. Moreover, it would mean that data collected as a result of clinical studies undertaken in relation to a medicine could be deemed to be 'owned' by the companies that originated the data, thereby preventing generic companies from using or relying on them without any time limit unless new clinical studies—with the corresponding waste of resources and ethical implications—were carried out. Importantly, pharmaceutical and agrochemical test data are protected under the TRIPS Agreement in accordance with the discipline of unfair competition, which does not confer any exclusive rights, although the latter have been recognized, for a limited period, under a diversity of free trade agreements signed by the US and the EU with various partners.[54]

Ownership over information has been denied by courts in some instances. For instance, in one case the court stated that:

> Confidential information should not be, for policy reasons, considered as property by the courts for the purposes of the law of theft … it is not capable of being taken as

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[49] J. Griffiths, "Concepts of property in intellectual property law", in *Cambridge Intellectual Property and Information Law*, H. Howe, ed. (Cambridge University Press, 2013).
[50] A. Coleman, *The Legal Protection of Trade Secrets* (Sweet & Maxwell, 1992), 8.
[51] See, e.g., Carlos Correa*, Trade Related Aspects of Intellectual Property Rights. A Commentary on the TRIPS Agreement* (Oxford University Press, second edition, 2020), p. 348.
[52] See, the British Society, the Royal Society, TechUK, op. cit., p. 29.
[53] See, the British Society, the Royal Society, op. cit., p. 6.
[54] See, e.g., Carlos Correa*,* Mitigating the Regulatory Constraints Imposed by Intellectual Property Rules under Free Trade. Agreements. Research Paper, No. 74. South Centre. Available from: https://www.southcentre.int/wp-content/uploads/2017/02/RP74_Mitigating-the-Regulatory-Constraints-Imposed-by-Intellectual-Property-Rules-under-Free-Trade-Agreements_EN-1.pdf

> only tangibles can be taken … save very exceptional far-fetched circumstances, the owner would never be deprived of it.[55]

Ownership of data would mean not only to grant—unless exceptions are provided for—an absolute control (including to allow for or restrict access) but also a right without time limit. This could put 'data owners' in a more advantageous situation than holders of many types of intellectual property rights, such those covering patents and designs, whose rights have time limits and are not renewable. Moreover, as further discussed below, the attribution of ownership rights would be particularly complex. As noted by Scassa,

> If there is a data ownership right, how would such a right reflect factors such as the interests of a company that collects personal information and the interests of the data subjects in their personal information collected by that company? Is the right based on the source of the information or the investment of resources in defining the parameters of and harvesting that information?[56]

Sui generis exclusive rights

The European Commission has proposed[57] the creation of a new exclusive "data producers right for non-personal or anonymized data." The primary purpose of the proposal seems to be to boost European participation in the digital economy by enhancing the tradability of non-personal or anonymized machine-generated data as a distinct economic good.[58] A right to use and authorize the use of non-personal data could be granted to the "data producer" such as the owner or long-term user (i.e., the lessee) of a digital device. The proposed right would provide the right holder with civil remedies, the possibility of requesting injunctions, and even the ability to prevent the 'infringer' from commercializing products based on the misappropriated data.

One of the preparatory studies for this proposal by the European Commission noted that "[t]he concept of 'data ownership' is far less controversial for companies than thought when the study was launched; access to and (re-)use of data are much more important."[59] However, as one commentator noted with respect to the new *sui generis* right, it does not seem to amount to an 'ownership' right:

> [T]he core of this right would center on the defensive elements provided by an *in rem* right. According to the Commission such a right would "equate[s] to a protection of a de facto 'possession' rather than to the concept of 'ownership.'" The characteristics

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[55] *R v Stewart*, [1988] 1 SCR 963, 1988 CanLII 86 (SCC)

[56] Teresa Scassa, op. cit., p. 15.

[57] See, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, "Building a European data economy", COM (2017) 9 final, 10.1.2017. Available from: https://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-9-F1-EN-MAIN-PART-1.PDF.

[58] The Commission's proposal pursues the following objectives: "Improve access to anonymous machine-generated data; facilitate and incentivise the sharing of such data; protect investments and assets; avoid disclosure of confidential data; minimise lock-in effects."

[59] Study on emerging issues of data ownership, interoperability, (re-)usability and access to data, and liability, 2018. Available from: https://ec.europa.eu/digital-single-market/en/news/study-emerging-issues-data-ownership-interoperability-re-usability-and-access-data-and. See also, European Commission (2017), Commission staff working document on the free flow of data and emerging issues of the european data economy. Available from: https://ec.europa.eu/digital-single-market/en/news/staff-working-document-free-flow-data-and-emerging-issues-european-data-economy. See also, European Commission (2018), Study in support of the evaluation of Directive 96/9/EC on the legal protection of databases. Available from: https://ec.europa.eu/digital-single-market/en/news/study-support-evaluation-database-directive. See also, European Commission (2019), Building a European data economy. Available from: https://ec.europa.eu/digital-single-market/en/policies/building-european-data-economy.

> of this proposal point more to tort-liability rules similar to the protection offered by the Trade Secrets Protection Directive.[60]

Regarding the justification of the proposed right, the same author concludes that

> The data producer's right, according to the Commission's proposal, is one of the options for improving the European data economy. However, as this article has demonstrated it is at the least highly questionable whether such a measure would actually be productive. The current theoretical and practical considerations, when weighed from both the pro and contra sides, do not indicate that the introduction of such a right is justifiable in relation to the risk it carries.[61]

The Max Planck Institute for Innovation and Competition has similarly expressed a negative opinion in relation to the creation of an exclusive right over data:

> The Institute takes a stance as regards the introduction of exclusive rights in data, special legal protection of algorithms used in data analysis, as well as the questions on the applicability of the current EU legal framework for the sui-generis database rights and trade secrets to individual data and data-sets. The Institute sees no economic justification for the introduction of new exclusive rights in data, which could even hamper the functioning of the data-driven economy. In contrast, the statement emphasizes the importance of access to data in order to ensure the proper functioning of data-driven markets.[62]

Sovereign rights

As noted above, many countries are concerned because of their lack of capacity to regulate the processing, storage, processing, transmission, and use of data in their jurisdictions, and the implications of this situation for their economies. Concerns regarding the loss of sovereignty, mainly as a result of the power and influence of big digital companies, have been expressed in both developing and developed countries. Thus, German Chancellor Merkel said in June 2019: "The EU should claim 'digital sovereignty' by developing its own platform to manage data and reduce its reliance on the US-based cloud services run by Amazon, Microsoft and Google."[63]

The recognition of sovereign rights over data is a possible response to those concerns. It may be exercised through the attribution of 'ownership' or through other legal means. Thus, data privacy laws can address individual rights concerning personal data, including access to and use thereof. Consumer protection laws can be adopted to ensure the legal responsibility of digital platforms and to provide, *inter alia*, for accessible dispute

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[60] Ivan Stepanov, "Introducing a property right over data in the EU: the data producer's right—an evaluation", *International Review of Law, Computers & Technology*, vol. 34, No. 1 (2020), pp. 65-86. Available from: https://doi.org/10.1080/13600869.2019.1631621. p. 74. See also Ana Ramalho, op. cit. ("It is doubtful that the utilitarian rationale, based on the idea of incentive, can justify the creation of an IP right in data. Data is produced independently of incentives; there is no underproduction of data that needs to be remedied [in fact, quite the contrary is true].)"

[61] Id. p. 80.

[62] Josef Drexl, Reto Hilty, Luc Desaunettes-Barbero, Franziska Greiner, Daria Kim, Heiko Richter, Gintare Surblyte, and Klaus Wiedemann, "Data Ownership and Access to Data - Position Statement of the Max Planck Institute for Innovation and Competition of 16 August 2016 on the Current European Debate". Max Planck Institute for Innovation & Competition Research Paper, No. 16-10, 16 August 2016. Available from: https://ssrn.com/abstract=2833165 or http://dx.doi.org/10.2139/ssrn.2833165.

[63] Guy Chazan, "Angela Merkel urges EU to seize control of data from US tech titans", *Financial Times* (12 June 2019). Available at: https://www.ft.com/content/956ccaa6-0537-11ea-9afa-d9e2401fa7ca.

resolution mechanisms.[64] Cybersecurity laws can be enacted to prevent incidents that threaten individual privacy, economic activities, the confidence of users, and the operation of infrastructure and networks critical to each country.[65] Other legal frameworks can be put in place to achieve diverse policy objectives, including in relation to the gathering, storage, access to, and use of governmental data.

One of the measures adopted in many countries, as mentioned, is 'data localization,'[66] which focuses on the transborder transmission of data.[67] According to one survey, currently there are at least around 84 "data localization requirements" imposed across 64 countries.[68] Such measures may "include a specific requirement to locally store copies of data, local content production requirements, or imposing conditions on cross border data transfers that in effect act as a localization mandate."[69] As digital transborder exchanges are generally less constrained than money, physical goods, and people,[70] data localization aims at mitigating the economic disadvantages and security risks associated with foreign corporations controlling data in a country. It has been noted in this regard that

> While this digital transformation is inevitable, it is imperative that we, as a nation, equip ourselves to handle the negative implications of external influence caused by foreign dependencies and non-regulatory nature of the new information ecosystem … The modern ICT-driven mass communication systems, especially social media services, have an unprecedented positive impact on society and foster inclusion at an epic scale. Yet, most of these are dominated and operated by foreign platforms and hence hard to be brought under state regulations and policies, especially in third world countries.[71]

Data localization, in sum, is one of the means to exercise sovereignty over data and preserve some capacity to protect citizens and promote economic activities based on the local storage and use of data. The implementation of this type of measure, as well as of other policies mentioned above, does not require assertion of ownership rights in data and depends on the policy choices made by a state about how to participate in and benefit from the digital economy.

While having in view the differences in content and context, it is worth mentioning that the Convention on Biological Diversity (CBD) recognizes states' sovereign rights over

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[64] See, e.g. Teresa Moreira, "Consumer protection crucial for the digital economy to thrive" (13 March 2020). Available from: https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2304.

[65] See, e.g., Martti Lehto, "The cyberspace threats and cyber security objectives in the cyber security strategies" (August 2015). Available from: https://www.researchgate.net/publication/275997857_The_Cyberspace_Threats_and_Cyber_Security_Objectives_in_the_Cyber_Security_Strategies.

[66] Including developing and developed countries, such as Australia, Canada, New Zealand, Russia, and the EU in respect of personal data in accordance with the GDPR.

[67] The North American and Western European regions are the target of no less than 94% of the cross-border web requests; sub-regions that have goods trade surpluses tend to have information (web) flow deficits. See Milton Mueller and Karl Grindal, op. cit.

[68] Arun S. Nair, op. cit., p. 15.

[69] Arindrajit Basu, Elonnai Hickok, and Aditya Singh Chawla "The localisation gambit unpacking policy measures for sovereign control of data in India" (Center For Internet & Society, 2019). Available from: https://cis-india.org/internet-governance/blog/the-localisation-gambit-unpacking-policy-moves-for-the-sovereign-control-of-data-in-india. p. 23.

[70] See, Milton Mueller and Karl Grindal, "Is it 'trade?' Data flows and the digital economy", TPRC 46: The 46th Research Conference on Communication, Information and Internet Policy 2018 (30 August, 2018). Available from: https://ssrn.com/abstract=3137819.

[71] Bilal Zaka, "Digital transformation: prioritizing data localization", South Views, South Centre (forthcoming).

genetic resources.[72] These resources are defined by the Convention on the basis of the concept of 'genetic material.'[73] Genetic resources are not tangible materials but rather information.[74] Evidence of this is the fact that currently, it is sufficient to get access to digital sequence information (or genetic sequence data) to extract the value from biological resources. As noted by a commentator,

> The genetic sequences from plants, animals or micro-organisms could be used to support conservation and sustainable use of biological diversity, to develop and commercialize new products and processes, or for other purposes. The technological advances in the sequencing (including entire genomes), the increased capacity to store and manage data and falling costs have resulted in amazing quantities of information being stored in thousands of public or private databases.[75]

Like in the case of genetic information, states can claim and exercise sovereign rights over data that are produced and stored in their jurisdictions and regulate them under a diversity of measures and with different purposes, with or without asserting ownership rights.

Digital public goods

In his 1958 book *The Affluent Society*, John Kenneth Galbraith noted that society had generated an over-supply of private goods and there was, at the same time, a growing under-supply of public goods.[76] In the 1990s, the concept of 'global public goods' gained growing acceptance in the debates about the Millennium Development Goals[77] and in the economic literature, as illustrated by the work by Joseph Stiglitz[78] and other scholars.[79] The International Task Force on Global Public Goods was constituted in 2003 to identify relevant international public goods from a perspective of reducing poverty and to study the financing issues.[80]

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[72] Article 3: States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction. Available from: https://www.cbd.int/convention/articles/?a=cbd-03.

[73] "Genetic material: any material of plant, animal, microbial or other origin containing functional units of heredity" (Article 2, CBD).

[74] Manuel Ruiz Muller, *Genetic Resources as Natural Information: Implications for the Convention on Biological Diversity and Nagoya Protocol* (Routledge Studies in Law and Sustainable Development 2015).

[75] Jorge Cabrera Medaglia, "Digital Sequence Information (DSI) and National Measures: Approaches and Perspectives", South Views, South Centre (forthcoming).

[76] A 'public good' is characterized by its non-excludability and non-rivalry, in economic terms.

[77] See, e.g., https://www.undp.org/content/undp/en/home/sdgoverview/mdg_goals.html.

[78] Joseph E. Stiglitz, "Global public goods and global finance: does global governance ensure that the global public interest is served?", in *Advancing Public Goods*, Jean-Philippe Touffut, ed. (Edward Elgar Publishing, 2006), ch. 7.

[79] Inge Kaul, Isabelle Grunberg, and Marc Stern, "Global public goods: international cooperation in the 21st century" (November 2003). Oxford Scholarship Online. Available from: https://www.oxfordscholarship.com/view/10.1093/0195130529.001.0001/acprof-9780195130522-chapter-15.

[80] This Task Force identified the following priority global public goods: (a) preventing the emergence and spread of infectious disease, (b) tackling climate change, (c) enhancing international financial stability, (d) strengthening the international trading system, (e) achieving peace and security, and (f) generating knowledge. See, Summary Report of the International Task Force on Global Public Goods (2006). Available from: https://www.keionline.org/misc-docs/socialgoods/International-Task-Force-on-Global-Public-Goods_2006.pdf. See also, U. Sankar, "Global public goods", Trade Working Papers 22510 (2008), East Asian Bureau of Economic Research. Available from: https://ideas.repec.org/p/eab/tradew/22510.html.

More recently, the High-level Panel on Digital Cooperation, established by the UN Secretary General, has suggested that

> [m]any types of digital technologies and content—from data to apps, data visualisation tools to educational curricula—could accelerate achievement of the SDGs. When they are freely and openly available, with minimal restrictions on how they can be distributed, adapted and reused, we can think of them as "digital public goods." In economics, a "public good" is something which anyone can use without charge and without preventing others from using it. Digital content and technologies lend themselves to being public goods in this respect. Combinations of digital public goods can create "common rails" for innovation of inclusive digital products and services.[81]

The suggestion of the UN panel is far reaching, as it relates not only to data but also to digital applications and content. More elaboration would be needed to understand the implications of the concept of 'digital public good' as applied with this proposed broad scope. Its application to data, which by its very nature is non rivalrous and not excludable,[82] in particular would mean that no private rights, including ownership or other exclusive rights, should be recognized and enforced, thereby leading to a system of free access, processing, transmission, and use of data. However, the panel expressed a clear concern about the protection of individual rights and recommended "that a broad, multi-stakeholder alliance, involving the UN, create a platform for sharing digital public goods, engaging talent and pooling data sets, in a manner that respects privacy, in areas related to attaining the SDGs."[83]

The concept of 'digital public good' as applied to data may also be understood as suggesting that no sovereign rights should be exercised over it. This can raise concerns for those aiming at implementing regulations that bolster the capacity of countries to benefit economically from the data generated in their territories, notably to increase the capacity of local businesses to compete in a thus far oligopoly-dominated market. However, the recognition of data as a 'digital public good' may not be intended to set up a lawless system, but one in which states' regulations and actions converge to the global benefit, including the realization of human rights.[84]

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[81] UN High-level Panel on Digital Cooperation, *The age of digital interdependence report of the UN Secretary-General's High-level Panel on Digital Cooperation*. Available at: https//digitalcoop eration.org/wp-content/uploads/2019/06/DigitalCooperation-report-web-FINAL-1.pdf. p 17.

[82] See, the British Society, the Royal Society, TechUK, "Data ownership, rights and controls: reaching a common understanding" (2018). Available from: https:// royalsociety.org/~/media/policy/data-governance/data-ownership-rights-and-controls-October-2018.pdf. p. 5 and 20.

[83] Id., p. 8.

[84] See, e.g., Neil Walker, "Human rights and global public goods: the sound of one hand clapping", Indiana Journal of Global Legal Studies, Forthcoming, Edinburgh School of Law Research Paper No. 2015/21, 21 July 2015. Available from: https://ssrn.com/abstract=2633446.

WHO CAN CLAIM RIGHTS OVER DATA?

If rights were to be recognized/created over data, a key and complex question is who will hold them. Large quantities of data refer to individuals' identities, acts (e.g., online purchase of goods), and preferences (e.g., consumer patterns), but there are also huge volumes of data generated by companies, governments, and other entities. In some cases, as noted above, data is created with direct human intervention and, in others, by machines, including sensors.

Although often personal data are perceived as individually created, data are in fact co-produced. Data are created through transactions/interactions with Internet platforms, credit card companies, online providers, etc. As noted in one report,

> Personal data has the axiomatic property of co-production. It is generated through human activity, but collected through technology owned by a firm. The individual must therefore own a technology/device (the HAT Microserver) that is able to collect data in such a way that both the firm and the individual, as co-producers, would have access rights to it in real time and on demand.[85]

Who would then hold the right over the recorded data, for instance, in the case of an on-line purchase: the individual (source), the company that provided the digital infrastructure, the particular vendor of a good or service, the company that processes, combines, and/or aggregates the data?

Who would 'own' the data if the ownership approach were adopted? Possible options suggested by the literature include:

- Individual provider (source)
- Collecting entity
- Data compiler (aggregation of data)
- Device manufacturer (e.g., of sensors)
- Device user
- Communities or states[86]

India's Personal Data Protection Bill (DPB), for instance, holds that the *data provider* is the owner of personal data.[87] In accordance with the European Commission, the manufacturer of a sensor, or its long-term user, would be the rights holder of data.[88] Some situations that at first sight may be seen as clear-cut for the purposes of attributing rights may be more complex than presumed. For instance, the UN panel report mentioned above observed that personal data

> '… can serve development goals, if handled with proper oversight to ensure its security and privacy. For example, individual health data is extremely sensitive—but many people's health data, taken together, can allow researchers to map disease outbreaks, compare the effectiveness of treatments and improve understanding of conditions. Aggregated data from individual patient cases was crucial to containing the Ebola outbreak in West Africa.[89]

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[85] See, the British Society, the Royal Society, TechUK, op. cit., p. 19.
[86] See, e.g., Parminder Jeet Singh and Anita Gurumurthy, op. cit.
[87] See: https://hbr.org/2019/12/how-india-plans-to-protect-consumer-data.
[88] See, Anna Ramalho, op. cit.
[89] UN High-level Panel on Digital Cooperation, op. cit., p. 17.

Despite the sensitivity of individual health data, it has been considered to be ‘owned’ by the doctor, and the patient simply has an expectation that his/her interest in and control of that information will continue (see Box 2).

Box 2. Who owns patient’s health records?

McInerney v MacDonald, [1992] 2 SCR 138, 1992 CanLII 57 (SCC)

A patient made a request to her doctor for copies of the contents of her complete medical file. The doctor delivered copies of all notes, memoranda and reports she had prepared herself but refused to produce copies of consultants' reports and records she had received from other physicians who had previously treated the patient, stating that they were the property of those physicians and that it would be unethical for her to release them. She suggested to her patient that she contact the other physicians for release of their records. The patient's application in the Court of Queen's Bench for an order directing her doctor to provide a copy of her entire medical file was granted. A majority of the Court of Appeal affirmed the judgment.

In the absence of legislation, a patient is entitled, upon request, to examine and copy all information in her medical records which the physician considered in administering advice or treatment, including records prepared by other doctors that the physician may have received. Access does not extend to information arising outside the doctor-patient relationship. The patient is not entitled to the records themselves. The physical medical records of the patient belong to the physician.

The physician-patient relationship is fiduciary in nature and certain duties arise from that special relationship of trust and confidence. These include the duties of the doctor to act with utmost good faith and loyalty, to hold information received from or about a patient in confidence, and to make proper disclosure of information to the patient. The doctor also has an obligation to grant access to the information used in administering treatment. This fiduciary duty is ultimately grounded in the nature of the patient's interest in the medical records. Information about oneself revealed to a doctor acting in a professional capacity remains, in a fundamental sense, one's own. **While the doctor is the owner of the actual record, the information is held in a fashion somewhat akin to a trust** and is to be used by the physician for the benefit of the patient. The confiding of the information to the physician for medical purposes gives rise to an expectation that the patient's interest in and control of the information will continue. The trust-like "beneficial interest" of the patient in the information indicates that, as a general rule, she should have a right of access to the information and that the physician should have a corresponding obligation to provide it. The patient's interest being in the information, it follows that the interest continues when that information is conveyed to another doctor who then becomes subject to the duty to afford the patient access to that information. Further, since the doctor has a duty to act with utmost good faith and loyalty, it is also important that the patient have access to the records to ensure the proper functioning of the doctor-patient relationship and to protect the well-being of the patient ... The trust reposed in the physician by the patient mandates that the flow of information operate both ways.

The patient's general right of access to medical records is not absolute. If the physician reasonably believes it is not in the patient's best interests to inspect the medical records, the physician may consider it necessary to deny access to the information. Considering the equitable base of the patient's entitlement, when a physician refuses a request for access, the patient may apply to the court for protection against an improper exercise of the physician's discretion …

Source: https://www.canlii.org/en/ca/scc/doc/1992/1992canlii57/1992canlii57.html[90]

The decision in *McInerney v MacDonald* shows how complex the allocation of rights may be, including in relation to health-related personal data.

[90] Emphasis added.

CONCLUSIONS

Technology changes often challenge existing legal frameworks. The emergence of big data is a new and outstanding example of such situations. A taxonomy is necessary to address the legal dimensions of data and to design legal regimes suitable to different categories thereof.

Copyright legislation and case law have generally made it clear, with some qualifications, that the protection conferred under that regime does not extend to data as such, but only to an original expression thereof. Other possible legal options exist in relation to rights over data and their content, as well in respect to who would possess them (natural and legal persons, states). Such options include ownership, sovereign rights, and *sui generis* rights. Data can also be considered to be 'digital public goods.' Of course, the implications of these different approaches would be significant in relation to the management and governance of data.

The concept of 'data ownership' suggests an individualistic approach, although it has also been referred to as an entitlement of states. While it has a lot of 'intuitive power,'[91] it presents some limitations and raises complex questions, such as who the owner of data would be. The recognition of sovereign rights in respect to data—such as the CBD extended in relation to genetic resources—would help to confirm countries' rights to legislate the matter and to take measures, *inter alia*, to protect individual privacy and consumers, as well to create an environment in which new digital businesses can emerge and contribute to socio-economic development.

The design of a legal framework for data should not be seen as a purely legal endeavor, nor be made in isolation from other national policies. How such a framework is designed matters for what kind of insertion a society will have in the digital economy, and the extent to which a country will be able to benefit from the opportunities opened by big data. The current policy space to devise legal regimes adapted to national circumstances allows, without prejudice to engaging into regional and international cooperation, for seeking new solutions that take into account differences in legal systems, levels of economic and technological development, and national objectives and priorities.

[91] See the British Society, the Royal Society, TechUK, op. cit., p. 4.

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