

For Consultation:

Research Strategy

2022-2027

October 2021

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We acknowledge that the lands on which Memorial University's campuses are situated are in the traditional territories of diverse Indigenous groups, and we acknowledge with respect the histories and cultures of the Beothuk, Mi'kmaq, Innu and Inuit of this province.

Introduction

Since the Research Strategy Framework was released in 2011, there have been many changes to the environment in which Memorial finds itself. Most recently, Memorial has approved a new strategic plan, entitled [Transforming Our Horizons 2021-2026](#), which will help guide Memorial's contributions to a socially resilient, economically prosperous, culturally vibrant, inclusive, healthy and sustainable Newfoundland and Labrador.

In the past decade, we have seen the release of the [Truth and Reconciliation Commission of Canada: Calls to Action](#); increased emphasis on Indigenization, equity, diversity and inclusion (EDI) and anti-racism; greater expectations for Memorial to actively participate in the economic recovery of the province; mounting pressures for a move to a carbon neutral economy; and adoption of the [United Nations' Sustainable Development Goals](#).

Further to the commitment to the Truth and Reconciliation Commission's Calls to Action, Memorial University recently produced a five-year [Strategic Framework for Indigenization](#) to strengthen further the relationship between the university and the diverse Indigenous communities in the province, Canada and around the globe.

Memorial is committed to strengthening Indigenous research, including establishing methods to ensure appropriate consultation and engagement with Indigenous communities, non-governmental organizations (NGOs) and government leaders prior to and during the initial stages of research on both community-identified and outside researcher-led initiatives.

Whether Indigenous research is conducted by settler researchers or by Indigenous researchers, it is a focal point for expression, concern, attention and most importantly, action, for truth and reconciliation. In the context of research, Memorial recognizes the critical role of researchers, in the work of truth, reconciliation and a renewed relationship with Indigenous peoples, including with our own Indigenous faculty, staff and students. We recognize that research processes and results bear significantly on the lives of Indigenous students, families, communities and governments.

Through the past decade, Memorial University has matured as a research-intensive institution. For example, with the intention of strengthening diverse dissemination paths for research outcomes, and to encourage greater economic impact, Memorial revised its [Intellectual Property Policy](#). As well, with the implementation of the [Strategic Research Intensity Plan](#) in 2014, Memorial has seen approximately 50 per cent growth in research funding and, according to Research Infosource, Memorial ranked 18th among this country's top research universities in [2020](#).

Also during this period, Memorial experienced improvements in other rankings. Over the past [four years](#), Memorial is the top Canadian university for the study of marine/ocean engineering. For the first time, Memorial was also included in the [Times Higher Education \(THE\) Impact Rankings](#), which measure the global impact of universities worldwide. The rankings assess

universities against the United Nations' Sustainable Development Goals. Memorial received favourable rankings in three key areas: goals 4 (quality education); 5 (gender equality); and 9 (industry, innovation and infrastructure).

The achievements of Memorial's researchers were highlighted in the provincial [Public Post-Secondary Education \(PPSE\) Review](#), which noted the various ways in which Memorial's research has served both the institution and the community. In addition, Memorial's success in increasing research student enrolment and national and international recognition of support for graduate student, as well as increases in both research funding applications and successful awards, are noted in the PPSE Review.

Recognizing the significant accomplishments of the past decade, the Research Strategy 2022-2027 is intended to help sustain this momentum into the future. As well, this strategy includes statements about the aspirations and intended achievements of research at Memorial. The strategy sets out the guiding principles for research at Memorial and identifies the goals and objectives necessary to build on these accomplishments. Its development strengthens the university's growth and evolution as a research-focused institution.

As an aspirational document, it pushes us to pursue, support and celebrate research excellence, a concept that is evolving based on considerations of EDI and anti-racism, in all its forms at Memorial on all of our campuses. It also emphasizes Memorial's commitments to integrate engage in ethical research to enhance human and communal growth and developments. As a working document, it shapes specific action plans in the academic units and the recruitment of new faculty to achieve the vision set out in the strategy. It also informs Memorial's future investments in support of research.

What is the aspiration of research at Memorial?

To improve and advance our understanding of our place in the world.

What does research at Memorial achieve?

We develop and apply expertise and creativity for the betterment of people, place and economy.

Guiding Principles

- Acknowledging the freedom of researchers to pursue ethical research excellence that is based on their individual and collective intelligence, curiosity, ingenuity and creativity.
- Valuing research success and excellence.
- Upholding Memorial's special obligation to the people of Newfoundland and Labrador by supporting and building capacity for research excellence that:
 - Addresses needs and opportunities for our province;
 - Engages our researchers on matters of national and international significance;
 - Contributes to Memorial's teaching and learning environment through academic programs of national and international calibre; and
 - Supports evolving urban and regional economies and changing workforce capacity in areas of economic growth for the province.
- Strengthening Indigenization, EDI and anti-racism in all aspects of the research enterprise.
- Upholding Memorial's special obligation to Indigenous Peoples of Canada by supporting and building capacity of research excellence that:
 - Contributes to understanding the needs of and opportunities for Indigenous Peoples in the province, Canada and the globe; and
 - Carries out research in Indigenous communities within the guiding principles of trusting relationships, respect, responsibility, accountability, reciprocity and power sharing.
- Embracing the United Nations' Sustainable Development Goals.
- Strengthening Memorial's international research reputation.
- Supporting all aspects of research including scholarship and creative activities, as well as translation of knowledge into products, practices and policies.
- Cultivating an innovative and entrepreneurial ecosystem.
- Fostering and supporting community engagement in research.

Goals and Objectives

Goal 1: Attract, retain, support and celebrate people engaged in and supporting research

Objectives associated with Goal 1:

1. Promote EDI, Indigenization, anti-racism and the United Nations' Sustainable Development Goals through recruitment, mentoring and retention.
2. Promote Memorial's research opportunities and celebrate the achievements of researchers and research teams.
3. Support and mentor faculty, students, post-doctoral fellows and trainees to achieve excellence in research.
4. Expand the enrolment of graduate students who are undertaking research during the course of their programs.
5. Support non-faculty researchers and research support staff.
6. Support research excellence through promoting leading-edge professional development for research support personnel.

Goal 2: Support an environment of research excellence

Objectives associated with Goal 2:

1. Foster ongoing and new interdisciplinary collaborations and research.
2. Promote Indigenous research that respects the Indigenous guiding principles of trusting relationship, respect, responsibility, accountability, reciprocity and power sharing.
3. Enhance supports for researchers to access state-of-the-art services and to obtain and manage funding.
4. Develop and maintain high-quality research infrastructure, space, equipment, technologies and support services.
5. Increase supports for sharing research findings and outputs, including across campuses.
6. Embed a sustainable research culture.
7. Support the implementation of mechanisms to measure research impact.

Goal 3: Collaborate locally, nationally and internationally to create, share and apply research

Objectives associated with Goal 3:

1. Support and encourage existing and new external collaboration activities, particularly with communities in Newfoundland and Labrador and local, national and international research collaborations with other post-secondary institutions, governments, industry and community organizations.
2. Engage and collaborate with Indigenous partners in creating, sharing and applying research with other post-secondary institutions, governments, industry and community organizations.
3. Improve Memorial's overall placement in national and international rankings.
4. Foster a culture of innovation-driven research and entrepreneurship to create sustainable economic contributions for the province.

Goal 4: Support fundamental and applied research excellence in Strategic Research Theme areas

Objectives associated with Goal 4:

1. Support research excellence within the Strategic Research Themes through hiring, retention and funding practices.
2. Increase opportunities for Memorial researchers to communicate and collaborate with one another and external partners and collaborators on research related to the Strategic Research Themes.
3. Establish mechanisms to facilitate effective communication and collaboration across the Strategic Research Themes.
4. Work with all levels of governments to enable continued growth in research and partner with the Province of Newfoundland and Labrador to develop research areas, which are of strategic importance.
5. Encourage greater participation in research and/or scholarly activity with a specific focus on attracting new federal research funding.

Strategic Research Themes

The Strategic Research Themes, which represent an evolution of the Strategic Research Themes defined in 2011, identify both existing areas of research strength which hold considerable potential for expansion of expertise, resources and contributions from our researchers and new areas of significant research opportunity for which Memorial is strategically positioned to achieve research excellence.

Much research across the Strategic Research Themes involves or impacts Indigenous People, communities or land, and all such research must respect the [Principles of Engagement](#) associated with Memorial's [Policy on Research Impacting Indigenous Groups](#).

Memorial is committed to helping build a better, more responsible and prosperous future for our province, our country and our world. In that context, Memorial is promoting the importance of the United Nations' Sustainable Development Goals among our university community, and it is being more deliberate with respect to the positive impact Memorial is making on our society and the environment.

The themes identify Memorial's research priorities to other funders and partners, in areas where we have strengths to build on and where we see opportunity for growth. They also include research areas where there is a need for fundamental and applied research in our province.

The titles of the themes reflect issues and opportunities for research growth across multiple units at Memorial, including areas where the institution will provide targeted support. The descriptions of each theme capture our current strengths, how these cut across the university and where we see potential for growth. Brief descriptions of the Strategic Research Themes are included in Appendix A.

The planning process identified three "umbrella" themes, each of which had multiple sub-themes. The intention of these themes is to focus our research strengths in an inclusive way. It is also recognized that there will be opportunities for researchers to address issues and opportunities outside of these thematic areas.

The themes and sub-themes are not mutually exclusive and research areas included under a particular sub-theme often intersects with other sub-themes. For example, much of the research at Memorial supports the social determinants of health although this research is not included under the Health and Well-Being sub-theme. This strategy does not attempt to capture such overlap.

Memorial's Strategic Research Themes and alignment with United Nations Development Programme (UNDP) Sustainable Development Goals

Sustaining People

Indigenous Peoples
Social Justice and Human Rights
Health and Well-Being

Sustaining Place

Arctic and Northern Regions
Creative Arts, Culture and Heritage
Governance and Public Policy
Community and Regional Development

Sustaining Economy

Environment, Energy and Natural Resources
Technology for a Knowledge Economy
Oceans
Food Security (Fisheries, Aquaculture and Northern Agriculture)
Enterprise Development

Themes	Sustaining People			Sustaining Place				Sustaining Economy				
	Indigenous Peoples	Social Justice and Human Rights	Health and Well-Being	Arctic and Northern Regions	Creative Arts, Culture and Heritage	Governance and Public Policy	Community and Regional Development	Environment, Energy and Natural Resources	Technology for a Knowledge Economy	Oceans	Food Security	Enterprise Development
1. No Poverty		*	*	*			*		*	*	*	*
2. Zero Hunger		*									*	
3. Good Health and Well-being	*	*	*	*	*	*	*	*	*	*	*	*
4. Quality Education	*	*	*	*	*	*	*	*	*	*	*	
5. Gender Equality	*	*	*	*	*	*	*		*	*	*	
6. Clean Water and Sanitation	*	*	*	*		*	*	*	*		*	
7. Affordable and Clean Energy			*	*		*	*	*	*	*	*	*
8. Decent Work and Economic Growth	*	*	*	*	*	*	*	*	*	*	*	*
9. Industry, Innovation and Infrastructure			*	*	*	*	*	*	*	*	*	*
10. Reduced Inequalities	*	*	*	*	*	*	*	*	*	*	*	
11. Sustainable Cities and Communities	*	*	*	*	*	*	*	*	*	*	*	*
12. Responsible Consumption and Production	*		*	*		*	*	*	*	*	*	*
13. Climate Action			*	*		*	*	*	*	*	*	*
14. Life Below Water	*		*	*			*	*	*	*	*	*
15. Life on Land	*	*	*	*	*	*	*	*	*	*	*	*
16. Peace, Justice and Strong Institutions	*	*	*	*	*	*	*	*	*			

Strengths and opportunities across Strategic Research Themes

As a comprehensive university, Memorial has strengths in all of the Strategic Research Themes. This provides an opportunity for Memorial researchers to examine complex challenges from a variety of perspectives and creates opportunities for collaborations with external stakeholders and across disciplines and campuses. Memorial has research strengths in addressing local, regional, provincial, national and international contexts. In further developing the Strategic Research Themes, Memorial will continue to work with the people of this province and beyond to support the broad array of research activities and to help identify areas of greatest need.

Much of the research associated with the Strategic Research Themes is not limited to any one theme; the inter-connectedness among the Strategic Research Themes is as important as the classification of work under each. Memorial's Research Strategy fosters cross-theme collaborations as a key part of building strength in these areas.

Partnerships across Strategic Research Themes

External engagement (i.e. sharing research findings and partnering on research activity with communities, governments, organizations and industry) and interdisciplinary collaboration are vitally important to realizing the significant opportunities presented through the themes. As this strategy evolves, stronger relationships are encouraged with groups in other regions in order to reduce inequalities. Memorial researchers working in the themes are internationally recognized for their achievements in engagement and sharing with Newfoundland and Labrador communities, nationally and internationally.

Increased collaboration across disciplines offers significant potential for researchers to benefit from one another's work. Memorial's Research Strategy includes support for communication and co-ordination of research activities and the sharing of research across the Strategic Research Themes and academic disciplines at Memorial. Additionally, greater interaction across Memorial's campuses, as well as with other post-secondary institutions, will be encouraged and supported.

APPENDIX A

Strategic Research Theme descriptions

SUSTAINING PEOPLE

Indigenous Peoples

Research under this theme relates to contemporary Indigenous issues and opportunities in Newfoundland and Labrador, nationally and internationally. Contemporary issues include but are not limited to the impacts of colonization, reconciliation and renewed relationships with Indigenous Peoples. In addition, research areas include the pre-history and history of Indigenous Peoples.

Research under this theme is Indigenous centred, Indigenous led and Indigenous focussed to meet the needs and priorities of Indigenous Peoples and is carried out with and led in partnership with Indigenous Peoples.

Key research areas include education, languages, society, culture, human rights, gender, literature, religion, ethics, politics and social and economic development; contemporary issues around resource development, governance, self-determination, land claims, climate change, health and well-being, physical activity and community development; Indigenous expressive culture; youth engagement relating to social policy, social participation and youth programs; food security and access to traditional foods; Labrador land claims, self-determination, climate change, resource development, transportation, national parks, cultural continuity and collaboration with the Indigenous groups; and traditional knowledge of Indigenous Peoples and its relation to contemporary issues.

Social Justice

Research under this theme relates to systems and structures that contribute to humane, equitable and just societies. Its focus is on partnering with historically vulnerable and disadvantaged communities, groups and individuals, whose voices are often excluded in addressing the barriers to their health and well-being and full participation in society, to build their capacity and enable their civic engagement locally, nationally and internationally.

Key research areas include immigration, citizenship and labour market inclusion and poverty reduction; empowerment of individuals through education, community health approaches, access to medical care and services and child and family welfare; interdisciplinary aspects of uniqueness, difference, equity and ethics; labour relations, social and working class history, gender equality and sexuality; the impact of poverty on

individual and community development in urban and rural neighbourhoods and communities; homelessness, affordable housing and poverty; citizen engagement in communities, how education is valued (to help explain the low rate of high school graduation); mental health, aging, social development and disabilities issues; national and international social justice issues; and corporate, government and institutional social responsibility.

Health and Well-Being

Research under this theme relates to improving the health and well-being through building research and knowledge provincially, nationally and internationally, especially for the people of Newfoundland and Labrador in areas of unique provincial need and opportunity.

Key research areas include health services and health policy research as well as research related to special medical, nursing, social work and other allied health professional education that respond to the province's aging, rural, remote, Northern, Indigenous immigrant and racialized populations and distinctive workforces; research related to efficient and accessible healthcare systems and health-sustaining resources and effective public health programs and policies and healthy and safe workplaces; genetics research that addresses both the need and opportunity presented by the founder population characteristics of the province (genealogy, community and population health, ethics and health policy development, as well as specific bio-molecular research and clinical care innovation); biomedical sciences ranging from cellular and molecular processes to animal and cell modeling that respond to the province's high incidence of diseases such as obesity, diabetes and cardiovascular disease; multi-national clinical trials of drug and device interventions; health promotion, mental health, public health, health policy, disease prevention and chronic disease management; and healthy aging.

SUSTAINING COMMUNITIES

Arctic and Northern Regions

Research under this theme relates to people and communities, environment and resources, health and well-being, sovereignty and self-determination, approaches and technologies for sustainable resource development and land, ocean, and coastal zones in Arctic, Subarctic and Circumpolar regions.

Key research areas include Northern peoples and their languages, society, culture and communities; health and well-being, including physical, mental, emotional, spiritual and cultural determinants of health, health systems and access to health-sustaining resources; regional, national and international governance mechanisms such as land claims, self-governance, environmental regulations and the Law of the Sea; distance education, telecommunications and learning technologies and their implications for Northern peoples; technologies for and management of natural resource development, transportation, safety and survival and healthcare and emergency response and search and rescue in harsh, remote locations; the geography and ecology of Northern marine, terrestrial and ice environments; climate change and its impacts, significant resource developments and assertion of sovereignty in the North; environmental assessment, transportation and Northern and remote infrastructure; and economic and regulatory models and best practices to maximize benefits from resource developments.

Community and Regional Development

Research under this theme relates to building capacity of people, organizations, communities and industries to foster social and economic prosperity and development in rural and urban communities, neighbourhoods and regions.

Key research areas, much of which is in partnership with rightsholders or stakeholders, include assessment of community well-being and sustainability and the influences affecting economic, social, cultural and ecological well-being. This includes the role of education, social programs, social services, community and public health and social policy and their impact on the lives of individuals and groups in communities; land use, food production, drinking water, waste management, transportation planning and affordable housing; labour market development and economic diversification; impacts of climate change, aging populations, migration and immigration, global economic and technological change on communities and regions; and unique challenges and opportunities of small/rural and urban communities as well as rural-urban and local-global interactions, regional co-operation and governance and innovation in policy and service delivery.

Creative Arts, Culture and Heritage

Research under this theme relates to creative production and expression; curation and interpretation; and archaeological, historical, ethnographic and archival research provincially, nationally and internationally.

Key research areas include the arts; all forms of creative production and expression (drama, spoken word, music and sound, visual, performance and literature); education to preserve and strengthen culture and build social and cultural identity; performance pedagogy; tangible cultural heritage; intangible cultural heritage, including language, art, and music; cultural industries; history; expressive determinants of society and individual identity; contemporary and historical creative activity; the use of new media and technologies in the ongoing production of art, culture and heritage; interdisciplinary research in music, health and well-being in music and engineering; and the use of creative expression to critique and celebrate understandings of culture and society.

Governance and Public Policy

Research under this theme relates to organizational and corporate governance, public policy and the relationships amongst governments and non-governmental organizations.

Key research areas include auditing, taxation, finance, leadership and corporate social responsibility; public and collective decision making in economic policy (including policy and governance arrangements relating to specific economic sectors, as well as to cross-cutting areas such as fiscal and monetary policy and trade policy), social policy (including health, education and social services), cultural policy, environmental policy, defense policy and other policy fields; legal studies across all policy fields; local, regional and federal systems, as well as multi-lateral and inter-national governance relationships and organizations; immigration and population change; land-use and urban planning; and food security.

SUSTAINING ECONOMY

Environment, Energy and Natural Resources

Research under this theme relates to the environment (including climate and environmental change), development of natural resources (oil and gas, mining and forestry) and the interaction of people, industry and communities with the natural world, locally, nationally and globally.

Key research areas include human interactions with climate and environmental impacts; energy efficiency and energy transitions; resource economics; advancing technology for applications in resource industries; cultural perceptions of the environment; environmental science; wildlife, marine, land, habitat resource and waste management; plant and forestry science; environmental engineering and sustainability; cellular and molecular biology and marine sciences; energy industry economics and policy; health, safety and survival in the oil and gas industry; harsh environment engineering, ocean observation systems; petroleum reservoir characterization and exploration geophysics; sustainable and alternative energy solutions; reclamation of non-renewable resource developments; social and economic benefits of the non-extractive values of natural resources; and watersheds and water quality business opportunities, public policy, legal issues and regulatory regimes.

Information Technology for a Knowledge Economy

Research under this theme relates to the theoretical foundations of information and communication technology (ICT), the design and deployment of ICT in a variety of settings and the evaluation of the use of ICT and its impact on individuals, organizations, and society. It involves research into the study and design of systems that capture, store, transmit, process and use information in a manner that is efficient, accurate, reliable, secure, profitable and responsible.

Key research areas include foundational and design areas, including algorithms and complexity, data management, software engineering, computational modeling, communications, automation technologies, computer and communication networks, information technologies and artificial intelligence; ICT impact, including telemedicine, distance education and e-learning technology, e-commerce, smart cities, factories and transportation and privacy; geographic information systems, autonomous ocean systems; managing (storing, retrieving, filtering and processing) the vast amounts of data collected by businesses and other organizations using web-based and sensor-based data collection (data collection includes scientific, health, pharmaceutical, commercial, geographic and social network data, remote sensing, communication networks, information technologies and computational modeling; it spans traditional structured databases and unstructured text); electronic health service delivery in remote areas of the province (including tele-

oncology, tele-psychiatry and tele-video resuscitation) and innovative interactive teaching programs for remote areas; and cultural and social impacts of ICT.

Oceans

Research under this theme relates to the maritime environment, the interaction of coastal people and communities with the ocean and maritime environment and the scientific, technological and organizational requirements of industrial development in this environment, particularly relating to conditions in the North Atlantic but including global oceans.

Key research areas include cultures and societies around the North Atlantic Rim and how they interact with the ocean and ocean industries, including economic and political agreements and relationships; technologies for natural resource development, transportation and safety and survival in harsh, remote ocean environments and the geography and ecology of North Atlantic marine, terrestrial and ice environments; digitalization of the oceans; green shipping; autonomous vessels; advanced manufacturing to support the ocean technology industry; contaminant detection and remediation; and fundamental research in biology, ecology, environmental and climate science and ocean science.

Food Security (Fisheries, Aquaculture and Northern Agriculture)

Research under this theme relates to the scientific, technological, social, cultural, economic and organizational aspects of Northern agriculture, fishery and aquaculture industry development and their related social, cultural, economic, community, environmental and public policy characteristics.

Key research areas include conservation and resource management; boreal agriculture, aquaculture and seafood development; community food systems and initiatives; food processing technology and processes to support industry development; food sovereignty and Northern food systems; research related to the people, organizations, history, economics and policies pertaining to fisheries, aquaculture and agriculture; impacts of invasive species; climate change impacts on agriculture, fisheries, fish species and stock health; food science; health outcomes of diet and food security; and business development and marketing.

Enterprise Development

Research under this theme relates to entrepreneurship, social enterprise and business practices and their social, psychological, environmental and economic impacts on local communities, marginalized communities and mainstream markets.

Key research areas include mobilization and translation of fundamental and applied innovation-driven research; entrepreneurship education; entrepreneurial intention and the propensity of academics to engage in entrepreneurial activities; improved business practices in finance, project management, human resource management, marketing and regulatory regimes; venture and social enterprise creation and growth in Newfoundland and Labrador and their impacts locally, nationally and internationally.

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