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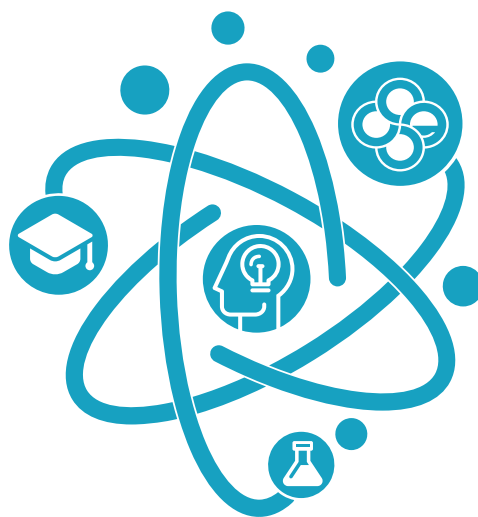
# For Diversified University Research that Reflects and Drives Society

## Summary

April 2023



Québec 



In its brief titled *Pour une recherche universitaire diversifiée, reflet et moteur de la société* (*For Diversified University Research that Reflects and Drives Society*), the Conseil supérieur de l'éducation (hereafter "the Council") focuses on one aspect of the university mission: research. More specifically, it examines the relationship between university research and society in light of a number of current issues. In this brief, the Council begins by outlining its vision of university research in Québec and formulates some core proposals (Chapter 1). Next, it briefly presents the main actors in university research (Chapter 2). The Council also advocates for university research that is aligned with society and its aspirations, notably through the gradual fulfillment of the principles of equity, diversity and inclusion (Chapter 3), and it examines the practices in effect for evaluating university research activities (Chapter 4). As a privileged observer of the Québec education and training system, the Council addresses the issue of research collaboration between universities and colleges (Chapter 5). It also notes that connections between research and society depend on access to research and its results, to which the open science and open access movements contribute, as do relations between the scientific and media worlds (Chapter 6). Finally, the Council explores the question of citizen participation and involvement with regard to community services, research in Indigenous contexts and citizen science (Chapter 7).

## 1 Preliminary and current considerations in university research

As its title indicates, Chapter 1 of the brief presents the preliminary and current considerations in university research that go beyond any specificities such as disciplines, fields or types of research. The Council takes a comprehensive approach that is consistent with another brief that it published in 2019, titled *Les réussites, les enjeux et les défis en matière de formation universitaire au Québec* (*Successes, issues and challenges for university education in Québec*)<sup>1</sup>, in which it insisted on the conservation and transmission of all knowledge. Given that humanity is and will continue to be confronted with significant challenges, such as climate change, demographic transformations and other emerging issues, the Council believes it is also necessary to **support research in all fields of knowledge and welcome innovative approaches (Recommendation 1)**. In this regard, university autonomy and the academic freedom of researchers contribute to the advancement of knowledge and the quality of university research.

In a world where English has become the dominant language in scientific exchanges, the Council reiterates “the importance of maintaining activities to disseminate knowledge in French.”<sup>2</sup> Recently published data, in particular by Acfas<sup>3</sup>, show a downward trend in the use of the French language in bibliometric databases that track scientific publications on an international level. In this global research ecosystem that places great importance on the impact of scientific publications, academic research that is not published in English is penalized. The Council is concerned about this phenomenon in terms of the accessibility of research and its results for Québec society. This is why it recommends that the various actors responsible for research in Québec **recognize and encourage French-language research and the use of French as a scientific language (Recommendation 2)**. By the same token, the Council recommends that actors **recognize and encourage research on local issues or subjects (Recommendation 3)**.

## 2 Québec’s university research ecosystem

First, it is important to know the various actors who are active in the Québec university research ecosystem, both within and outside university walls, and their respective responsibilities. Chapter 2 is devoted to a review and brief description of the key actors in university research in Québec.

Within universities, there are research professors, graduate research students, post-doctoral students, research professionals on grants, various categories of support staff, managers and lecturers. Most of these actors are involved in university research according to their own role and specific conditions.

1 Conseil supérieur de l’éducation, *Les réussites, les enjeux et les défis en matière de formation universitaire au Québec* (Québec: Le Conseil, 2019). English summary available under the title: *Successes, issues and challenges for university education in Québec*.

2 Conseil supérieur de l’éducation, *L’internationalisation: nourrir le dynamisme des universités québécoises* (Sainte-Foy: Le Conseil, 2005). English summary available under the title: *Internationalization: Supporting the dynamism of Québec’s universities*.

3 Acfas, *Portrait et défis de la recherche en français en contexte minoritaire au Canada* (Montréal: Acfas, 2021). English summary available under the title: *Portrait and Challenges of Research in French in the Minority Context in Canada*.

Governmental actors are also involved in university research, since they are the source of its funding and of certain orientations for its development. The Ministère de l'Enseignement supérieur, the Ministère de l'Économie, de l'Innovation et de l'Énergie, the Fonds de recherche du Québec (FRQ) and the Chief Scientist of Québec intervene on the Québec and international scene with policies and strategies concerning universities, their financing, and the financing of research, development and innovation. At the federal level, bodies reporting to the Minister of Innovation, Science and Industry, granting agencies, and the Chief Science Advisor also contribute to research funding, orientations and development. In recent years, the Canadian government has become involved in this field through the adoption of policies and strategies focused on specific research areas.

### 3 Equity, diversity and inclusion

Québec universities seek to reflect the society in which they operate and are also influenced by it. To this end, the principles of Equity, Diversity, and Inclusion (EDI) aim to reflect or represent in a permanent way a diversity of people in university settings, including in research settings. These principles are promoted, among others, by various granting agencies as a means to reduce and eliminate “systemic barriers and biases to enact the practice of fair and equitable treatment so that all individuals have equal access to and can benefit from the programs.”<sup>4</sup> However, only the Canada Research Chairs program links the allocation of funding to the achievement of targets for groups considered under-represented. Moreover, as public bodies, Québec universities are subject to the *Act respecting equal access to employment in public bodies*, which provides for the achievement of representation targets for all employment categories within universities, which inevitably affects the Québec university research community.

Thus, EDI principles are increasingly guiding measures, actions and decisions in Québec and Canadian universities. This is evidenced by a 2019 survey conducted by Universities Canada, which found that universities have not only equipped themselves with resources to implement these initiatives, but have integrated them into their strategic plans. However, university recruitment efforts face certain challenges, such as the availability of candidates in some under-represented regions and groups. This type of challenge slows down the progress of diversity in universities as does the number of positions to be filled, which is limited, for example, by the number of faculty retirements.

The adoption of EDI principles contributes to the transformation of research: by changing the composition of the faculty, a multiplicity of viewpoints is encouraged. Moreover, diversity is increasingly supported within the research projects themselves, for example by taking gender into consideration in research conducted in the health field.

This transformation of university research is desirable because, as the Council of Canadian Academies argues, research can be influenced by the identities, experiences, ideas, conceptions, and past accomplishments of those conducting it: “The wider the pool is from which to draw, the more perspectives, experiences, and ideas will be brought to the creative process.”<sup>5</sup> From this perspective, EDI principles constitute a gain for university research by multiplying the points of view and enriching the approaches.

4 Canada Research Chairs, *Creating an Equitable, Diverse and Inclusive Research Environment: A Best Practices Guide for Recruitment, Hiring and Retention*, 2021, accessed March 9, 2023 [[https://www.chairs-chaires.gc.ca/program-programme/equity-equite/best\\_practices-pratiques\\_examplaires-eng.aspx](https://www.chairs-chaires.gc.ca/program-programme/equity-equite/best_practices-pratiques_examplaires-eng.aspx)].

5 Council of Canadian Academies, *Strengthening Canada's Research Capacity: The Gender Dimension / The Expert Panel on Women in University Research* (Ottawa: Council of Canadian Academies, 2012), p. xiii.

Thus, the Council recommends **that Québec universities be supported in their responsibilities and approaches to equity, diversity and inclusion in research (Recommendation 4) and that a forum for inter-university dialogue on best practices for the development of equity, diversity and inclusion in research be established (Recommendation 5).**

However, not everyone is unanimous about taking EDI principles into consideration, especially by granting agencies in their funding allocation criteria. Some criticize this approach, believing that it infringes on the academic freedom of researchers, whose projects should be developed based on criteria of a scientific nature only.

#### **4 Issues specific to the evaluation of research**

The practice of evaluation is present in various aspects of the life of university institutions. When it comes to research, evaluation is necessary for its funding as well as for scientific validation.

The evaluation of research in the university community is generally done by peers, that is, researchers who work in the same fields and who are familiar with the subject matter of the research being reviewed. Quantitative indicators are used for evaluation purposes, such as the number of citations, as well as qualitative considerations. The weight given to quantitative and qualitative elements may differ, and each methods has its advantages and its limitations.

There are several criticisms of a generalized use of quantitative indicators for evaluation on an individual level, since they have been developed to measure large amounts of data, such as the output of scientific publications of a university or a country. In its literature review and its consultations, the Council found that most stakeholders who expressed opinions on the evaluation of research agree that there are limitations associated with the use of quantitative indicators. Since the latter are linked to the publications, they tend to favour certain research profiles over others who do not enjoy the same conditions to distinguish themselves by the number of publications, citations, collaborations or grants, regardless of their skills and expertise. In other words, favouring the use of quantitative data can lead to an inequitable situation among individuals conducting research. This is one of the reasons why the Council insists on the need to **ensure a balanced sharing of research funding (Recommendation 6).**

According to the Council, it is also important to **reflect on the notion of excellence and the use of criteria associated with excellence in university research (Recommendation 7).** This type of research creates competition for funding, as there are not enough funds for all the work or projects carried out in universities. Excellence is therefore taken into account as an evaluation criterion. Yet the definition of research excellence is not unanimously agreed upon or necessarily clear.

## 5 Research collaboration between universities and colleges

In its brief, the Council attempted to draw a portrait of research collaboration between the levels of higher education, but it came up against a lack of data on the subject. This situation immediately led to the recommendation to **produce and make available data on university, college and inter-level research projects (Recommendation 8)**. Nonetheless, the Council was able to draw a few conclusions based on some data obtained as well as consultations with actors involved in joint research projects.

It is important to note that research collaborations between the two levels of higher education are rooted in different realities and practices. In addition to teacher-researchers in colleges, scientific staff of the network of college technology transfer centres (CCTTs) have now joined them to form an integrated college research and transfer ecosystem.

The limited data available suggests that research collaborations between universities and colleges are a growing phenomenon: the proportion of PhD holders among college staff, the number of university students working in CCTTs, the funding of research support programs open to such collaborations, and the number of inter-level scientific publications have all increased in recent years.

As a privileged observer of Québec's education and training system, the Council sees inter-level collaboration in the post-secondary network as essential in order for Québec to respond to international competitiveness in research. For this reason, it recommends **encouraging the development of research collaborations between universities and colleges (Recommendation 9)**.

## 6 Access to university research results and scientific knowledge

In light of recent events experienced by contemporary societies, such as the COVID-19 pandemic or the reality of climate change, university research actors must recognize the importance of the dialogue to be carried out with society. This dialogue is accompanied by a parallel issue, that of access to the results of university research and to scientific knowledge for as many people as possible. In this perspective, Chapter 6 deals with access to and dissemination of science, i.e. the movement for open science and, more specifically, for open access.

The Council identified several initiatives on the international scene that are part of the open science movement. In 2021, the United Nations Educational, Scientific and Cultural Organization (UNESCO) adopted a recommendation on the subject: it proposes an international framework that Members States are invited to apply in their policies on open science. In this recommendation, UNESCO defines open science as:

“an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community.”<sup>6</sup>

6 UNESCO, *UNESCO Recommendation on Open Science* (Paris: UNESCO, 2021), p. 7.

Moreover, inequalities in access to the results of science and to the means of disseminating them persist among different world regions, and are reinforced by digital or linguistic barriers. UNESCO's recommendation aims to address these undesirable effects through an inclusive approach with international reach.

In Canada, measures have been put in place in recent years to guide open science actions when it comes to publicly funded research and to recommend sound data management practices within post-secondary educational institutions. In Québec, in 2019 and 2022, the FRQ formulated open access requirements for the results of the research it funds upon their publication in scientific journals. In Québec and Canadian universities, open access practices are still not widespread among faculty members, according to surveys consulted by the Council. For this reason, it recommends **that Québec universities be supported in implementing measures for open access to publications of results of publicly funded scientific research, as required by the Fonds de recherche du Québec (Recommendation 10).**

The relationship between science and the media is also explored in the brief, as the communication of research results helps to make it accessible and understandable for the public. Some university researchers engage in communication activities aimed at the general public, as do science communicators and journalists.

Challenges can discourage researchers from getting involved in the media space, because the functioning and requirements of the university community are very different from those of the media. However, the two environments share some of the same principles and goals, such the pursuit of serving the public good.<sup>7</sup> For this reason, the Council believes that it is important to **encourage, recognize and facilitate the participation of scientists and other researchers in the dissemination of scientific knowledge within society (Recommendation 11).**

At the same time, scientists, science communicators and journalists are called on to deal with misinformation, a phenomenon that has negative consequences on democratic culture and the social climate. According to the literature and organizations consulted by the Council, there are ways to prevent the harmful effects of misinformation: a solid understanding of the scientific method, media and information literacy, and exposure to science throughout one's school and life path. With this in mind, the Council recommends **introducing students to science and the scientific method and developing scientific culture in a manner appropriate to each level of education (Recommendation 12) and supporting the development of scientific literacy (Recommendation 13).**

7 Armande Saint-Jean, "Les universitaires, les journalistes et leurs postures éthiques," in Alain Létourneau (ed.), *L'universitaire et les médias, une collaboration risquée mais nécessaire* (Montréal: Liber, 2013), p. 99-100.

## 7 Science and society: for enriched relations between university scientific research activity and the population

The relationship between science and society and, more specifically, between university research and the population takes on many different forms of collaboration. As such, new demands on university research, in particular with respect to ethics and societal engagement, have led to the development of new research practices. The Council is particularly interested in research practices involving citizens, focusing on those covered by the terms “community services,” “research with and by Indigenous people,” and “citizen science.”

Community services are recognized in Québec as the third aspect of the university’s mission, along with research and teaching. They include various types of activities developed in response to needs expressed by communities that are not traditionally served by universities, including research. When carried out in a “community services” context, research may take on forms other than scientific publication or communication—a characteristic that is not always recognized in the criteria for obtaining research funding or those related to recruitment or promotion in research careers. In light of this, the Council deems it important to **recognize and value the participation and commitment of university research resources in the mission of serving communities for social groups that are less affluent and traditionally underserved by universities (Recommendation 14).**

Furthermore, research conducted in an Indigenous context has led, in recent decades, to the development of several tools aimed at providing a framework for this research and at recognizing and respecting the perspectives and knowledge of Indigenous people. However, there are challenges associated with the use of these tools, as they are not necessarily known by those who may be undertaking Indigenous-related research or those responsible for reviewing research in Indigenous settings. For the Council, university institutions and granting agencies have a responsibility to ensure that the research with which they are associated is respectful of Indigenous peoples. To this end, the Council recommends **supporting students and university staff involved in Indigenous-related research and ensuring that they apply Indigenous research ethics (Recommendation 15).**

The use of new technologies has fostered the development of citizen sciences, also known as “participatory science” in Québec, in particular in the natural sciences. This type of science relies on various degrees and forms of voluntary citizen participation, such as data collection, definition of research projects, interpretation of results, and sometimes even all of these activities. Yet involving citizens brings its own set of challenges, particularly in terms of methodology. Thus, tensions may arise between academic freedom and the consideration of citizens’ needs in research if science is conducted exclusively in response to needs formulated by civil society or if scientific research methods are neglected. Nevertheless, from a perspective similar to that of services to communities, the Council recommends **recognizing and valuing the involvement of university research resources in projects carried out in collaboration with citizens, associations or groups from various sectors of society (Recommendation 16).**



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Thus, the Council's brief provides an overview of some of the current issues in university research that will remain relevant in the coming years. Their development should be observed and analyzed, as several represent both challenges for change and a promise for improvement and growth, for a diverse university research landscape that both reflects and drives society.

## Summary of recommendations

N°	Recommendations	Actors concerned	Description of recommendations
1	Support research in all fields of knowledge and welcome innovative approaches	Ministre de l'Enseignement supérieur	<ul style="list-style-type: none"> <li>Support research efforts in all disciplines and fields of study</li> </ul>
		Ministre de l'Économie, de l'Innovation et de l'Énergie	
		Granting agencies	<ul style="list-style-type: none"> <li>Favour an inclusive approach that allows for a diversity of research questions and methods when allocating funding</li> </ul>
2	Recognize and encourage French-language research and the use of French as a scientific language	Universities	<ul style="list-style-type: none"> <li>Support research projects that respond to society's needs as well as innovative research approaches</li> </ul>
		Granting agencies	
		FRQ	<ul style="list-style-type: none"> <li>Maintain incentives for scientific publication in French by the Québec scientific community</li> </ul>
		Ministre de l'Économie, de l'Innovation et de l'Énergie	<ul style="list-style-type: none"> <li>Strengthen support to organizations that promote Québec's scientific culture</li> </ul>
		Ministre de l'Enseignement supérieur	<ul style="list-style-type: none"> <li>Provide support for scientific activities in French (symposiums, conferences, etc.)</li> </ul>
		Ministre de la Langue française	<ul style="list-style-type: none"> <li>Strengthen support for French-language scientific journals in Québec</li> </ul>
		Ministre de l'Économie, de l'Innovation et de l'Énergie	<ul style="list-style-type: none"> <li>Ensure that scientific activities are held in French in all regions of Québec by partnering with local higher education institutions</li> <li>Promote research partnerships with institutions in French-speaking countries</li> <li>Encourage scientific diplomacy between countries of the Francophonie</li> </ul>

N°	Recommendations	Actors concerned	Description of recommendations
3	Recognize and encourage research on local issues or subjects	FRQ	<ul style="list-style-type: none"> <li>• Continue, through appropriate programs, to recognize the necessity, value and relevance of research on and scientific contributions to local issues or subjects</li> <li>• Develop various kinds of publication incentives for this research, accompanied by appropriate financial support</li> <li>• Examine ways to promote the dissemination of research findings outside of Québec</li> </ul>
4	Support Québec universities in their responsibilities and approaches to equity, diversity and inclusion in research	Ministre de l'Enseignement supérieur	<ul style="list-style-type: none"> <li>• Support Québec universities in the development and implementation of EDI measures, particularly within categories of staff involved in research activities, by means of appropriate policies and funding</li> <li>• Ensure suitable representations to other Québec ministries and government bodies involved in university research activities</li> <li>• Adopt tools to track the composition of university staff, including metrics to identify representational profiles within the various employee categories</li> <li>• Periodically assess the evolution of the composition of the categories of personnel involved in the research function of Québec universities, with the universities' collaboration</li> </ul>
5	Establish a forum for inter-university dialogue on best practices for the development of equity, diversity and inclusion in research	Bureau de coopération interuniversitaire	<ul style="list-style-type: none"> <li>• Set up a forum for sharing best practices and for discussing the challenges posed by the implementation of EDI initiatives and measures within Québec universities, including their affiliated research centres</li> </ul>

N°	Recommendations	Actors concerned	Description of recommendations
6	Ensure a balanced sharing of research funding	Granting agencies	<ul style="list-style-type: none"> <li>• Ensure that the allocation of research funding keeps pace with:               <ul style="list-style-type: none"> <li>» the number of eligible individuals among those doing university research, including those doing it as part of their studies</li> <li>» research costs</li> <li>» research fields</li> </ul> </li> </ul>
7	Reflect on the notion of excellence and the use of criteria associated with excellence in university research	Universities FRQ	<ul style="list-style-type: none"> <li>• Create a working group with a mandate to reflect on the notion of excellence as well as the criteria and indicators associated with excellence in evaluating university personnel involved in research, taking into account the diversification of personal and professional paths</li> </ul>
8	Produce and make available data on university, college and inter-level research projects	Ministre de l'Enseignement supérieur  Ministre de l'Économie, de l'Innovation et de l'Énergie  <hr/> Institut de la statistique du Québec	<ul style="list-style-type: none"> <li>• Quickly take steps to collect, keep up to date and make accessible pertinent data related to university, college and inter-level research</li> <li>• Give the Institut de la statistique du Québec the mandate to identify and compile relevant data on university, college and inter-level research, in collaboration with the actors concerned</li> <li>• Make these data available for research and analysis purposes through its research data access services</li> </ul>

N°	Recommendations	Actors concerned	Description of recommendations
9	Encourage the development of research collaborations between universities and colleges	<p>Universities, colleges and others</p> <hr/> <p>Ministre de l'Enseignement supérieur</p> <p>Ministre de l'Économie, de l'Innovation et de l'Énergie</p> <hr/> <p>Chief Scientist of Québec</p>	<ul style="list-style-type: none"> <li>Continue to actively support, through their own respective means, the development of research collaborations between Québec universities and colleges</li> <li>Ensure stable and sufficient funding for the continued development of collaborative research between university and college researchers, without the funds allocated resulting in a decrease in support for university research</li> <li>Set up a committee on university–college research collaboration</li> <li>Form this committee with representatives from the parties involved</li> <li>Mandate this committee to identify practices likely to encourage and facilitate inter-level collaboration, identify barriers to such collaboration, advise the Chief Scientist, and ensure the effectiveness of mechanisms for evaluating inter-level research</li> </ul>
10	Support Québec universities in implementing open access to publications of results of publicly funded scientific research, as required by the FRQ	Ministre de l'Enseignement supérieur	<ul style="list-style-type: none"> <li>Support universities, through appropriate measures, in the implementation of the new standards of the Open Access Dissemination Policy of the FRQ</li> </ul>
11	Encourage, recognize and facilitate the participation of scientists and other researchers in the dissemination of scientific knowledge within society	<p>Universities</p> <p>FRQ</p> <hr/> <p>Ministre de l'Économie, de l'Innovation et de l'Énergie</p> <p>Universities</p>	<ul style="list-style-type: none"> <li>Take into consideration, in the evaluation of applications for research grants or fellowships, scientific communication activities aimed at the general public and carried out by researchers</li> <li>Promote the diversification of science communication media</li> </ul>

N°	Recommendations	Actors concerned	Description of recommendations
12	Introduce students to science and the scientific method and develop scientific culture in a manner appropriate to each level of education	Ministre de l'Éducation Ministre de l'Enseignement supérieur	<ul style="list-style-type: none"> <li>• Mandate the Conseil supérieur de l'éducation to review the place accorded to the introduction to science and the scientific method in the various academic curricula and undergraduate programs</li> </ul>
13	Support the development of scientific literacy	Ministre de l'Enseignement supérieur and others	<ul style="list-style-type: none"> <li>• Develop a government strategy to promote scientific literacy, ensuring that one of the components of this strategy includes support for French-language scientific dissemination</li> </ul>
14	Recognize and value the participation and commitment of university research resources in the mission of serving communities for social groups that are less affluent and traditionally underserved by universities	Ministre de l'Enseignement supérieur  Ministre de l'Économie, de l'Innovation et de l'Énergie	<ul style="list-style-type: none"> <li>• Preserve funding for community services to allow university institutions to develop relevant research projects and by increasing it on an ongoing basis, at a minimum in line with overall system costs and to protect it from inflation</li> <li>• Ensure that the amounts reserved for community services are visible to those who conduct research as part of their university activities, whether as researchers or as students, and to communities</li> <li>• Collaborate with the Ministère de l'Enseignement supérieur in supporting research carried out in response to community service needs</li> </ul>

N°	Recommendations	Actors concerned	Description of recommendations
15	Support students and university staff involved in Indigenous-related research and ensure that they apply research ethics in Indigenous contexts	Universities	<ul style="list-style-type: none"> <li>• Provide training in Indigenous research ethics to individuals involved in Indigenous-related research projects</li> <li>• Plan measures to support individuals who must apply research ethics in an Indigenous context to conduct or participate in an Indigenous-related research project</li> <li>• Ensure that these resources are visible to individuals who might undertake or participate in a project of this type</li> </ul>
		FRQ	<ul style="list-style-type: none"> <li>• Contribute financially to the development of projects and research related to Indigenous people</li> </ul>
16	Recognize and value the involvement of university research resources in projects carried out in collaboration with citizens, associations or groups from various sectors of society	Universities	<ul style="list-style-type: none"> <li>• Fully recognize, in the evaluation of applications for research funding, recruitment or promotion, the social and scientific contribution of research on local issues or subjects carried out in collaboration with citizens, associations or groups from various sectors of society</li> </ul>

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**Conseil supérieur  
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**Québec** 

   @csequebec  
cse.gouv.qc.ca