



# Innovation in Action

RESEARCH PLAN 2022-2026

Red River College Polytechnic (RRC Polytech) is committed to ensuring First Nations, Métis and Inuit knowledge, cultures and traditions are embraced and reflected in the pursuit of its mission.

Through ongoing dialogue with Indigenous communities, RRC Polytech is fostering a new relationship based on the principles of mutual trust, respect and reciprocity.

We respect the Treaties that were made on these territories, and we dedicate ourselves to moving forward in partnership with Indigenous communities in a spirit of reconciliation and collaboration.



## Our Mission

To elevate people, industry and community in Manitoba through future-focused polytechnic education, research and partnerships.

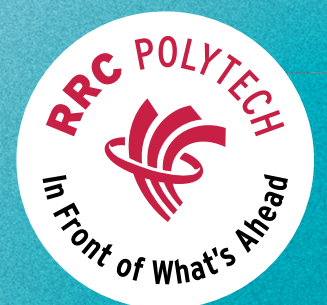
## Our Vision

Manitoba's polytechnic: your partner in shaping the future.

## Our Values

- Learning
- Respect
- Inclusiveness
- Integrity
- Sustainability
- Collaboration

These values shape how we work with our students, our partners and our colleagues.



# Strategic Plan

In 2021, RRC Polytech unveiled its Strategic Plan, *In Front of What's Ahead*, charting a bold course forward over the next five years. This plan serves as a roadmap of the steps we must take to embed agility into our learning models, foster a culture committed to reconciliation and respect, and strengthen the partnerships that help us shape the future for our students and province. We are committed to transforming today's learners into a force for change, creating a positive impact on the next seven generations.

Transform our learning model to meet emerging needs



Create learning opportunities to meet the current and emerging needs of students, employers and communities



Enhance student experiences in their journey to, with and beyond RRC Polytech



Strengthen academic pathways to and from RRC Polytech

Commit to Truth and Reconciliation. Pursue equity, diversity and inclusion in everything we do.



Continue to walk the path together towards Truth and Reconciliation



Address systemic barriers



Foster a culture of inclusion

Deepen partnerships to maximize prosperity across industry and community



Maximize new and current strategic partnerships to realize mutual benefit



Elevate applied research in Manitoba



Build a culture of philanthropy to increase strategic partnership potential

# Research Plan

As Manitoba's largest institute of applied learning and research, RRC Polytech works alongside employers to find innovative solutions to real-world challenges, while also providing students with the theoretical and applied knowledge to succeed in their future careers. We approach our work with humility and a desire to improve the social, economic, environmental and cultural well-being of all Manitobans. We help Manitoba businesses build the talented, diverse and culturally aware workforce they need to face disruption and compete on the global stage.

**We are Manitoba's largest institute of applied learning and research – and its only polytechnic institute – focused on strategic workforce development, enhanced by strong applied research capacity.**

We are unique in Manitoba, blending deep, theoretical learning with applied, experiential opportunities, to give our students more choices in their education paths and connect them directly with Manitoba's labour market.

For our partners, working with us means they have preferred access to an array of resources – including state-of-the-art applied research facilities and expertise – to help them innovate in a time of technology disruption and increased global competition. It also means graduates who enter the workforce equipped to thrive amidst rapid change, and ongoing training to support the upskilling and reskilling of existing employees.

## APPLIED RESEARCH AT RRC POLYTECH

A mandate to drive economic and social development in Manitoba fuels RRC Polytech's Research Partnerships & Innovation (RPI) enterprise. Because our research is applied in nature, rather than focusing on discovery, partnerships with industries and communities are foundational to who we are and what we do. The recent elevation of our mandate as a polytechnic highlights the critical role of applied research in living the key commitments in our Strategic Plan.

Since 2004, RPI has significantly expanded, tripling our research funding. National research funding is attracted from all three of Canada's research granting agencies – supporting our health, natural sciences and engineering, and social sciences research. RRC Polytech applied research supports not only large companies but is also an important partner in competitiveness and innovation for small- and medium-sized enterprises (SMEs), who may not have the means or capacity to invest in their own research and development.

We have built multi-million-dollar specialized research facilities – such as our three unique Technology Access Centres – and equipment

through partnership with industry, government and funding agencies over the past 16 years. This infrastructure supports needs-driven applied research for industry, as well as the community, and provides us the environments and tools necessary to deliver advanced education and related training and technical services. RRC Polytech is consistently ranked in the Top 15 of Canada's Top 50 Research Colleges by ReSearch InfoSource, and is often approached to provide support and advice to other colleges to develop their own applied research enterprises.

Our research priorities align with Manitoba's economic and social imperatives and support growth in key provincial industrial sectors. Leveraging existing capacity, our Research Plan provides a roadmap for future growth in areas of increasing significance to the province:

- **Advanced design and manufacturing**
- **Clean technology (with a focus on electric vehicle technologies)**
- **Digital technology**
- **Health, nutrition and social sciences**



# Influencing Trends

Applied research and innovation are key drivers of RRC Polytech's bold new vision. And this plan allows us to build upon our previous successes and deepen engagement with industry and community partners as they evolve and respond to economic and social pressures and opportunities.

Many external factors influence the future direction of our research enterprise. We must be nimble and adaptive, providing our partners with the solutions they need for the challenges of now and tomorrow. Manitoba's economy is heavily reliant on the success of SMEs in a variety of sectors who, unlike the larger companies we work with, often don't have the budget to conduct their own research. We help them understand current and future trends around technological disruption in automation and digital integration, so they can make informed investment decisions regarding technology adoption or responding to pandemic impacts, climate change or workforce shortages.

In our observation of industry, we recognize there are emerging sectors that blur traditional sectoral lines, including agricultural technology and bio-manufacturing. Technology impacts are not just affecting one sector, but transforming entire traditional sector models, such as advanced manufacturing.

Increasingly, many of RRC Polytech's industry and community partners are recognizing the importance of recruiting and retaining a diverse and skilled workforce to drive their innovation agendas, with many Manitoba companies engaged in understanding their role in pursuing Truth and Reconciliation. As part of RRC Polytech's renewed commitment to this work, we must acknowledge that our approaches to working with Indigenous companies and communities, as well as our research practices overall, require us to understand and apply Indigenous methodologies. These include approaches that provide guiding principles for the Ownership, Control, Accessibility and Possession (OCAP®) of research data when working with Indigenous communities and businesses.



## OUR RESEARCH ENTERPRISE

Applied research is what sets us apart from other post-secondary institutions in Manitoba. It is integral to our academic programs and provides an enhanced educational experience for our students. It also allows RRC Polytech to support Manitoba's burgeoning economy by nimbly reacting to the sectoral needs of the industries we serve. The relationships we've built with industry and community partners over the decades allow us to engage our research enterprise to meet their unique needs.

RPI is the principal gateway to RRC Polytech's applied research knowledge, capabilities, facilities and networks. Their primary activities are:

- **Creating the research ecosystem within RRC Polytech**
- **Conducting ongoing applied research in our areas of focus**
- **Providing services to the research community at RRC Polytech**

The RPI group provides institutional leadership in the development of applied research in all areas at RRC Polytech, identifying opportunities aligned with the needs of the various economic sectors in Manitoba and our strengths and priorities. Our research teams, along with faculty and students, work closely with industry, academic and government partners to address industry needs and challenges. Through applied research projects with industry and community partners, RRC Polytech students gain valuable experience through work-integrated learning opportunities.

Our RPI group, as well as faculty and staff across RRC Polytech, collaborate to support a strong research enterprise that is attentive to industry needs and trends, while providing our students with the applied learning experiences that make them job-ready, sought-after workers.

# Framework for Action

This Research Plan sets out a series of priorities and goals that focus on the defining theme of growing our thriving, inclusive applied research ecosystem at RRC Polytech. This will serve our evolving and increasingly diverse region, while intersecting with – and feeding into – our academic aspirations and needs. The plan outlines a framework for action to become more proactive, responsive and innovative, positioning us to meet the needs of the post-secondary education system of the future, while also positioning the province to address its evolving economic and social challenges. Building on our reputation as a leader in technology and innovation in education, the plan confirms the substantial role that applied research has come to play in enriching the student learning experience, enhancing our contribution to the socio-economic needs of the communities we serve, and Manitoba's economy overall.

The Research Plan serves as an extension of the Strategic Plan, and has been developed in tandem with the Academic Plan. In addition to outlining our current research strengths and resources, the plan also refines the role of the RPI group. The plan outlines actions that will enable RPI to promote the role of applied research in building partnerships, deepening the relationship with academic programs at RRC Polytech, and developing our talent and funding resources.

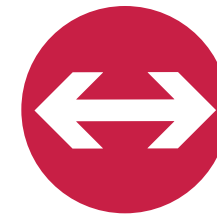


## LOOKING FORWARD

The Research Plan presented here has been built through the contributions of over 100 external and internal stakeholders through individual, group and College-wide consultations, including with the Knowledge Keepers Council. Oversight and direction for the development of the Research Plan through this process was provided by the joint steering committee for both this and the aligned Academic Plan. It was also importantly supported by an Indigenous Advisory Committee that provided guidance to align the Plan's priorities and goals with the strategic commitment to Truth and Reconciliation.

The Plan's priorities and goals reflect the major themes of these discussions:

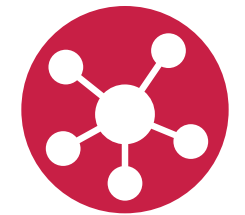
- Alignment of applied research with the Strategic Plan and Academic Plan
- Awareness of applied research strengths and directions
- The systems and structures that are the foundation of applied research
- Financial sustainability of the research enterprise
- How to maintain and build our research capacity
- Measuring our impact and defining success



ALIGNMENT



AWARENESS



SYSTEMS



SUSTAINABILITY



CAPACITY



IMPACT

The Research Plan responds to these themes – now it's time for action. We look forward to building and strengthening the partnerships and relationships that connect us to community and industry, following a plan they helped create. There is much to be proud of already, and this plan signals that there are many more exciting developments to look forward to in the next five years.

## Priority One

# To leverage strategic partnerships to deepen existing capacity and pursue emerging opportunities, we will:

- Enhance and refine our existing applied research capabilities
- Grow the applied research portfolio into new and emerging sectors in Manitoba
- Engage a broader range of industry and other partners in research that supports Manitoba's social and economic growth

This priority addresses the Strategic Plan commitment to *Deepen partnerships to maximize prosperity across industry and community*. RRC Polytech maintains an extensive capacity in current areas of research strength and expertise designed to support and grow community economic development and a strong track record of close business partnerships driving innovation. Our existing capacity is consistently recognized nationally and internationally for its excellence. Our suite of close relationships, includes more than 600 applied partnerships with companies



of all sizes, as well as community organizations. Each of these have resulted in new or improved products, processes, services and insights across our focus areas of strength.

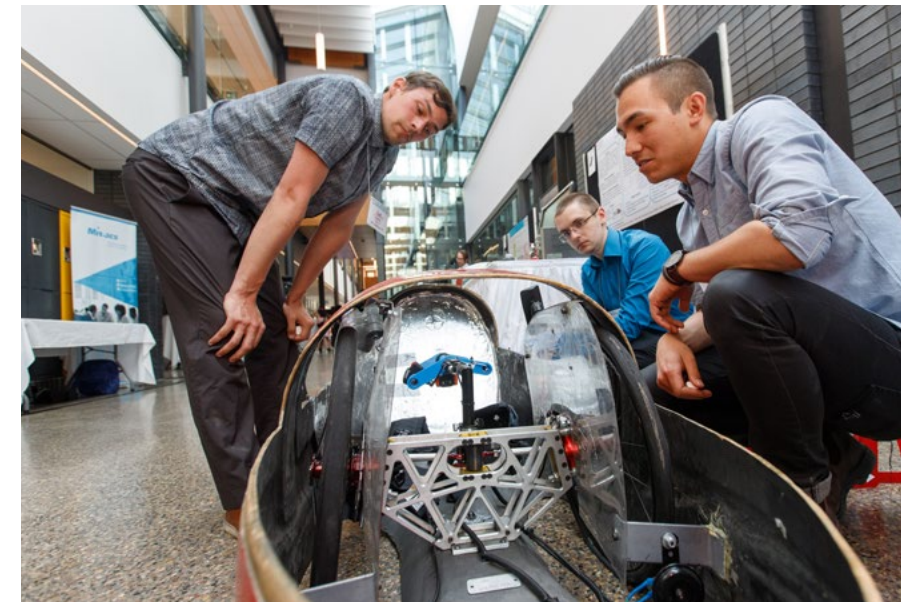
We will support the growth of these partnerships through greater use of networking and awareness-building business development. By providing support in awareness-building, easier access to our capabilities, for both industry partners and research-active faculty and students, is facilitated. We will achieve this by maintaining a thriving pipeline of proposals that draw on the established strengths of our research. These will build complementary research hubs across disciplines that fit with evolving external funding themes and opportunities for recruitment, and that have sufficient pull from industry and other sectors to ensure involvement of a broader user base.

To stay *In Front of What's Ahead*, our applied research capacity must continually evolve as societal trends change and new emerging technologies impact local and global economies. Some of these fields of great importance to our region include the interface between agricultural technology and big data and the burgeoning biomanufacturing sector in Winnipeg. This growing sector has led to a position of national prominence, with Manitoba ranking second only to Ontario in the production of medicaments and pharmaceuticals. Part of the Research Plan is dedicated to exploring ways in which we can serve the applied research and training needs of these sectors.

## Priority Two

# To foster a culture of integrated applied research and academics, we will:

- Create dynamic exchanges between applied research and academic curriculum for mutual benefit
- Involve more students, faculty and staff in applied research
- Build research relationships, processes and practices as guided by Indigenous methodologies and the principles of equity, diversity and inclusion



This priority addresses the strategic commitments to *Transform our learning model to meet emerging needs* and to *Commit to Truth and Reconciliation (and) pursue equity, diversity and inclusion in everything we do*. Over the next five years, we will initiate interdisciplinary, knowledge exchange and engagement activities at the nexus of applied research and academic programs.

A major theme emerging from the consultations that built the foundation of the Research Plan was the need to foster a closer relationship between applied research and teaching. There was a unanimous perception that such integration is highly beneficial to students' experiential learning and equally to staff engagement. Specifically, there is a lot of enthusiasm at the College for undertaking a purposeful examination of the scholarship of teaching and learning as an extension of greater integration between teaching and research. By amplifying our endowed Research Chairs program at RRC Polytech, we will support building research networks with industry participation. This will involve faculty and staff, and will be in partnership with the academic schools and RRC Polytech's Development department.

Complementing the need to amplify knowledge exchanges between our academic and research activities is the broadening of access to our applied research to a more diverse population of participants. This includes incorporating Indigenous knowledge, methodologies and worldviews, and working with Elders and Knowledge Keepers to embed Indigenous ways of knowing and doing into our applied research approach. This needs to be across all projects, not just those directly addressing Indigenous priorities.

An Indigenous research framework will be established by the ways in which our researchers interact with participants and stakeholders, similar to the methods used in community-based research: equally involving all partners in the research process, recognizing the unique strengths that each brings and ensuring full, rather than token, representation via the practical implementation of OCAP® protocols.





## Priority Three

# To promote RRC Polytech's research capacity to attract talent, partnerships and funding, we will:

- Retain, develop and attract expert – and diverse – applied-research staff to build a leading-edge research ecosystem
- Diversify funding sources and grow research revenue to ensure continuity of research operations
- Deploy a comprehensive communications approach to ensure awareness of RRC Polytech's applied research capabilities

This priority addresses all of the Strategic Plan commitments by promoting RRC Polytech as a diverse community of educators and researchers who, working together, achieve excellence in both academic and research domains for a local, national and global benefit. We aspire to attract students and staff from around the world by becoming a welcoming space where researchers of diverse identities, experiences and ideas can operate in a thriving, academically inspired research ecosystem. It is equally important that we build and deepen relationships with new and existing sources of funding, such as government bodies, industry and private donors to provide a more stable, diverse

funding base for our research activities beyond the Tri-Agency funds we typically access.

Finally, we need to share our successes and achievements. A comprehensive awareness campaign, highlighting our research achievements and aspirations is essential to deliver on our Strategic Plan commitments. This will lay the groundwork for building a transparent, inclusive and accessible research ecosystem developed over the three horizons of:

- Maintaining our current successes
- Transforming our culture to better meet the changing needs of our stakeholders
- Building and promoting our leading-edge research ecosystem to live our strategic commitments

To engage with this process, the RPI group has re-aligned into a new structure within RRC Polytech – the Indigenous Strategy, Research

and Business Development portfolio. Within this new structure, RPI will expand its support of faculty from across our campuses to secure and administer research donations, grants, awards and industry contracts, and to meet their regulatory responsibilities in support of research. A database of new funding opportunities will be maintained and publicized to the RRC Polytech community and its partners, via events such as an applied research grant opportunities (ARGO) day. The RPI group will also ensure other needs are met, such as maintaining and preparing research statistics and reports to celebrate RRC Polytech research and creative accomplishments, and increasing awareness of our success stories. Aligning the Research Ethics Board of the College to the portfolio will enable direct oversight and governance of processing regulatory approval for human research ethics, an increasingly important activity in current society.



# Research Plan

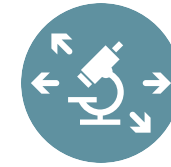
This plan was informed by and aligns with RRC Polytech's Strategic Plan 2022-2026, *In Front of What's Ahead*, and will guide our research activities during the next five years.

As a community, we look forward to working together to achieve the goals of this plan for the betterment of Manitoba and all Manitobans.

To leverage strategic partnerships to deepen existing capacity and pursue emerging opportunities, we will:



Enhance and refine our existing applied research capabilities



Grow the applied research portfolio into new and emerging sectors in Manitoba



Engage a broader range of industry and other partners in research that supports Manitoba's social and economic growth

To foster a culture of integrated applied research and academics, we will:



Create dynamic exchanges between applied research and academic curriculum for mutual benefit



Involve more students, faculty and staff in applied research



Build research relationships, processes and practices as guided by Indigenous methodologies and the principles of equity, diversity and inclusion

To promote RRC Polytech's research capacity to attract talent, partnerships and funding, we will:



Retain, develop and attract expert – and diverse – applied-research staff to build a leading-edge research ecosystem



Diversify funding sources and grow research revenue to ensure continuity of research operations



Deploy a comprehensive communications approach to ensure awareness of RRC Polytech's applied research capabilities

