

Dare to Experience (2022-2025)

2022–2025 Strategic Planning — Summary for Canada Research Chairs (CRC) and Canadian Foundation for Innovation (CFI)

CRC and CFI programs are an important element for the success of the 2022-2025 Strategic Plan of Université de Sherbrooke (UdeS). Entitled *Oser l'expérience* (Dare to Experience), the plan was the result of consultations with more than 3000 persons and received the stamp of approval from the Université's highest governing bodies. The complete plan is available at the following address: https://www.usherbrooke.ca/planification-strategique/fileadmin/sites/planification-strategique/documents/udes_plan_strategique_22_25_AN.pdf

Constituted by a community of people at the service of society and its members, the UdeS is dedicated to open education, the promotion of critical knowledge and the quest for new knowledge through teaching, research, creation, and social engagement. **UdeS is a major research university in Canada, recognized for the originality of its programs, and engaged with its communities to shape responsible citizens who change the world.** It defends the values of a great human-scale university, of commitment, innovation, and excellence.

Research is one of the four major orientations of the UdeS strategic plan: “Pursue the development of research in all sectors to address society’s major challenges”. Under this orientation, the objectives for 2022-2025 are:

1. Strengthen UdeS’s position as a key player in research.
2. Stimulate collaborative research by supporting interdisciplinarity and developing the “basic research–applied research–knowledge transfer” continuum.
3. Ensure the influence and leadership of research clusters and innovation zones.
4. Implement a recruitment and retention strategy specific to graduate research studies.
5. Stimulate international research collaborations and bilateral student mobility.

Research at the Université has many distinctive features. In many sectors, translational research, which involves the continuum from basic research to knowledge translation, is clearly one of our strengths. In fact, the research carried out at the Université is reputed for influencing practices in a variety of settings and contexts.

Interdisciplinarity is also a characteristic that enables many of our research groups to excel in their achievements. The development of technology platforms and the acquisition of major scientific infrastructure shared by research groups over the last years have also accelerated discoveries.

Research emerging from UdeS focus on major social issues and towards society's specific needs. This rational and relevance facilitate funding. Such research frequently makes use

of multidisciplinary and interdisciplinary approaches because major discoveries often lie at the boundary between disciplines. Nevertheless, researcher excellence and engagement are crucial in pushing back the boundaries of knowledge and training the next generation of scientists. The UdeS's commitment to research and training of highly qualified personnel (students, postdoctoral fellows) mobilizes the principles of equity, diversity and inclusion (EDI), sustainable development and partnerships. *Equity, diversity, and inclusion* are fundamental values in building high-quality research teams. As every individual carries his or her own specific life experience, coming together as a team provides different perspectives in solving today's most complex issues. Intergenerational equity translates in *sustainable development*, a sine qua non fundamental principle of all our research, aiming to meet the needs of individuals and society without compromising the ability of future generations to also meet their own needs. Finally, developing a network of *high-quality partners* (academic, public, and private) is a guarantee of success for research firmly rooted in society. Partnerships fosters applied knowledge-mobilization, and the changes to policies and practices required for a better society.

UNIFYING THEMES

The UdeS new management team spearheaded an exercise, in 2017, to identify six unifying themes¹, to support excellence in research at the Université and to enable our community to solve complex issues requiring multidisciplinary approaches and having significant societal impact.

The unifying themes also had to speak to the Université's research community as well as government bodies, external partners, and the general population. A unifying theme is an institutional commitment, regrouping a critical mass of researchers working to push back the boundaries of knowledge. It is important to underscore that the purpose of identifying unifying themes in no way aimed at having original and individual research take a backseat. Indeed, it was to promote the creation of intersectoral and inter-faculty groups. A unifying theme is not limited to technical aspects. On the contrary, it must consider the social responsibilities and societal needs associated with this research work.

The Environment and Climate Change

OBJECTIVE: Contribute to the implementation of economical and sustainable solutions to societal and ecological problems.

A number of researchers assess ecological and environmental challenges from the perspective of their own discipline: Biology, chemistry, law, ecology, engineering, geomatics, management, politics, and health. This results in comprehensive and multidisciplinary expertise leading to solutions that preserve both natural and social environments.

Digital Age: Intelligent Organizations and Training

OBJECTIVE: Support the upgrading of the major networks, i.e. education, employment, communication, in response to the quick rise and accessibility of digital technologies

Digital technologies are ever so present in our daily lives. These technologies transformed the workplace before making their way into our homes and vehicles. Now ubiquitous, they facilitate our lives in many ways. Consider remote training or smart homes. The possibilities

¹ <https://www.usherbrooke.ca/research/udes/unifying-themes>

of digital technologies are almost limitless, but they also raise a number of ethical, economic, and social challenges. From educational success to artificial intelligence, our research teams are studying the possibilities and impacts of digital tech for the current and future generations.

Innovative Materials/Processes and Quantum Science

OBJECTIVE: Be a key player in the technological and quantum revolution by effectively bridging basic and applied sciences.

The world industry is undergoing a transformation, both virtually and physically. The evolution of materials is thus a significant challenge. For several years, a critical mass of researchers have been focusing their activities around technological innovation to better meet emerging industrial needs. The UdeS reputation for applied research is firmly established: It ranks first for its research partnership intensity. By creating this unifying theme, the UdeS acquired the means to maintain this enviable position. It ensures that the new knowledge developed by its community would have a direct impact on society.

Health: Promotion, Prevention and Precision Approaches

OBJECTIVE: Foster personalized and interdisciplinary approaches in the implementation of programs, services, and policies to maintain people's health.

The increased prevalence of chronic disease, including those that are preventable, is motivating the research community to push the boundaries of health care as it stands. The challenges involve the need to explore new practices and implement significant changes in the traditional health fields. We want to contribute to making the health system more integrated, more attentive, and better adapted to the needs of individuals, families, and communities. To this end, we create opportunities to bring together various disciplines. This multidisciplinary opens the way to captivating perspectives.

Population Aging

OBJECTIVE: Extending the social and active participation of seniors by taking action on the prevention of chronic disease and cognitive decline.

Population aging is a complex and multifaceted challenge. For several years, the UdeS' expertise on this theme has been among the most important and recognized in Canada. A large number of professors work towards developing new knowledge to identify upcoming impacts in the various spheres of life. They suggest and adopt adapted practices to support healthy aging. The expertise developed at the UdeS has a direct impact on populations and is preparing the next generation to take concrete action to face this challenge.

Togetherness: Culture, Plurality, Governance and Equity

OBJECTIVE: Ensure equity in public services and in living and working environments. Assurer l'équité dans les milieux de vie et de travail, ainsi que les services publics.

UdeS is a people-centred, welcoming, and inclusive university. Equity, diversity, and inclusion are part of our core values. So naturally over time we have built research teams composed of individuals with unique experience. Grouping these individuals from various backgrounds establishes a powerful cross-cutting view of the most complex challenges of

our time. Additionally, their rich, varied experience is contributing to achieving the highest standards of excellence. In doing so, we are also making an institutional commitment. Togetherness and goodwill are involved in a large number of research efforts aiming to help populations better welcome the affirmation of different identities, value sociocultural diversity, and ensure equity in living and work environments, as well as within public services.

COLLABORATIONS AND PARTNERSHIPS

Beyond the interdisciplinary and intersectoral collaborations that drive the unifying themes, the UdeS understands that to transfer its innovations to the private and public sectors, it is necessary to convert some of the best ideas resulting from the work of its research community into entrepreneurial projects and partnerships. To this end, the UdeS has adopted a strategy, "Innovation, Partnership, Entrepreneurship" (IPE), whose three objectives for 2016-2026 are to triple its research partnerships, double the number of inventions in the commercialization phase, and double the number of spin-off companies emerging from its research results.

Within this framework, the UdeS has set up the Business Partnership Group, a specialized professional team of collaborative research facilitators. Additional support resources are available (Desjardins Entrepreneurial Accelerator, Enactus Sherbrooke, Technology Business Creation Accelerator, for example). The IPE approach has a series of assets to concentrate efforts in key sectors, such as quantum technologies, information technologies, transport, and renewable energies as well as medical technologies, and to work upstream with primary and secondary school students to interest them both in scientific careers and in entrepreneurship.

PLANNING AND APPROVAL PROCESS

The 2022-2025 Strategic Plan *Dare to Expérience* is key to guide the University in its decision-making regarding major strategic research programs. It oversees Canada Excellence Research Chairs (CERC), Canada Research Chairs (CRC) and applications to the Canada Foundation for Innovation (CFI). It aims to take advantage of these major funding opportunities to increase the University's research and teaching capacity, to recruit and retain the best talent, and to take advantage of partnerships for the benefit of the population of Quebec and the whole of Canada. All our CRCs fit into a unifying research theme, as shown in Table 1 below.

	UNIFYING THEMES					
Sector	Inovative Materials and Processes, and Quatum Science	Environement and Climate Change	Health	Togetherness	Population Aging	Digital Age
NSERC	6	9	4		1	2
CIHR			9		2	
SHS				5	1	
TOTAL	6	9	13	5	4	2

The Vice-President for Research and Graduate Studies is responsible for allocating the Canada Excellence Research Chairs, the CRC, and the CFI envelopes, in close collaboration with the departmental and faculty governing bodies. In addition to the strategic fit in the unifying themes, the allocation of CRC must reflect the Université's commitment to support EDI as a priority as a strategic factor of excellence.

The CRCs nomination process at UdeS is governed by formal institutional guidelines (*Balises institutionnelles pour les Chaires de recherche du Canada*), in a spirit of transparency based on recognized best practices. These transparency and accountability practices support the priority issue of the representation of women, members of visible minorities, persons living with disabilities and Indigenous people in the nomination of CRC holders. These practices include the monitoring of progress toward the representation targets that are set for the four designated groups. The targets are measurable and have been achieved progressively since 2019. The latest updated targets are set for 2029, with intermediate targets for 2022, 2025 and 2027. Progress and deviations from targets are available through the UdeS' web pages devoted to public accountability for CRCs².

² <https://www.usherbrooke.ca/saric/politiques-reglements/edi>