Ownership, access, and sharing of data : what does Quebec law say?

14.

OWNERSHIP, ACCESS, AND SHARING OF DATA: WHAT DOES QUEBEC LAW SAY?

Sonya Morales

> The neglect of the common good is against nature, it is patently unjust.
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> **Cicero, On Duties, Book III, vi-30**

Abstract

Ownership over data may depends on their qualification (common goods or public goods) and their typology (personal, raw, derived, or compiled data). This paper raises the question about how to strike a balance between accessing and sharing research data for science knowledge and server boarder public interest with restrictive data ownership.[*]

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1. Introduction

Copyright Office, Université Laval, September 2020…

A PhD student in Computer Science and Engineering consults the Copyright Office. His supervisor holds a grant from the Natural Sciences and Engineering Research Council of Canada (NSERC). The student has been working as a research assistant on this project for 18 months. His mandate is to develop predictive algorithms for permafrost melt in Northern Quebec. He collected observational data, then compiled and analyzed them. He also conducted a survey of residents on the impact of melting permafrost on their way of life. The subject is a sensitive one, and the participants' responses attest to the northerners' great distress.

At the end of his project, the student plans to set up his own company and wants to extract the raw data and results from the research project in order to reuse them. He argues that part of the analyzed data belongs to him and that the raw data are in the public domain. The researcher, on the other hand, maintains that both the data collected in the context of employment at Université Laval and the results derived from these data belong to the institution.

At the heart of this dispute is the question: who owns the research data? There are several aspects involved, as you will see in this chapter.

As a primary source of scholarship and a prospecting tool, research data validate hypotheses and findings.[326] Professor Rob Kitchin uses the metaphor of building blocks to explain this interdependence: '[...] the raw material produced by abstracting the world into categories, measures and other representational forms [...] that constitute the

[326] Government of Canada, *Tri-Agency Research Data Management Policy,* 15 March 2021.

building blocks from which information and knowledge are created'.[327] Whether they are numbers, text, images, or sound, research data are collected, used, and recognized by the scientific community in empirical research.[328] Scientific integrity in the handling of such data is a *sine qua non*.

Data have cultural and scientific value but also economic value. In respect of the last kind, in 2017 *The Economist* published a special issue on research data with the following title: 'The world's most valuable resource is no longer oil, but data'; it highlighted the importance of regulating data access, sharing, and reuse, especially by Web giants such as Google, Apple, Facebook, Amazon, and Microsoft (the GAFAMs), which control data circulation.[329] Now that machine learning allows for the creation of problem-solving systems based on big data analysis, the status of data calls for '[…] serious, sustained thought about an object that there is every reason to believe the main economic protagonists wish to appropriate'.[330]

Although scientific and academic research data represent a less massive amount than what is collected by the GAFAMs, their use must be supervised, especially when the use of these data has a high collective or societal impact. This framework underpins good governance at all stages of their life cycle. Institutional or organizational rules have

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[327] R. Kitchin, *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences* (Thousand Oaks, CA: SAGE Publications Ltd., 2014), p. 1.

[328] Organisation for Economic Co-operation and Development (OECD), *OECD Principles and Guidelines for Access to Research Data from Public Funding* (Paris: OECD Publications, 2007), p. 28.

[329] 'The World's Most Valuable Resource Is No Longer Oil, but Data', *The Economist,* 6 May 2017.

[330] K. Benyekhlef and J. Zhu, 'Intelligence artificielle et justice: Justice prédictive, conflits de basse intensité et données massives', *Les Cahiers de propriété intellectuelle*, 30(3) (2018), 789-828.

therefore been drawn up in order to better manage research data, in addition to the regulations already in force on respect for privacy and consent in the processing of personal data.

In order to assess the degree of circumspection required in the management of data, it is first necessary to categorize research data according to their typology, namely personal or nominative data, primary or raw data, and derived or compiled data. The processing of raw data does not face the same requirements as the processing of analyzed data subject to intellectual property protection, and the use of sensitive personal information does not have the same legal impact.

The classification of data also allows us to grasp the various nuances relating to their legal qualification based on the theory of goods (private, common, or public) (section 2). This classification raises the question of the ownership of the data and consequently of their protection (section 3), then of their management (section 4).

This text highlights the dilemma between access and sharing of research data in the legitimate interests of science and the more restrictive principle of private and exclusive appropriation.

2. The legal status of research data

Scientific research in Canada distinguishes between three broad categories of digital data: (1) observational, operational, or factual data; (2) processed, interpreted, analyzed, or compiled data; and (3) nominative or personal data.[331] The Canadian policy guidelines also identify the source of the data: public sector or third parties. But before addressing these categories, we will analyze the first branch of the typology, the one offered by the general theory of goods.

[331] Government of Canada, *Tri-Agency Research Data Management Policy*.

2.1 The characteristics of information assets

In contrast to commons, which can be used by all but whose exploitation leads to their depletion, informational public goods such as software, the Internet, or research data can be appropriated for commercialization, exchange, or sharing without the risk of compromising the primary source.[332] Public goods are non-exclusive and are characterized by being non-rivalrous (Figure 1).

Indeed, the appropriation or use of a public good by one agent (researcher, public or private institution, etc.) does not prevent another agent from using it at the same time. The use of information assets by several researchers simultaneously is a way of optimizing the resource for the well-being of the community and of science; unlike common goods, whose sustainability is only ensured through collective management (self-managed system).[333]

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[332] E. Ostrom, *Gouvernance des biens communs pour une nouvelle approche des ressources naturelles* (Brussels: De Boeck, 2010), p. 47.

[333] Ostrom, *Gouvernance des biens communs,* p. 114. A self-managed system is the preferred kind for the sustainable management of the commons. This system provides for collective participation in operational rules, balance between provision and ownership, monitoring and conflict resolution mechanisms, and sanctions.

Figure 1: Categorization of goods.[334]

	Exclusive	Non-Exclusive
Rivalrous	**Private property** • Our movable and immovable property • **Intellectual property**	**Common goods** • Collective or participatory management • Decisions taken in collegiality • Appropriable, exhaustible assets ➢ For example - Elements of biodiversity, plant genetic resources, etc. - Excluding common things (air, water) - Including created common goods: grazing areas, irrigation systems.
Non-Rivalrous	**Mixed property** • Toll bridges and roads	**Public goods** • Management by one entity for the benefit of all • Appropriable, non-exhaustible assets ➢ For example - **Lighting, national defense** - **Information goods: knowledge, culture, free software, the Internet, and research data**

If we exclude interpreted data subject to intellectual protection (patent, copyright, etc.), which fall under the category of private goods,

[334] Figure adapted from S. Morales, 'La qualification et le traitement légal des ressources phytogénétiques au bénéfice de la sécurité alimentaire mondiale durable: Regard critique sur leur gestion' (unpublished doctoral thesis, Université Laval, 2016).

and personal data, whose use is linked to the free and informed consent of the individual (see section 2.2), it would be fair to say that primary research data do not belong to anyone. They are public goods managed by private companies or public organizations that develop rules at each stage of the data's life cycle.

2.2 The appropriation of observational, operational, or factual data

With respect to observational, operational, or factual data, we argue that any notion of ownership can be more appropriately replaced by that of a trust. Raw data are facts or simple observations, there is no category of intellectual property to protect them, nor is there any public policy law to deal with them. Facts are part of the public domain and, like ideas, they are free to roam and cannot be privately appropriated by an agent. They must remain available to everyone. Their appropriation would impose limitations that would be detrimental to science, since everyone has 'the right… to share in scientific advancement and its benefits'.[335]

We believe it is important to assess the impact of research data from the perspective of public welfare and to separate it from a purely commercial motivation. It must be said that we have ethical concerns about the appropriation of data collected with public funds.

3. Ownership and protection of research data

While there is no doubt about the ownership of processed, interpreted, analyzed, or compiled data as an original work resulting from the expression of the author's talent and judgment, which makes it a work subject to intellectual property, there is no consensus concerning

[335] United Nations, *Universal Declaration of Human Rights*, General Assembly Resolution 217 A (III), art. 27(2) UDHR (Geneva: United Nations, 1948); United Nations, *International Covenant on Economic, Social and Cultural Rights,* (Geneva: United Nations, 1966).

the ownership of nominative or personal data, and new designations could emerge.

3.1 Processed, interpreted, analyzed, or compiled data: A look at intellectual property

Data collected by members of academic institutions in the course of their employment and the results thereof belong to the institutions. The Regulation respecting intellectual property at Université Laval provides that the university is the owner of a document collection created by a member of the university when that person has used the university's name, time, services, or premises, or benefited from a grant requiring the university's approval (section 8.01).[336] Similarly, and notwithstanding the moral rights, which remain with the authors, works created in the course of employment belong to the institution if the creator or author has benefited from the university's financial, material, or human resources. These provisions correspond to Section 13 (3) of the Canadian *Copyright Act*, which deals with the ownership of a work made in the course of employment.[337] This institutional ownership is explained by the institution's accountability in case of allegations of misconduct, scientific fraud, or other wrongdoing. This accountability justifies the leading role of Canadian universities in the management of library holdings.[338]

The *Copyright Act* grants protection to processed, interpreted, analyzed, or compiled data as long as the resulting work is original, that

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[336] 'The documentary fonds includes documentation, research results, specimens and artifacts, collections, or databanks': Université Laval, *Règlement sur la propriété intellectuelle à l'Université Laval,* 22 April 1980, art. 2 (f).

[337] *Copyright Act,* RSC, 1985, c. C-42.

[338] M. Dubé, 'La titularité de la propriété intellectuelle', in *Propriété intellectuelle et université: Entre la libre circulation des idées et la privatisation des savoirs,* ed. by M. Couture, M. Dube and P. Mallissard (Quebec City: Presses de l'Université du Québec, 2011), pp. 55-78.

is, it expresses the talent and judgment of the creator or author.[339] This condition of originality, coupled with the fixation of the work in a material or immaterial form, is decisive. Once a work meets these criteria, copyright protection is automatic and subsists in Canada for the life of the author and until the end of the fiftieth year following his death.[340] Copyright in a work includes the exclusive right to produce, reproduce, perform, publicly perform, publish, translate, adapt, or transform the work or any substantial part thereof.[341] Any reproduction or dissemination of a protected work must comply with the limitations set out in the *Copyright Act* or be authorized by the copyright owner.

While a report or compilation is the result of the author's choice and arrangement, the criterion of originality cannot be applied to observations or factual data.[342] Raw data (quantitative or qualitative) are facts and their protection is not associated with any form of intellectual property. As Pierre Emmanuel Moyse puts it, 'In the absence of originality, the content is not protected' and the data are free to use.[343] Appropriation of the raw data is therefore not an infringement, but failure to cite the source constitutes an act of plagiarism.

Because the *Copyright Act* does not rule on plagiarism, users are encouraged to consult institutional or governmental policies targeting acts of non-compliance. For example, the granting agencies' terms of reference define plagiarism as:

> Presenting and using another's published or unpublished work, including theories, concepts, *data*, source material, methodologies or findings, including graphs and images, as

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[339] *Copyright Act*, s. 2.

[340] *Copyright Act*, s. 6.

[341] *Copyright Act*, s. 3.

[342] Ostrom, *Gouvernance des biens communs,* pp. 17–19.

[343] P.-E. Moyse, '"Les créatures subjuridiques": Les bases de données', *Les Cahiers de propriété intellectuelle*, 12(1) (2016), p. 4.

> one's own, without appropriate referencing and, if required, without permission.[344]

Since the criterion of originality is rarely the predominant one in the ordering of databases, it would be reductive to view data protection solely from the perspective of intellectual property: a reductive view that '[...] is like that of a myopic person: sufficient to move, but too limited to foresee'.[345] Therefore, even if raw data do not benefit from copyright protection, their access, sharing, and dissemination are subject to government and institutional policies dedicated to scientific integrity.[346]

3.2 Nominative or personal data

From a legal point of view, personal data are not appropriable, they are non-transferable like parts of the human body and cannot be claimed as a form of property, not even in respect of the natural person who holds them. But Teresa Scassa raises the possibility of a subcategory, that of quasi-ownership, which gives the holders control over the use of their personal data.[347] Individuals have rights of access, correction, and withdrawal with respect to their personal information, but these rights together do not amount to full ownership. At most, we are talking about the management of our data.

Anyone who collects personal information has an obligation to protect the data throughout their life cycle: (1) collection; (2) storage, de-identification, anonymization, and retention; (3) access, use, and

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[344] Secretariat on Responsible Conduct of Research and others, *Tri-Agency Framework: Responsible Conduct of Research (2016)*, 3.1.1 d., Plagiarism, emphasis added.

[345] Moyse, '"Les créatures subjuridiques"', p. 11, note 17.

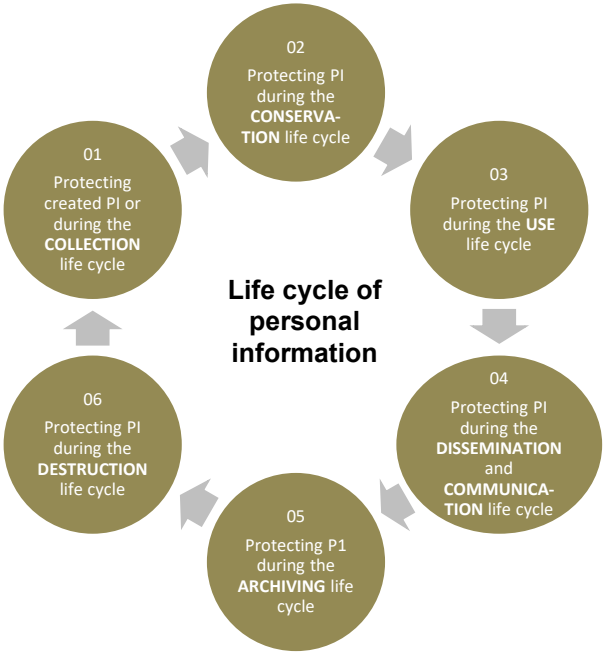
[346] Fonds de recherche du Québec, *Policy for the Responsible Conduct of Research* (Montreal: Fonds de recherche du Québec, 2014).

[347] T. Scassa, 'Data Ownership', *CIGI Papers*, 187 (September 2018), pp. 13–16.

reuse; (4) disclosure and dissemination; (5) archiving and preservation; and finally, (6) destruction of the data (see Figure 2).

Anonymization (irrevocable removal of identifiers) and de-identification or depersonalization (replacement of nominative information by an identification code) of personal data are processes that allow participants' privacy to be respected. Most university databases recommend, at the very least, de-identification of the data sets entrusted to them.[348]

Figure 2: Life cycle of personal information © DTI, Université Laval, 2019.[349]



The legal protection of personal data, particularly in Quebec, places privacy and consent at the center of the debate. According to the *Civil*

[348] B. Lamarche and F. Desrosiers, *Cadre de gestion. Banque de données sur la santé durable* (Quebec City: Pulsar, Université Laval, 2019), p. 19.

[349] Bureau de sécurité de l'information, *Durée de cycle de vie des données personnelles* (Quebec City: Université Laval, 2019).

Code of Quebec (CCQ), every person has the right to integrity and no one may infringe it without her free and informed consent.[350] Furthermore, the risk incurred must be proportional to the expected benefits, and the research is subject to the approval of an ethics committee.

Article 20 of the CCQ provides that:

> A person of full age who is capable of giving his consent may participate in research that could interfere with the integrity of his person provided that the risk incurred is not disproportionate to the benefit that can reasonably be anticipated. The research project must be approved and monitored by a research ethics committee.

For example, Université Laval has a Policy on Responsible Conduct in Creative Research and Innovation. The first principle ensures that humans and animals are treated fairly, with dignity and respect in accordance with the highest ethical standards recognized by the scientific community and society.[351]

In Quebec, the *Act respecting Access to documents held by public bodies and the Protection of personal information* defines personal information as 'information concerning a natural person which allows the person to be identified'.[352] Personal information becomes sensitive as soon as it is linked to other data on the person. The minimal impairment test is then used to determine whether the sharing of nominative data infringes on the integrity of the individual and the

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[350] *Civil Code of Québec,* CQLR c. CCQ-1991, 31 October 2021, art. 10, 20, and 22.

[351] Fonds de recherche du Québec, *Policy for the Responsible Conduct of Research,* p. 14, note 20.

[352] *Act respecting Access to documents held by public bodies and the Protection of personal information*, CQLR c. A-2.1, 21 September 2021, s. 54.

protection of his privacy, while also contravening the *Charter of Human Rights and Freedoms.*[353] The use of sensitive personal data is limited to public interest purposes. In order to broaden the scope of its use, personal information may be subjected to various degrees of de-identification or anonymization. De-identified data are no longer considered to be personal information, as the identifier has been removed, and are therefore outside the scope of the legislation.

Legislative amendments are being considered to broaden the notion of consent in light of the digital reality and the development of artificial intelligence. In particular, Bill 64 proposes to validate implied consent, which would allow the disclosure of non-sensitive personal information for research, study, and statistical purposes or any other compatible purpose.[354] Although this expansion has been questioned by legal scholars due to its vagueness, scientists welcome this step forward, which also aligns with some European standards within the General Data Protection Regulation.[355]

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[353] *Charter of Human Rights and Freedoms,* RSQ c. C-12, 31 October 2021, sections 1 and 5.

[354] National Assembly of Québec, *Bill 64, An Act to Modernize Legislative Provisions as Regards the Protection of Personal Information,* Forty-Second Legislature, First Session (Quebec City: Quebec Official Publisher, 2020). Québec's Bill 64, was adopted unanimously, on September 21, 2021.

[355] Centre d'accès à l'information juridique (CAIJ), *Dossier: Projet de loi n° 64: Loi modernisant des dispositions législatives en matière de protection des renseignements personnels,* 29 January 2022; Ligue des droits et libertés, *Mémoire présenté par la Ligue des droits et libertés devant la Commission des institutions, Assemblée nationale du Québec,* 23 September 2020; European Union, '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)', *Official Journal of the European Union,* L 119 (2016).

We will conclude this section by reiterating that the concept of ownership and exclusivity seems to us ill-suited to research data for the following reasons: first, if the data concern a natural person, this information is not free to be disposed of; second, with regard to publicly funded research data and large granting bodies, these agencies insist that research data should be shared and not privately appropriated. Thus, any notion of ownership will be advantageously replaced by the notion of a trust, whereby the managers or custodians of the resource control access to and sharing of the data for the benefit of the community but do not own it. This notion will be explored in Section 4.

4. Fiduciary management of research data

This section explains how fiduciary management can be applied to research data as public goods, at all stages of their life cycle, based on the models of platforms hosting data lakes in scientific research in Quebec.

4.1 Research data management: A look at trusts

The CCQ provides that one may '...hold or administer the property of others or be trustee of property appropriated to a particular purpose'.[356] Certain property whose use is common to many must be managed by laws of general interest. The CCQ even uses the expression 'property… with acknowledgement of superior domain' and by this designation refers to property whose social, cultural or scientific utility is so important that its private appropriation would risk harming the community.[357] This is why public databanks have opted for the trust model as the one that best meets the ambition to ensure access and sharing.

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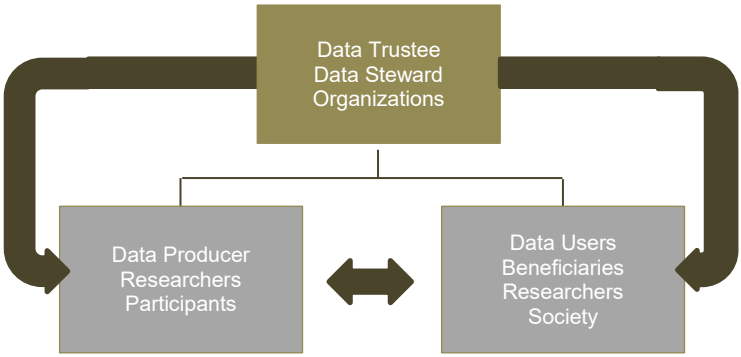
[356] CCQ, note 24, *Property,* art. 911 and following.

[357] CCQ, art. 923.

A trust is an act by which a person (the settlor) transfers property for private or social purposes to another person (the manager), who undertakes to hold and administer it for the beneficiaries.[358] A social utility trust is set up in the general interest; its objective can be cultural, educational, or scientific.[359] It involves a tripartite relationship between the settlors (the producers of the data: researchers and participants), the manager (trustee, steward, or custodian) and the beneficiaries (the company, the researchers) (see Figure 3). The administration of the trust is subject to the supervision of the settlor, who provides for restrictions on the free disposal of assets and lays down internal operating rules. None of the parties involved has any real rights in the object of the trust. Moreover, the purpose of the trust is not the realization of an economic benefit, but more broadly a gain for society as a whole. The trustee must take care to preserve the property in order to maintain its quality and the use for which it was destined, as well as to secure its appropriation.[360]

Figure 3: Typical trust structure for research data management.[361]



[358] CCQ, art. 923, 1260, and 1266; Benyekhlef and Zhu, 'Intelligence artificielle et justice', p. 823, note 7.

[359] CCQ, art. 1270.

[360] CCQ, art. 923, 1301, and 1306.

[361] Figure adapted from S. Morales (2016, p. 389)

In an institutional data center, the trustee is responsible for planning and developing internal policies related to the management of the property. She oversees the implementation of management processes. Depending on the structure of the database, a steward may be added to manage access, sharing, and use of the data throughout their life cycle. Both have a custodial function and ensure the optimal management of the data access center.[362]

The producer of the data collects or creates the data; this may be the researcher or the participant. Finally, data users access the data to validate their hypotheses and support their research findings. Data users must report any problems with the quality of the data.

4.2 Public sector data: A look at the collective interest

Whether as a producer or user of data, a researcher is obliged to respect the laws in force and the data center's institutional or organizational policies. He must also observe the rules of academic integrity, that is, respect confidentiality; cite the source and provenance of the data; behave ethically and responsibly toward humans, animals, and the environment; and demonstrate honesty, probity, and intellectual and scientific rigor.

Prior to use, the researcher should ensure the quality and scope of free and informed consent for secondary use of research data for purposes other than the project for which they were collected. Secondary use is a public good, avoiding re-recruitment and re-collection of data, thus optimizing the investment of public funds.

Concerning data sharing, let us say that the thought process/ must be proportional to the sensitivity of the data. It is necessary to evaluate the

[362] Direction des technologies de l'information, *Document de travail sur les Principes directeurs pour assurer le fonctionnement et la gestion optimale d'un centre aux données de santé*, Unpublished document (Quebec City: Université Laval, 2020).

limits and duration of consent, the possibility of identification by cross-referencing, the purpose, and the collective interest. Data anonymization makes it possible to resolve these constraints. It is also necessary to provide for a collaborative ecosystem of exchange and sharing with very clear rules of access and use, and finally to draw up a data management plan. The latter generally specifies the type of data, metadata, storage and backup, conservation, sharing and reuse, and the person responsible for management.[363]

The protection of digital data by database managers, driven by government data management policies, adopts *sui generis* regimes based on collective interests and science.

Canada instituted a first policy on human research data management in 2014, entitled the *Tri-Council Policy Statement*.[364] Currently under review, this policy outlines some basic principles, such as democratizing access to research results, ethical and responsible management, maximizing and reusing data, and placing data in the public domain:[365]

> The agencies believe that research data collected with the use of public funds belong, to the fullest extent possible, in the public domain and available for reuse by others.[366]

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[363] Université Laval, *Plan de gestion de données,* 2020.

[364] Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada and Social Sciences and Humanities Research Council of Canada, *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (Ottawa: Secretariat on Responsible Conduct of Research, 2014).

[365] Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada and Social Sciences and Humanities Research Council, *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (Ottawa: Secretariat on Responsible Conduct of Research, 2018).

[366] Government of Canada, *Tri-Agency Statement of Principles on Digital Data Management*.

5. Conclusion

A look back at the case study presented as a premise...

We proposed to characterize research data, then to analyze the concept of ownership. We then discussed the management of research data, based on Quebec legislation and on the various institutional policies of the platforms that host and manage data throughout their life cycle. These developments allowed us to answer many of the questions posed by the student and the researcher.

Can the student use the observation data he has collected for another project or for his company? Although the raw data are not appropriable, they are managed by the university, which has managed them with due diligence in accordance with government research policies and guidelines. For example, the data collected on the impacts of melting permafrost on the lifestyle of northerners represent sensitive personal information that cannot be shared without being anonymized. The university is the custodian of this data for the benefit of research and future generations. If the student wishes to use this data, he must obtain permission from the project manager.[367] He may consult these data as long as he is a member of the project and may not extract any portion of them when he leaves.

Does the student own his analyzed or interpreted data? Although the student retains moral rights to the protected work, he carried out the analyses while employed by the institution; therefore, it is the institution that retains all economic rights and is entitled to manage these results.[368]

The ownership of data, including personal data, is discussed in several forums that would like to create a form of *sui generis* ownership that would consider the economic craze for data: '[…] the idea has been

[367] Université Laval, *Règlement sur la propriété intellectuelle,* art. 8.02.

[368] Université Laval, *Règlement sur la propriété intellectuelle,* art. 4.02.

floated and is being discussed'.[369] At this time, neither Canada nor Quebec is considering the creation of this category of property in respect of research data.[370]

For our part, we endorse the classification of data and information assets as public goods and prioritize diligent, responsible fiduciary management in the collective and scientific interest.

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[369] Scassa, 'Data Ownership', p. 4, note 21.

[370] Scassa, 'Data Ownership', p. 15.

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