



STRATEGIC  
**RESEARCH PLAN**  
2023-2028



Research

**STRATEGIC RESEARCH PLAN -  
OFFICE OF THE VICE-PRESIDENT (RESEARCH)**

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Approved by UNB Senate (Fredericton) on November. 21, 2023.  
Approved by UNB Senate (Saint John) on November. 22, 2023.



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# FOREWORD

*We respectfully acknowledge that UNB's two campuses stand on the unsundered and unceded traditional Wolastoqey land. The lands of Wabanaki people are recognized in a series of Peace and Friendship Treaties to establish an ongoing relationship of peace, friendship and mutual respect between equal nations.*

*The river that runs by our university is known as Wolastoq, along which live Wolastoqiyik, the people of the beautiful and bountiful river. Wolastoq is also called the St. John River.*

## **Sapere Aude. Dare to be wise.**

Our motto is a call to action: a call that our research community answers every day in our drive for discovery, for innovation and for positive impact.

Our quest to create knowledge, to become wiser, and to share that knowledge and wisdom with the world, drives us to look forward to the unknown.

As we seek answers to questions, curiosity becomes discovery, and our world is made the wiser for it.

From these discoveries, we generate innovations as we seek solutions to

the challenges facing our society and our world.

As we work with our students, our partners and our communities to share these meaningful discoveries and groundbreaking solutions, we create a positive impact through practical applications and by inspiring further exploration.

The challenges we face as a society are increasing in number, complexity and severity. Resolving these new challenges will continue to require our best and brightest minds to work together in search of inventive ways to address them effectively. It will require our most experienced and established researchers, bringing a wealth of expertise, as well as our emerging researchers to take up the torch in creative new directions. It will require ongoing engagement and collaboration with our community and industry partners to build on their strengths, benefit from their insights, and respond to their needs. It will require the support of experienced personnel to maximize the resources available for, and impact of, our research. It will require new directions, new partnerships, new approaches to processes and new ways of thinking and working across disciplinary and occupational lines.

As UNB embarks on its new strategic plan, and approaches nearly two and a half centuries of innovative research, our strategic research plan supports UNB's mission to increase research activity, strengthen research impacts, and recognize research achievements.



# INTRODUCTION

Our 2023-2028 Strategic Research Plan (SRP) builds on the extensive consultation and analysis undertaken for its previous 2016-2021 iteration, as well as the consultations undertaken for UNB's latest strategic planning exercise.

The SRP is built on the past five years of our research community's evolving research directions and achievements.

It aligns the existing strengths and goals of our previous SRP with the vision put forward by our community in UNB Toward 2030, our strategic plan for the next decade, with our ongoing drive to meet reconciliation and equity objectives, and with our desire to serve our communities.

The SRP also reflects the evolving landscape of provincial and national governmental and nonprofit research funding priorities and opportunities.

In this document, we identify strategic directions for research at UNB. These areas

identify constellations of particular strength, resources or activity within the institution, as well as areas of major need or opportunity for society.

The SRP also fulfills the requirements of programs such as the Canada Research Chairs (CRC) and those of the Canada Foundation for Innovation (CFI), as well as providing a support resource for UNB teams preparing research funding applications to these programs.

What this document does not do, or seek to do, is describe all of UNB's research activities.

As a comprehensive research university, we pride ourselves on embracing all aspects of research and related scholarly activity in the pursuit and advancement of knowledge.

The Office of the Vice-President (Research), and all of UNB's administration, continue to be active proponents of a diverse and self-directed research agenda. We unequivocally support discovery research and the academic freedom of our scholars. We also recognize



that new topics and areas of strength will emerge over time, and we will accordingly remain responsive to these new opportunities.

The SRP does not replace, nor does it diminish, the value and importance of any unit or individual researcher's plans for their activity. It is, instead, a framework offering a collective vision for individual scholars so that they may capitalize on the supports and structures in place to pursue their research goals.

# MAJOR OBJECTIVES OF THE SRP



We seek to enhance UNB's research reputation as one of the most research-intensive comprehensive universities in Canada. Objectives set out in this SRP include:

## Elevate our people:

- Advance our institutional priorities in honouring our reconciliation commitments and our commitment to equity, diversity and inclusion and belonging.
- Recruit and retain exceptional researchers at all levels, including graduate students, faculty and postdoctoral fellows.
- Improve awareness of the quality of UNB research.
- Celebrate researchers and their discoveries and achievements.

## Advance our research excellence:

- Increase overall research activity and intensity across the institution.
- Support the advancement of knowledge through ground-breaking, high impact research.
- Enhance and optimize our state-of-the-art research infrastructure.
- Strengthen and enhance institutional support for research.
- Integrate the Truth and Reconciliation Commission's (TRC) Calls to Action and the principles of ownership, control, access, and possession (OCAP) into our research policies and practices.

## Strengthen our collaborations:

- Grow and enhance our connections with community, government and industrial stakeholders and partners.
- Expand upon our collaborative and interdisciplinary approach to research, between units and campuses, between UNB and other institutions and entities, and through participatory research initiatives.
- Support academic initiatives using research to enhance student learning.

## Increasing our research impact:

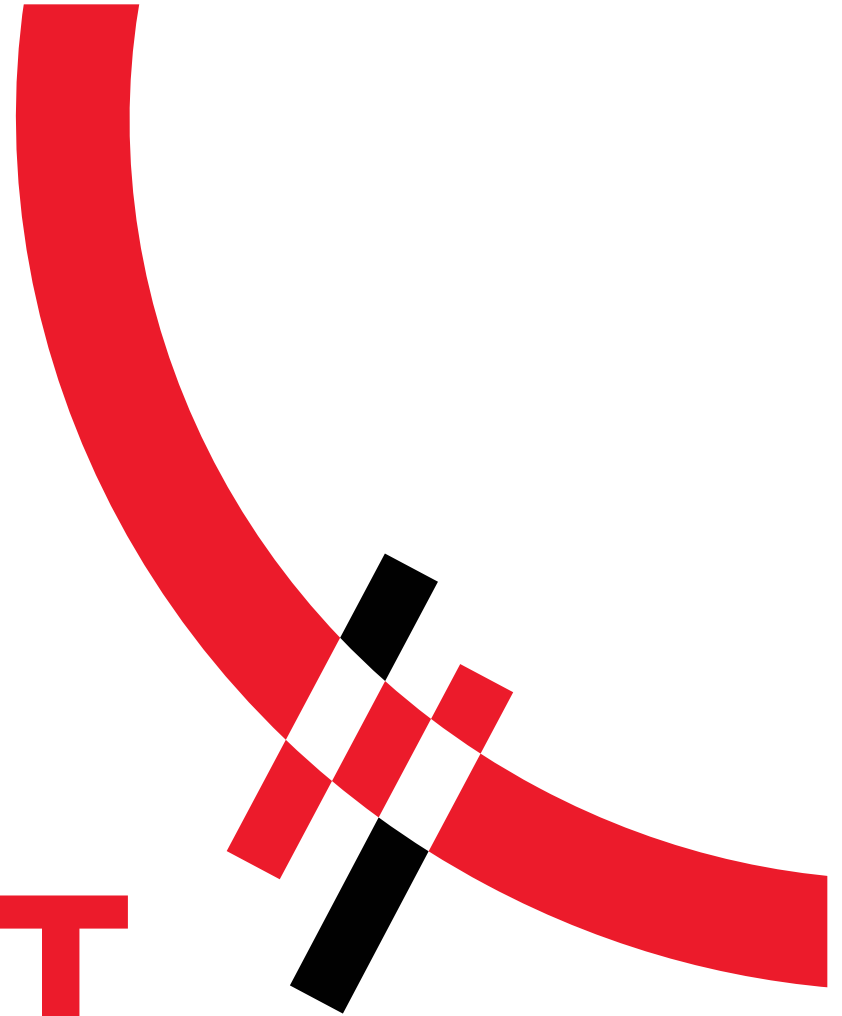
- Continue striving to improve the environmental, social, health and economic well-being of the province of New Brunswick and all of its people, and to create a positive impact regionally, nationally and internationally.
- Generate and promote research that guides and supports evidence-informed regional, national and international policy decisions.
- Contribute to solving the greatest challenges facing our lives, our communities and our planet.
- Intensify our relevance and impact in applied research and through participatory research, knowledge mobilization, knowledge translation and public scholarship activities outside of the institution.



SECTION 1

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# CONTEXT







## Truth and Reconciliation

UNB remains committed to taking an active role in advancing reconciliation in Canada and New Brunswick and implementing the Truth and Reconciliation Commission's Calls to Action. UNB's Strategic Research Plan is aligned with those actions and priorities.

In implementing this Strategic Research Plan, we will seek out opportunities to advance Indigenous scholars and scholarship through the recruitment and support of more Indigenous researchers, with the renewal of research processes better guide research by, with and alongside Indigenous communities in line with their existing strengths, priorities, needs and expectations, and through providing opportunities for all members of our research community to learn about Indigenous knowledges, epistemologies, methodologies and practices.

## Equity, diversity, inclusion and belonging

UNB is committed to providing a positive learning and working environment where every person feels empowered to contribute and where all members of its community are respectful and respected as individuals. We are committed to fostering an inclusive culture and to advancing diversity in all of its forms that reflect the richness of our communities and creates educational and institutional benefits that come from these identities, perspectives and experiences.

## Research security

UNB's research community operates in an increasingly complex, global environment, and in a setting that increasingly prioritizes access to information and intellectual property. Within this context, the Government of Canada, among other governments, is exploring policies and recommendations under national security considerations, and research institutions are further exploring best practices to protect their researchers' activities and outcomes. Accordingly, we will be continuing to evolve and strengthen our plan to safeguard our institution's research and innovation activities, while balancing these needs with supporting an open and collaborative research environment.



## About UNB

The University of New Brunswick is the province's largest university. Home to an educational and research network with 235 years of history, it maintains two main campuses, located in Fredericton and Saint John, with an additional satellite site in Nursing located in Moncton. More than half of the province's university students move through the two main campuses annually; several thousand more take advantage of distance education and programs at partner campuses around the world. Students are encouraged to get involved in UNB research at the undergraduate and graduate levels and are mentored by outstanding faculty and researchers.

As the country's oldest English-language university, we are committed to being one of Canada's finest institutions by providing exceptional educational and research opportunities.

As a comprehensive university and New Brunswick's leading research institution, responsible for the majority of sponsored research activity in the province, we pride ourselves on welcoming and supporting all areas of research and related scholarly activity. We also offer one of the largest interdisciplinary research programs in Canada.





SECTION 2

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# RESEARCH GUIDING PRINCIPLES

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# Inherent in UNB's commitment to research and our pursuit of research excellence are three guiding principles that follow the arc of research from fundamental exploration through to application.

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## Discovery

At UNB, we believe that the drive toward, and act of, finding or learning something for the first time can lead in unexpected and exciting directions that can ultimately enhance our understanding of the world. Underlying our Strategic Research Plan is the recognition that research driven by a spirit of curiosity and discovery is fundamentally important to achieving impact, and that the ability to foster this research is a particular strength of universities and public research organizations.

## Innovation

We recognize that promoting and embracing innovation is a means through which UNB will play an important and growing role in a knowledge-based society. One way that UNB researchers are providing innovative solutions is through increased multidisciplinary and interdisciplinary research collaborations. Collaboration is valued and recognized at all levels - between disciplinary units, across campuses, between research institutions, with partners in the community, and most importantly, with our students.

## Impact

Research at UNB has the potential to positively impact humanity. By promoting, supporting and leveraging community engagement regionally, nationally and internationally, and by fostering an entrepreneurial spirit, we can maximize the impact of our research.



SECTION 3

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# A CALL TO ACTION

**PILUWITAHASUWAWSUWAKON:  
RECOGNIZING AND ADVANCING  
INDIGENOUS SCHOLARSHIP**



*Aligning with UNB Toward 2030 and informed by the Truth and Reconciliation Commission's 94 Calls to Action and our own TRC Strategic Action Plan, UNB is committed to Piluwitahasuwawakon, a Wolastoqey word gifted to UNB by Opolahsomuwehs (Elder Imelda Perley) which means "allowing your thinking to change so that action will follow in a good way toward truth."*

*The origin of Canadian postsecondary institutions has led to a predominance of settler world views and the historical exclusion of Indigenous scholars, thus limiting Indigenous scholarship. We recognize that we must learn from this shared legacy and do better moving forward. UNB is committed to expanding research activities and addressing issues around best practices for Indigenous research, including special consideration to research ethics.*

To most fully support this commitment to Indigenous world views, histories, persons and practices, our first defined priority in this Strategic Research Plan is deliberately creating a space for an Indigenous-led and driven research agenda. Recognizing the risk of perpetuating marginalization and exclusionary institutional histories if current and future Indigenous scholarship and scholars are not recognized and supported, we have included this priority in our discussion of research themes that will guide strategic activity and investment.

While current Indigenous research activities and researchers figure in the strategic themes presented in this document, and while future Indigenous research will also continue to be part of UNB's overall research landscape, this priority area also stands independently of these topical themes. In creating this space now, we recognize that supporting and advancing Indigenous-led research efforts are an essential starting point toward a more fulsome consideration of Indigenous research strengths and priorities in future strategic research planning. It is our hope and intent that future SRPs will continue to elevate and incorporate Indigenous researchers, research, perspectives and methodologies.





SECTION 4

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# STRATEGIC RESEARCH THEMES

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In this SRP, we identify five research themes that reflect emerging and core strengths as demonstrated through research leadership and reputation, the subject areas of our research centres and institutes, and investment from competitive funding programs. They help identify research strengths and synergies that will focus discussions and build critical mass.

Underlying all of these research themes is a recognition of the essential importance of the discovery-based research upon which all further innovation is built. We recognize that our current areas of strength are bolstered by the self-directed pursuit of our individual and collective curiosity, and that future research strengths and priorities will emerge from this same inquiry.

We intend for these themes to be landmarks in the research landscape to which many in our community will find connections to their research programs.



OUR THEMES ARE BASED ON SOME OF THE FUNDAMENTAL CHALLENGE AREAS FACED BY SOCIETY TODAY: HEALTH, SECURITY, WATER AND ENERGY.





# ENERGY SYSTEMS, MATERIALS AND INDUSTRY FOR TOMORROW

The intersection of growing demands for power in our ever more electrified world and increasing pressure on our resources and natural environment challenge us, in this moment, to identify solutions for a more sustainable and more informed future.

Our research community is leading the region in innovating new, safe and efficient sources of energy, and in more intelligent and efficient infrastructure to deliver power where it is needed.

## Subthemes:

- Nuclear energy
- Renewable energy, green technologies and social transformation
- Digital grid infrastructure
- Advanced and additive manufacturing, and material science
- Civic infrastructure and the future of community
- Cultural and social impacts and processes of energy production, use and change
- Energy and climate change



## HEALTHY AND SAFE COMMUNITIES

Taking care of our people and our communities is how we set the stage for a thriving future in our province and beyond. Increasing healthcare pressures, an aging population and the complex and intersecting factors affecting health require innovative approaches. We are challenged to discover new knowledge and new solutions to create this future, and our researchers are responding to it.

UNB researchers are investigating the interconnected web of health determinants to comprehensively improve health, supporting the community-based and healthcare organizations of our province (and beyond) and their workers, and helping people live healthy and fulfilling lives across the full lifespan, particularly among the youngest and oldest generations.

### Subthemes:

- Health sciences and healthy living
- Integrated health and the interconnected web of social determinants of health
- Human and social security
- Homelessness and housing security
- Intimate partner, family and gender-based violence
- Mobility rehabilitation and prosthetics
- Health and technology, including digital health
- Youth, aging and vulnerable populations
- Chronicity and long-term healthcare
- Climate change and communities





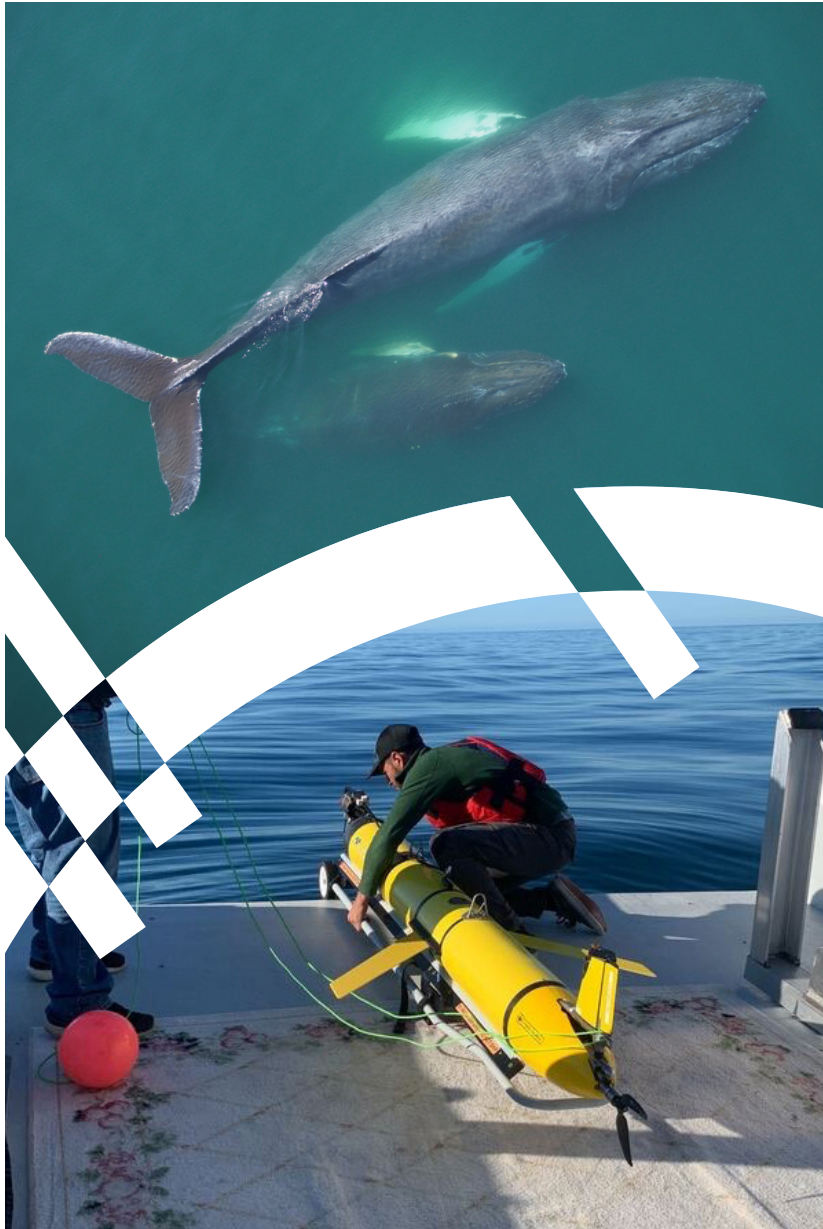
## SECURE AND INTELLIGENT FUTURES

Today's world is one where cars talk to each other, where refrigerators can order food, and where computers can understand increasingly complicated ideas. As digital technologies become more complex, we are challenged to better understand their operation, address emerging security risks and take advantage of the opportunities they provide in solving complex problems.

Our researchers provide sector-leading insight in cybersecurity, integrating data security in other projects and leveraging big data and artificial intelligence.

### Subthemes:

- Cybersecurity
- Aerospace and defense
- Peace and conflict studies
- Safeguarding and protecting our communities and our institutions
- Big data and artificial intelligence (AI)
- Cloud computing
- Data-informed decisions, smart policies and measuring impact
- Technology, humanity and society
- Fundamental mathematical science



## WATER AND OUR NATURAL ENVIRONMENT

Water covers 71% of our planet, makes up more than half of our body weight and is critical to our survival. It's no surprise, then, that water is a primary interest for many of our researchers. Water, however, isn't our institution's only area of concern in the natural world that surrounds us. Human pressures on our resources, rapidly changing climates and a general drive to better understand the Earth we inhabit in a planetary and cosmic context press us forward.

UNB's research community provides groundbreaking insight about our inland, coastal and ocean waters, the life that inhabits them and the communities that surround them, contributes significantly to our knowledge of the forests that make up so much of our region's landscapes, and leverages observation and measurement technologies to map and define the planet.

### Subthemes:

- Coastal communities and humanity's relationship with water
- Understanding natural environments and ecosystems
- Climate change and sustainability
- Forestry and natural resource management
- Security implications of climate change
- Mapping, observation and earth and space sciences





## HUMANITY AND SOCIETY: KNOWING OUR PASTS, UNDERSTANDING OUR PRESENTS, CREATING OUR FUTURES

Our continued, fundamental desire to understand ourselves and others drives us toward discovery and creation. Through our social science and humanities research, we are able to see ourselves and others through new lenses, and are urged to better ourselves as neighbours, citizens and human beings. Through our engagement, partnership and participatory practices, we can create a real impact on real issues. Critical and innovative perspectives push us toward a more prosperous, just and fulfilling world, and inspire us to think differently about ourselves and our future.

### Subthemes:

- Education for peace and justice
- Creating positive futures for teachers and learners
- Active and engaged citizenship
- Creating our futures: making, validating and enforcing better decisions about who and what we are
- The peoples and cultures of Atlantic Canada
- Knowing our histories and stories
- Understanding lived experiences, languages and cultures



SECTION 5

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# RESEARCH CHAIRS



# CHAIRS ALLOCATED

## BY RESEARCH AREA

**33** RESEARCH CHAIRS TOTAL

12 CANADA RESEARCH CHAIRS

21 OTHER RESEARCH CHAIRS



Chairs represent an impressive proportion of full-time, research-active faculty, **making up more than 6.5% of UNB's approximately 450-person professoriate and research associate community.**

Theme*	CANADA RESEARCH CHAIRS (CRC)						OTHER RESEARCH CHAIRS	TOTAL
	NSERC		SSHRC		CIHR			
	TIER 1	TIER 2	TIER 1	TIER 2	TIER 1	TIER 2		
Energy systems, infrastructure and industry for tomorrow	1	1					7	9
Healthy and safe communities		1		1		1	6	9
Secure and intelligent futures	1	2		1			4	8
Water and our natural environment		2					3	5
Humanity and society: Knowing our pasts, understanding our presents, creating our futures			1				1	2
<b>TOTAL</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>21</b>	<b>33</b>

\*The five identified strategic research themes in this table are representing the established areas of strength and growth at UNB. The self-determined Indigenous research agenda, as a priority that transcends others and sets an aspiration for the future, informs all research themes and is not currently listed as a separate category.









SECTION 6

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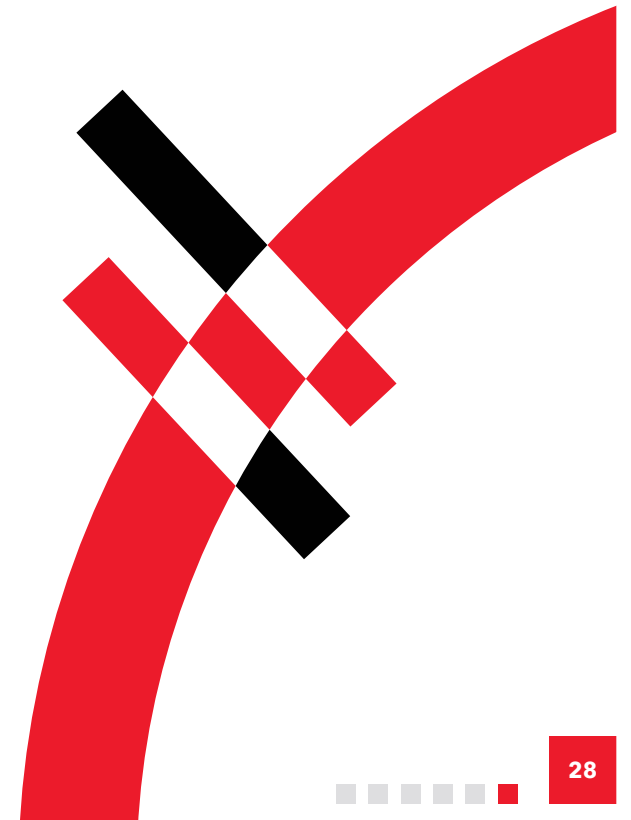
# ASSESSING RESEARCH OBJECTIVES



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The University will routinely review research performance using both leading and lagging indicators. Recognizing that research results and impacts are broad and diverse, and that accepted and preferred methods of assessing these are changing, we will strive to establish metrics and indicators that best represent the merit of the comprehensive research activity at UNB. Such indicators will include, but are not limited to:

- Research output such as journal articles and books, conference papers, patents and other intellectual property, datasets, knowledge translation and public engagement efforts, and so on;
- Indicators of research use, including its influence on policy, practice, and community;
- Measurable research quality metrics such as citations, awards and national/international reputation;
- Number of faculty actively participating in research;
- Number of postdoctoral fellows and graduate students active in research;
- University research rankings performance;
- External research revenues;
- Research intensity (research revenue generated per faculty member, as well as research output per faculty member);
- Number of research grant proposals, as well as the number of different faculty members submitting research grant proposals;
- Success rate of Tri-Agency and other funding submissions; and
- Advances in policy, practice and education opportunities on equity, diversity, inclusion and belonging, and on reconciliation and decolonization.



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