

Strategic Research Planning

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Université du Québec
à Trois-Rivières

Reuniting / Reinventing/ Reaching

*Transcending the frontiers of the known
Contributing to the advancement of knowledge and the
training of the next generation of scientists in Quebec*





Objectives and Orientations

Within the broad perspective of the development of research and training at UQTR, the project for Strategic Research Planning 2020-2027 is focusing on these two major objectives:

1. As a priority, provide support for the research orientations and lines of research laid out for 2020-2027.
2. Highlight and promote projects and spinoffs related to the conduct of research of all kinds and in all our partners' various settings.

These two general objectives break down into five specific objectives:

1. Build, diversify, and strengthen key regional, national, and international partnerships.

2. Increase funding for research on targeted issues and in bold, distinctive niches.
3. Develop our intersectoral and interdisciplinary research.
4. Build our capacity for innovation in research by applying the principles of equity, diversity, and inclusion.
5. Enhance the visibility and standing of our researchers, our researchers' projects, and our research infrastructure.

These objectives are also aligned with the major priorities of UQTR's Institutional Strategic Planning for 2020-2027, which relate to training and research.

Priority Orientations and Lines for Research and Training

In concrete terms, strategic research to be conducted at UQTR will be organized in line with these four orientations:



Research development is unfolding within each of these research orientations; but it is also unfolding *between* orientations, in an interdisciplinary manner. It rests on a base of high-quality post-graduate training structured around 70 master's programs, 25 doctoral programs, and 24 specialized certificates of post-graduate study.

At UQTR, certain sectors of research excellence are already well positioned to offer sustainable answers and solutions to many of the major issues of concern that have been so prominent in the first decades of the twenty-first century. The project for Strategic Research Planning 2020-2027, which was developed in cooperation with the University's research community, focuses on these four major orientations:



Energy Transition and the Environment

Over the past 50 years, UQTR has forged a tradition of excellence in research fields related to the environment and the use of natural resources. But the issues connected to energy transition that present-day society is faced with have picked up momentum since the century began. From here on, what will be needed is an unprecedented rallying by scientists from around the globe. At UQTR, some 100 researchers associated with two institutes and a research centre have a presence in this international community. Their work yields concrete, sustainable answers and thereby contributes to reining in threats to our resources and our quality of life. Here are some of the advances whose implementation their work is contributing to:

- › Better governance of natural-resource exploitation and land use in Quebec; contributions to the inquiry into the transformation of the Saint Lawrence into a smart river corridor.
- › Improving our understanding of cold environments in the context of climate change.
- › Speeding up the process of energy transition and training a qualified, versatile workforce capable of innovating in the fields of energy and materials.
- › Deepening UQTR's roots in the settings where it is already active.



Technological, Social, and Cultural Innovations

Innovation: a trendy word, a catch-all concept, a call to action that yields answers to many questions. As such, it's constantly invoked in our current society. Innovation is of interest to researchers above all for its role as an agent of social change involving collective processes. At UQTR, we approach innovation from several perspectives. Whether as a subject of study or as a sign of the creativity of those involved in research, innovation plays a key role in numerous projects. Research that will be undertaken by UQTR scientists whose work lies in this area will increase the University's influence in various sectors by contributing to:

- › Propelling the CNIMI (Integrated National Centre for Smart Manufacturing) to the status of a top-flight national institution by training highly qualified personnel in the field of smart manufacturing.
- › Supporting businesses in transforming their business models through the intensive use of new technologies and digital technology.
- › Equipping managers with tools for measuring the impact of their decisions on both processes and the system as a whole.
- › Better understanding the impact and repercussions of digital technologies and AI on our way of life; preparing upcoming generations of students to reflect on the ethical issues raised by the use of these technologies in today's world.
- › Through the study of history, promoting a better understanding of the discourse and practices associated with changes in how we all live together and of the forms such changes take; and helping grasp the transformation of knowledge and the changes that societies of today are faced with.
- › Turning the "Espace CIEQ" digital platform for studies on Quebec history and the Atlas historique du Québec (Historical Atlas of Quebec) into preferred venues for disseminating knowledge about historical change in Quebec.
- › Maintaining our standing as a leader in training and research in the forensic sciences through use of the REST[ES] (laboratory for Research on Experimental and Social Thanatology) and the Site sécurisé en thanatologie forensique (Secure Site for Forensic Taphonomy), as well as through research development in the fields of trace analysis of volatile organic compounds, digital footprints, forensic chemistry, and the study of ancient DNA.
- › Shedding light on the role and impact of technology in relation to academic success by inquiring into the part it plays in students' learning, interest, motivation, and critical-thinking development. Considering as well this technology's potential – given its ever increasing influence on education – for enhancing teachers' and professors' capabilities for innovation.
- › Continuing to lead the way in the partnership between the sciences and engineering and thereby promote a productive and richly innovative coming together by these two sectors.
- › Understanding the effects of digital technology on the world of work.
- › Studying SMEs from different perspectives, for example: SMEs' capacity for innovation within sustainable parameters, SME governance; women's entrepreneurship; entrepreneurial careers; occupational health and safety; occupational motivation; risk management; and SMEs' competitiveness.



Fundamental and Clinical Research on Human Health

Many discoveries leading to major innovations have emerged from fundamental research. Over long periods, this work has fostered significant changes to our societies. UQTR is already endowed with several sectors of excellence in fundamental, clinical, and applied research related to human health. Work in these sectors will enable UQTR to:

- › Maintain its position as a national and international leader and extend its influence as the sole Francophone institution of higher learning in North America to offer training and research facilities in chiropractic.
- › Contribute to new understanding of the underlying mechanisms of the brain and to the development of methods of support, prevention, and treatment for developmental and neurodegenerative disorders.
- › Drive forward research in the fields of clinical and functional anatomy.
- › Become a world leader in the field of plant metabolism.
- › Uncover the cellular changes that give rise to the development of diseases such as infertility, Parkinson's disease, cancer, and viral infections, in order to work towards solutions that could cure them.

Social and Health-Related Inclusion

Social diversity is increasing, and modern society faces particular problems and challenges in responding appropriately to diversity in the health sector. These issues have led our researchers to develop niche areas of work covering highly varied and timely themes. In the course of the next seven years, their work will enable UQTR to meet these objectives:

- › Continue to stand out as a leader in the child and family field by:
 - contributing to the establishment of a science of the family; and
 - incorporating into our programs the study of such recent phenomena as the effect of cannabis on the fulfilment of the parental role and such current social concerns as abuse prevention, adoption, and best practices for work with children in need of protection and their families.
- › Shed new light on child and family issues in order to optimize knowledge transfer to, and decision-making by, our partner practitioners and public policy-makers.
- › Understand the diverse routes to over-consumption followed by people with dependencies and people at risk of becoming dependent, in order to enhance the ability of workers in practice settings to promote these people's well-being and that of their family members.
- › Continue to develop our existing research expertise on including children with disabilities and children from diverse ethnic backgrounds in the daycare setting, so that research findings can be incorporated into inclusive educational methods used in practice.
- › Better understand the role played by individual characteristics, life settings, and social interactions in population health and the prevention of chronic illness; and in so doing, cover the full spectrum of health concerns, including the crucial dimension of mental health.
- › Develop collaborative tools for organizations to optimize their employees' health and well-being.
- › Strengthen our already solid expertise in health care and social services by contributing to comprehensive change in management strategies in the Quebec health system.





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