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Letter from the President

I am thrilled to present Fleming College's new Applied Research Strategy, a roadmap that will guide our research efforts for the coming years.

We have been working hard to meet our 2019-2024 Strategic Plan commitments for growing applied research at Fleming. As a result, we have built two new research centres, forged important partnerships, generated new knowledge for our partners, expanded experiential learning opportunities for our students, and have made meaningful contributions to the socioeconomic wellbeing of our communities.

I am pleased that we have developed an evidence-based Applied Research Strategy that is unique to Fleming College. We will strategically build on our existing strengths while taking bold action on pursuing new opportunities. Moving forward, our applied research enterprise will become a critical driver of the College's commitment to creating economic prosperity and transforming communities through education and innovation. Our applied research enterprise, one of the region's best-kept secrets, is already garnering attention and through this Strategy, will no longer be kept secret.

Thank you to everyone who helped develop this plan, including Shift Health, members of the Board of Governors, and our internal and external stakeholders. I look forward to seeing our expanded vision and strategy for our applied research enterprise become a reality.

Maureen Adamson
President,
Fleming College

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Letter from the Executive Vice President, Academic and Applied Research & Innovation

Thank you to all the internal stakeholders, external partners, industry experts, and to Shift Health, who helped us create Fleming College's new Applied Research Strategy.

Over the next five years, we are committed to meeting the key priorities and milestones of the plan, ensuring that the growth of our applied research enterprise is calculated and well-supported. Through these investments, we will grow and strengthen our existing three research centres while increasing our expertise and capacity in other strategic research areas.

I am particularly excited for the strategy's new approaches to carrying out applied research at Fleming. Robust marketing activities will help us build a strong brand for applied research and help us become a widely recognized home for innovation. We will Indigenize and strengthen our approaches to applied research through Indigenous Ways of Knowing and through meaningful and respectful engagement with Indigenous communities.

We will also find new ways to integrate applied research into existing academic programs, increasing opportunities for our students to engage in research.

Overall, I think this plan will revolutionize applied research at Fleming.

Brett Goodwin
Executive Vice President, Academic and Applied Research & Innovation
Fleming College

<u>Acknowledgements</u>

The development of Fleming's 2024-2029 Applied Research Strategy was spearheaded by the Office of Applied Research and Innovation and supported by the President's Office and Board of Governors.

The Office of Applied Research and Innovation engaged a diverse set of key internal and external stakeholders, from Fleming's community of research staff, faculty, Board of Governors and industry and community partners. We would like to thank these individuals for sharing their time and insights to inform the development of an evidence-informed strategic plan that will guide the growth of our applied research enterprise.

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Background and Context

Fleming College has a strong applied research track record and has actively taken steps to expand its applied research enterprise in recent years. Through these efforts, we have built three research centres, including one NSERC supported Technology Access Centre, and have established ourselves as an expert research partner in water and wastewater management, aquaculture and advanced mechatronics and industrial internet of things. We have supported applied research that has generated new knowledge in the areas of biotechnology, policing, the environment, and Indigenous studies that will make our community healthier, safer and more inclusive and we have helped our industry partners develop and optimize unique, sustainable products and processes. We have expanded experiential learning opportunities for our students through applied research, which enhances both experience as well as employability.

With a desire to build on this momentum, we have developed an evidence-based Applied Research Strategy to chart the path forward for the applied research enterprise. The Strategy will inspire faculty, staff and students, mobilize community support and set the stage for our growth as a recognized leader in Canadian applied research.

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Through the evidence-based strategy and implementation plan, we aim to:

- Substantiate Fleming's differentiating value proposition in the research space;

- Inspire faculty, staff and students and engage industry and community partners;

- Mobilize community and philanthropic support and diversify and grow revenue streams;

- Position Fleming to compete for federal and provincial funding opportunities; and

- Futureproof a vibrant and competitive research enterprise.

Ultimately, the applied research enterprise will be a critical driver of Fleming's vision to create economic prosperity and transform communities through education and innovation.

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Strategic Plan

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Applied Research Strategy At-A-Glance

Vision

Creating prosperity and transforming communities through education and innovation.

Mission

Fostering dynamic and inclusive collaboration among Fleming's partners to address real-world challenges through knowledge generation and innovation to enrich education, enhance social wellbeing and drive economic prosperity.

Principles

◆ Research Excellence and Impact ◆ Agility ◆ Equity, Diversity and Inclusion ◆ Indigenization ◆ Community ◆ Sustainability ◆

Strategic Goals

1. Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.	2. Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.	3. Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Outcomes

◆ Recognized leader and partner of choice in applied research domains of interest to Fleming's community and funders ◆
◆ Expertise and capacity to deliver impactful research outputs and unlock new funding opportunities to ensure operational/financial sustainability ◆
◆ Enhanced experience, productivity and capabilities of faculty, students and staff ◆

Impact

The applied research enterprise enriches the Fleming experience for its community, catalyzes the development of knowledge and innovative solutions for real-world challenges, and propels socioeconomic development.

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Fleming's Applied Research Vision and Mission

The Vision and Mission for Fleming's Applied Research enterprise is reflective of our commitment to drive socioeconomic wellbeing and prosperity through education and innovation.

Vision

Creating prosperity and transforming communities through education and innovation.

Mission

Fostering dynamic and inclusive collaboration among Fleming's partners to address real-world challenges through knowledge generation and innovation to enrich education, enhance social wellbeing and drive economic prosperity.

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Principles

Six core principles are embedded within Fleming's applied research enterprise and will be critical to the success of the enterprise.

Research Excellence and Impact
Using state-of-the-art equipment and leading-edge approaches to generate high-quality research outputs that are ready to be implemented and impactful.

Community
Engaging internal and external communities, such as faculty, staff, students, Indigenous peoples and businesses, to ensure relevance of research and enable knowledge transfer for social and economic benefit.
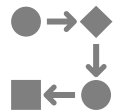
Agility
Tackling applied research projects and adapting as new opportunities emerge, timelines change and the needs of partners evolve.

Indigenization
Partnering with Indigenous communities to bring Indigenous perspectives, priorities and ways of knowing into applied research.

Sustainability
Ensuring applied research priorities and innovation activities embed and enhance environmental sustainability and ecological stewardship.

Equity, Diversity and Inclusion
Embedding equity, diversity and inclusion into research projects and teams to ensure that research processes and outcomes are relevant to and benefit diverse communities.

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Fleming's Applied Research Strategic Goals

We have established three strategic goals that will enable the college to sustain and build on existing strengths, pursue emerging opportunities and become a leader in applied research.

Goal 1. Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Goal 2. Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Goal 3. Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

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Strategic Goal #1: Strengthen Applied Research Excellence

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Context

As the Governments of Canada and Ontario continue to invest in applied research, they have identified several priority research areas, many of which align with Fleming's current research interests and expertise including cleantech, agriculture and agri-food and advanced manufacturing. We have established a strong foundation for our applied research enterprise with three research centres and have developed strengths in the areas of water and wastewater management (CAWT), aquaculture (CIAP) and advanced mechatronics (CAMIIT).

Our current research strengths and expertise offer opportunities for expansion of research into strategically adjacent areas that are also aligned with government priorities and community needs including biotechnology, artificial intelligence and climate change and sustainability. We also have the opportunity to establish a transformative landmark initiative that will drive applied research forward in our areas of expertise while also serving our community and contributing to the training of highly qualified personnel.

To maximize the impact of our applied research activities and outputs, there's also an opportunity for us to expand capacity and expertise in advanced analytics as partners and industry move towards becoming more data-driven.

CAWT: Centre for Advancement of Water and Wastewater Technology
CIAP: Centre for Innovative Aquaculture Production
CAMIIT: Centre for Advancement in Mechatronics and Industrial Internet of Things

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Strategic Goal #1 and Priorities

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Strategic Priorities

a) Support the continued growth of Fleming's three research centres and enable the evolution of the applied research enterprise in strategically adjacent research areas.

b) Strengthen research data management and analytics capabilities to support Fleming's applied research excellence and maximize the speed and impact of research projects.

c) Connect all schools more deeply into applied research to enable integration of expertise within research centres and increase applied research capability and reach.

d) Define and lead a landmark initiative that will be transformative for applied research in Canada.

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Strategic Goal #1 and Measures of Success

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Measures of Success

Improved ranking on the list of Canada's Top 50 Research Colleges[1]

Square footage of facilities for applied research

Number and types of grants and amount of funding awarded

Number and value of new equipment supporting applied research

Number of projects with integration of advanced data and analytics

Number of publications and seminars or conferences attended

Number of interdisciplinary projects involving two or more Fleming Schools/Research Centres

1. Fleming is ranked #35 on the 2022 Canada's Top 50 Research Colleges list.

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Strategic Goal #2: Become a recognized partner-centred applied research hub

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Context

Canadian colleges play a crucial role in advancing practical solutions to real-world issues through collaborative applied research. Within this context, Fleming has established multiple research partnerships across sectors. These include collaborations with industry such as Echologics, Horizon Aircraft and Molok North America, as well as community partners including the Indigenous Police Chiefs of Ontario, Ontario Provincial Police, and World Wildlife Fund Canada. We are also actively involved in multi-stakeholder research networks like the EaRTH District and SONAMI.

As we look to expand the research enterprise to meet the needs of our community, we have the opportunity to build on existing and establish new partnerships through broadening our expertise and services in applied research and diversifying the in ways in which we connect with partners.

We also have the opportunity to clearly articulate our role and capabilities in applied research to amplify our visibility and reputation within the community.

EarTH District: Environmental and Related Technologies Hub District
SONAMI: Southern Ontario Network for Advanced Manufacturing Innovation

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Strategic Goal #2 and Priorities

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Strategic Priorities

a) Build a strong brand for applied research at Fleming through the development of robust marketing and communications capabilities.

b) Establish an advisory board for Fleming's applied research enterprise utilizing current network with leaders from the community to guide and track the progress of applied research at Fleming.

c) Engage Indigenous communities with support from Fleming's IEC to identify questions to be addressed through applied research and to strengthen approaches to applied research through Indigenous ways of knowing.

d) Embed the research enterprise within the community through the Fleming College information office in Peterborough Square and host networking events to increase visibility and accessibility of the enterprise to local business, community partners and prospective students and to stay apprised of the applied research needs/interest of the community.

e) Expand expertise within the research enterprise to strengthen capabilities along the innovation lifecycle and diversify revenue streams.

IEC: Indigenous Education Council

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Strategic Goal #2 and Measures of Success

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Measures of Success

Number and diversity of partners (e.g. new and long-standing partners, industry, community partners, academic partners, geographical reach)

Number of projects co-led with Indigenous peoples and communities

Number of applied research projects

Number of products/processes developed or enhanced (e.g. conceptualized, commercialized, improved)

Number of social innovation outputs (e.g. knowledge, programs, networks) developed or enhanced by research findings

External awareness and perception of Fleming's applied research enterprise (assessed through surveys)

Amount of funding/revenue leveraged from partners

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Strategic Goal #3: Enhancing the Fleming experience with applied research

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Context

Our applied research enterprise is overseen by the Office of Applied Research and Innovation (OARI), with research led and conducted by research staff from the research centers, as well as by faculty and students. Continued growth of the research enterprise will benefit from greater integration of talent across the college into applied research to enhance the Fleming experience, while also building research capacity.

We can draw on the knowledge and talent that currently exists within the college by allocating time for research and providing training to support faculty and staff. Greater integration of students into research will support the training of highly qualified personnels by building research capacity and providing students with practical experience that can increase student employability.

Finally, building applied research capacity within OARI and other administrative departments will enable increased operational support in grant-writing, business development and marketing and communications.

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Strategic Goal #3 and Priorities

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Strategic Priorities

a) Empower faculty and staff to lead/support research in new and existing areas of interest/experience by providing time and resources dedicated to research.

b) Embed applied research into all schools to increase applied research opportunities for students and support their training as highly qualified personnels.

c) Expand support capacity through hiring and provide training to applied research support staff, including OARI and research centres, to strengthen applied research capabilities.

d) Connect the OARI to other Fleming departments to maximize opportunities for partnerships/funding and enable a holistic approach to applied research questions.

OARI: Office of Applied Research and Innovation

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Strategic Goal #3 and Measures of Success

Strategic Goals

Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Measures of Success

Number of academic programs offering applied research integrated courses and experiential learning

Number of applied research training sessions/programs offered to faculty and support staff

Number and percentage of students participating in applied research

Number and percentage of faculty participating in applied research

Number of events (e.g. Research Expo Day) organized with a focus on applied research

Amount of funding awarded to students/faculty members for applied research

Number of Fleming internal stakeholders attending or participating in research-focused events

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Outcomes and Impact

Applied research at Fleming will improve existing or develop new products, programs, policies and practices that address industry and societal needs.

Outcomes

1

Recognized leader and partner of choice in applied research domains of interest to Fleming's community and funders

Expertise and capacity to deliver impactful research outputs and unlock new funding opportunities to ensure operational and financial sustainability

Enhanced experience, productivity and capabilities of faculty, students and staff

Impact

The applied research enterprise enriches the Fleming experience for its community, catalyzes the development of knowledge and innovative solutions for real-world challenges and propels socioeconomic development.

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High-Level Implementation Plan

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A Commitment to Action:

Fleming is committed to translating our bold vision and strategy for our applied research enterprise into reality. The following slides outline a high-level implementation plan for Fleming's applied research enterprise over the next five years—including key priorities, critical steps and timelines—to give our community a sense of what needs to be done and when we envision achieving these milestones.

We recognize that our approach to implementation must be flexible and responsive to our dynamic environment, and we will work closely with our internal stakeholders, external partners and community to optimize our approach to strengthening the applied research enterprise.

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Action Plan for Strategic Goal #1

Goal 1. Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
A. Support the continued growth of Fleming's three research centres and enable the evolution of the applied research enterprise in strategically adjacent research areas.	Reflect on the Applied Research Strategy and update or develop operating and growth plans for each research centre, outlining key milestones and activities (e.g. TAC application/renewal) and the financial/human resources required to support growth	■		
	Implement the plans as each research centre progresses to ensure its growth is well-supported (e.g. create an applied research portal to identify and track project opportunities)		■	■
	Identify emerging needs, trends and opportunities by engaging with internal stakeholders to understand budding areas of interest and external stakeholders to gauge demand for each applied research centre to support the growth and expansion of the enterprise	■	■	■

■ Initiation of Step   ■ Ongoing

TAC: Technology Access Centre

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Action Plan for Strategic Goal #1

Goal 1. Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
B. Strengthen research data management and analytics capabilities to support Fleming's applied research excellence and maximize the speed and impact of research projects.	Assess the current state of data management and analytics capabilities within the college	■		
	Assign (or hire, if necessary) a member of the research enterprise to be responsible for overseeing the development and implementation of a data management and analytics strategy and initiatives	■		
	Invest in the necessary technological infrastructure, including hardware, software, and cloud solutions, to support data storage, processing, and analysis		■	■
	Provide training, upskilling and partnering opportunities for researchers and staff to enhance their data literacy and analytical skills and integrate analytics across all relevant research projects		■	■

■ Initiation of Step   ■ Ongoing

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Action Plan for Strategic Goal #1

Goal 1. Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
C. Connect all schools more deeply into applied research to enable integration of expertise within research centres and increase applied research capability and reach.	Conduct an assessment to identify overarching research themes or areas in Fleming's Research Centres (e.g. CIAP, CAWT) that align with the strengths of each school (e.g. School of Environmental and Natural Resource Sciences) and have potential for interdisciplinary collaboration	(Initiation)		
	Create awareness of Fleming's commitment to applied research (e.g. internal marketing and communications, research showcases, site tours) and encourage faculties from all schools to consider and conduct faculty-led research initiatives	(Initiation)	(Ongoing)	(Ongoing)
	Develop a mechanism (e.g. forum, conference) to engage representatives from all schools and programs to encourage collaborations, exchange success stories and explore new interdisciplinary research topics	(Initiation)	(Ongoing)	(Ongoing)

■ Initiation of Step   ■ Ongoing

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CIAP: Centre for Innovative Aquaculture Production
CAWT: Centre for Advancement of Water and Wastewater Technologies

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Action Plan for Strategic Goal #1

Goal 1. Strengthen applied research excellence by deepening and integrating existing research expertise, pursuing strategically adjacent research areas and unlocking the potential of advanced analytics.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
D. Define and lead a landmark initiative that will be transformative for applied research in Canada.	Assemble a Steering Committee to oversee the development and implementation of an applied research landmark initiative	▉		
	Define a clear vision for the initiative that addresses a significant challenge or opportunity in applied research (e.g. research network in areas such as environmental impact management, Indigenous reconciliation or AI; build an incubator at Fleming)	▉		
	Identify and engage key stakeholders, including government agencies, industry partners, academic institutions, researchers, and community organizations to ensure that the initiative's vision aligns with the priorities of funders, industry and the community	▉	▉	
	Identify and pursue potential sources of funding (e.g. grants, private sector investments, and philanthropic contributions)		▉	▉
	Implement the landmark initiative (e.g. build a new space, recruit a diverse and skilled team of experts to support the initiative)			▉

■ Initiation of Step   ■ Ongoing

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AI: Artificial intelligence

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Action Plan for Strategic Goal #2

Goal 2. Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.
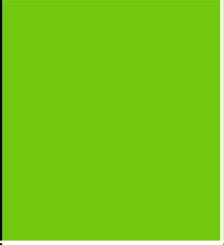
Priority	Critical Steps	Year 1	Year 2	Year 3-5
A. Build a strong brand for applied research at Fleming through the development of robust marketing and communications capabilities.	Establish a marketing and communications team for the applied research enterprise to build a brand and content strategy (e.g. mix of case studies, videos, infographics) and government relations (GR) plan[1] that articulates Fleming's research capabilities and success stories to the internal and external community (e.g. current and potential partners, government, funders)	🟩 Initiation		
	Build on existing website and social media profiles to showcase the research enterprise's initiatives, projects and partnerships (e.g. consider engaging a brand strategy firm)	🟩 Initiation	🟩 Ongoing	🟩 Ongoing
	Engage with the local and national media, community organizations and partners to jointly promote research projects and initiatives through co-branded marketing efforts		🟩 Initiation	🟩 Ongoing

🟩 Initiation of Step   🟩 Ongoing

[1] Either leveraging Fleming's existing GR resources/capabilities or engaging an external GR firm

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Action Plan for Strategic Goal #2

Goal 2. Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.
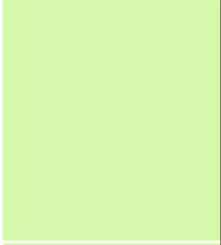
Priority	Critical Steps	Year 1	Year 2	Year 3-5
B. Establish an advisory board for Fleming's applied research enterprise utilizing current network with leaders from the community to guide and track the progress of applied research at Fleming.	Develop the terms of references for the advisory board, including its purpose, objectives and scope of responsibilities such as providing guidance, strategic insights and feedback on applied research initiatives in various areas of research, industry sectors and community engagement	■		
	Identify and invite a diverse group of community leaders, industry experts, entrepreneurs, and professionals (e.g. Chamber of Commerce, local economic development agencies, business and community groups) who have interest in applied research and/or its impact on the community	■		
	Provide an orientation session for new advisory board members to familiarize them with Fleming's applied research enterprise and schedule regular advisory board meetings		■	■

■ Initiation of Step   ■ Ongoing
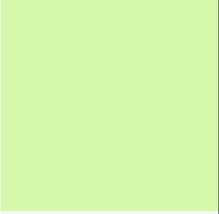
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Action Plan for Strategic Goal #2

⚛ **Goal 2.** Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
C. Engage Indigenous communities with support from Fleming's IEC to identify questions to be addressed through applied research and to strengthen approaches to applied research through Indigenous ways of knowing.	Provide training for researchers, faculty, students and staff to enhance their understanding of how Indigenous ways of knowing can contribute to and enhance applied research questions and outputs	🟩 Initiation	🟩 Ongoing	🟩 Ongoing
	Engage with Fleming's IEC to develop a strategy to engage Indigenous community leaders and relevant organizations to establish respectful, trusting relationships and explore potential partnerships between Fleming and Indigenous communities in addressing the communities' needs with applied research	🟩 Initiation	🟩 Ongoing	🟩 Ongoing
	Collaborate with Indigenous leaders to lead and integrate Indigenous research methodologies and ways of knowing into applied research projects		🟩 Initiation	🟩 Ongoing

🟩 Initiation of Step   🟩 Ongoing

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Action Plan for Strategic Goal #2

Goal 2. Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
D. Embed the research enterprise within the community through the Fleming College information office in Peterborough Square and host networking events to increase visibility and accessibility of the enterprise to local business, community partners and prospective students and to stay apprised of the applied research needs/interest of the community.	Develop an engagement plan that aligns with the marketing plan (under Goal #2, Priority A) to increase visibility of Fleming with local businesses and community partners	🟩		
	Engage the Information Office in Peterborough Square to find space and/or time for showcasing applied research projects, opportunities for partners and develop mechanisms for community members/potential partners to connect with Fleming's applied research enterprise through the office	🟩		
	Organize networking opportunities (e.g. mixers, pitch competitions, conferences) for Fleming researchers, students, faculty and staff to engage in conversations, spark innovative ideas and establish new collaborations for applied research with local businesses, organizations and community groups		🟩	🟩
	Establish a mechanism (e.g. community or partner surveys) for continuous feedback from the community on research priorities/interest		🟩	🟩

🟩 Initiation of Step   🟩 Ongoing
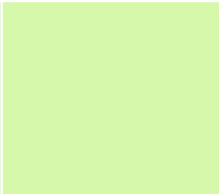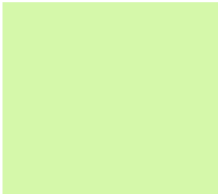
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Action Plan for Strategic Goal #2

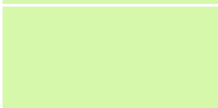**Goal 2.** Become a recognized, accessible and nimble partner-centered applied research hub, providing support to develop new knowledge and drive innovation.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
E. Expand expertise within the research enterprise to strengthen capabilities along the innovation lifecycle and diversify revenue streams.	Conduct a gap analysis to assess the current expertise and skill sets within the research enterprise and determine the skills (e.g. grant writing) needed to cover various stages of the innovation continuum, from ideation to commercialization	■ (Initiation)		
	Provide ongoing professional development opportunities (e.g. innovation-focused training sessions, workshops, and seminars) to enhance existing and acquire new skills		■ (Initiation)	■ (Ongoing)
	Explore and broaden applied research fee-for-service offerings along the innovation continuum (e.g. product certification and commercialization, intellectual property management, business and technical consulting) based on existing expertise and capabilities			■ (Initiation)

■ Initiation of Step   ■ Ongoing

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Action Plan for Strategic Goal #3

Goal 3. Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
A. Empower faculty and staff to lead/support research in new and existing areas of interest/experience by providing time and resources dedicated to research.	Support mechanisms (e.g. course release) that provide time and resources to faculty interested in participating in applied research projects (e.g. increase the number of contract faculty available to back-fill teaching release)	Initiation of Step	Ongoing	
	Offer training (e.g. workshops) tailored to the career stage and/or experience of faculty and staff to develop research skills (e.g. research methodologies, proposal writing, ethics, data management, EDI) for applied research and course-based research	Initiation of Step	Ongoing	Ongoing
	Provide access to resources (e.g. libraries, databases, research facilities) to support faculty- and staff-led research projects		Initiation of Step	Ongoing
	Introduce faculty and staff to potential research partners within and outside the institution, including industry representatives, government agencies, and community organizations		Initiation of Step	Ongoing
	Expand the iGRO program to provide seed funding that supports faculty- and staff-led research projects, allowing them to explore new ideas and gather preliminary data		Initiation of Step	Ongoing

Legend: ■ Initiation of Step ■ Ongoing

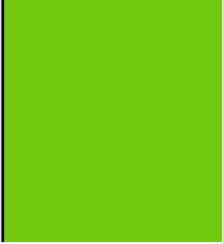EDI: Equity, diversity and inclusion; iGRO: Internal Grants for Research Opportunities

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Action Plan for Strategic Goal #3

Goal 3. Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
B. Embed applied research into all schools to increase applied research opportunities for students and support their training as highly qualified personnels.	Engage academic leadership (e.g. Deans of Schools) to integrate applied research into academic plans in areas where there are synergies and applied research can enhance curriculum, student learning, and industry relevance	Initiation of Step		
	Develop an operational plan to create or bolster the necessary systems/infrastructure/resources (e.g. Work Integrated Learning Office, support roles, course structure, space, analytical tools, reference library access) to support students in applied research	Initiation of Step		
	Create awareness among students about the benefits of participating in research projects by offering information sessions, workshops, and seminars and developing a centralized platform to showcase opportunities in applied research	Initiation of Step	Ongoing	Ongoing
	Integrate applied research components into existing courses or develop new courses that offer students research opportunities		Initiation of Step	Ongoing

Legend: 🟩 Initiation of Step 🟩 Ongoing

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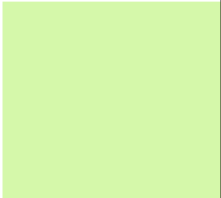# Action Plan for Strategic Goal #3

Goal 3. Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
C. Expand support capacity through hiring and provide training to applied research support staff (including OARI and research centres) to strengthen applied research capabilities.	Review and prioritize areas of support identified in the landscape assessment (e.g. grant writing, EDI, finance, business development, commercialization support) that will generate the greatest impact in the near- and long-term	■ Initiation		
	Offer training and development programs for staff to enhance their knowledge of applied research processes, project management, best practices and other relevant areas	■ Initiation	Ongoing	Ongoing
	Conduct a targeted recruitment process to attract candidates with relevant skills and experience in applied research (e.g. hire faculty and staff with research expertise and interest, integrate research experience into hiring evaluation rubric)		■ Initiation	Ongoing

■ Initiation of Step   ▪ Ongoing

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EDI: Equity, diversity and inclusion

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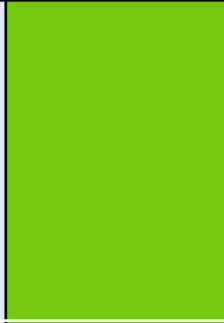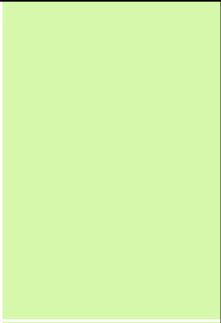# Action Plan for Strategic Goal #3

Goal 3. Enhance the Fleming experience by seamlessly integrating applied research into teaching, learning, administration and practice.

Priority	Critical Steps	Year 1	Year 2	Year 3-5
D. Connect the OARI to other Fleming departments to maximize opportunities for partnerships/funding and enable a holistic approach to applied research questions.	Engage other Fleming departments and offices (e.g. Advancement and Alumni Relations, Indigenous Education Council) to understand their priorities/activities and identify opportunities for OARI involvement to further support the applied research enterprise (e.g. OARI to work with Advancement and Alumni Relations to secure donations)			
	Continue to maintain open lines of communication between the OARI and other college offices and departments to encourage interdisciplinary collaboration and provide access to applied research			

■ Initiation of Step   ■ Ongoing

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Strategic Targets

Strategic Goal	Cumulative Targets to Achieve by Year 5	Year By Year Target Numbers				
		Year 1	Year 2	Year 3	Year 4	Year 5
Goal #1: Strengthen applied research excellence	Rank in the Top 10 of Canada's Top 50 Research Colleges	Top 30	Top 20	Top 15	Top 12	Top 9
	Increase square footage of applied research facilities by 15%	0%	0%	0%	15%	0%
	Increase the amount or value of equipment for applied research by 40%	5%	5%	5%	20%	5%
	Increase the number of research publications by 60%	0%	0%	20%	20%	20%
Goal #2: Become a partner-centered applied research hub	Increase the number of total partners by 45%	5%	10%	10%	10%	10%
	Increase the number of products developed or enhanced through applied research by 45%	5%	10%	10%	10%	10%
	Increase the number of social innovation outputs developed or enhanced through applied research by 20%	0%	5%	5%	5%	5%
Goal #3: Enhance the Fleming experience with integration of applied research	Increase the number of faculty participating in applied research by 20%	0%	5%	5%	5%	5%
	Increase training sessions to support faculty and staff by 85%	5%	20%	20%	20%	20%
	Increase the number of academic programs offering applied research opportunities to students by 45%	5%	10%	10%	10%	10%

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Key Operational Enablers

Overview of key enablers

Three key enablers will be critical for scaling research operations, increasing research productivity and translating Fleming's bold vision and strategy into reality:

Funding	**People**	**Infrastructure**
Financial resources to expand and sustain research activities at Fleming	**Faculty and staff who will lead and support new research and research-support activities**	**State-of-the-art research facilities and equipment that will support the growth of the research enterprise**

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Funding

To support the priorities outlined in the Strategic Plan and eventually achieve financial sustainability, Fleming will need to:

Increase funding from existing sources:

- College contribution to research

- Federal government funding (e.g. NSERC, FedDev, CFI)

- Provincial government funding (e.g. ORF, OCI)

- Fee for service contracts (e.g. validation testing, prototyping, product design)

- Industry, community partner, and/or research network contributions (cash/in-kind)

Pursue new funding sources, examples include:

- Philanthropic contributions[1] (e.g. alumni, private donors, foundations, charities, NGOs)

- Join or establish new research networks

- Regional economic development grants

- Additional federal and provincial government funding (e.g. SSHRC, Mitacs, Canada Research Support Fund)

[1] OARI to collaborate with Fleming's Advancement and Alumni Relations Office
NSERC: National Sciences and Engineering Research Council; CFI: Canada Foundation for Innovation; ORF: Ontario Research Fund; OCI: Ontario Center for Innovation; NGO: non-governmental organizations; SSHRC: Social Sciences and Humanities Research Council

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People

To scale the capacity of Fleming's research enterprise, it is estimated that strategic hiring of 8-10 full-time equivalents will be needed over the next five years across the following areas (with examples of key roles[1]):

Researchers and Research Operation Support	Research Data Management & Analytics Specialist, Research Support Specialist, Grant Writer, Intellectual Property & Commercialization Officer, EDII Support Specialist, Faculty[2] with research expertise and interest
Partnership and Communication	Business Developer, Research Partnership and Community Relations Manager, Marketing and Communications Officer
Skills Development and Training	Research Training Coordinator

[1] See Appendix for additional examples of applied research support roles at benchmarking institutions
[2] Additional faculty capacity for research may be achieved through mechanisms such as course release supported by grant-funded research projects; specific mechanisms, costs and guidelines will need to be defined by Fleming
EDII: Equity, Diversity, Inclusion & Indigeneity

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Infrastructure

Based on Fleming's and benchmark organizations' historical spend on research centres, buildings and equipment[1], it is estimated that \$10 – 15 million of infrastructure investment (funded through federal and provincial grants) will be needed over the next five years; examples of key infrastructure include:

- Infrastructure and equipment to grow existing research centres (e.g. completion of CIAP hatchery)

- Relevant infrastructure and equipment for expansion into strategically adjacent and new research areas (e.g. biosafety cabinets)

- Technological infrastructure, including hardware, software, and cloud solutions, to support data storage, processing, and analysis

- Dedicated office/research space for Fleming's landmark applied research initiative and partner/community engagement

[1] See the Appendix for Reference Data for Infrastructure Investments
CIAP: Centre for Innovative Aquaculture Production

Appendix

Glossary of Abbreviations

Abbreviation	Full Form
AI	Artificial Intelligence
CAMIIT	Centre for Advancement in Mechatronics and Industrial Internet of Things
CAWT	Centre for Advancement of Water and Wastewater Technologies
CIAP	Centre for Innovative Aquaculture Production
CFI	Canada Foundation for Innovation
EaRTH District	Environmental and Related Technologies Hub District
EDI	Equity, diversity and inclusion
IEC	Indigenous Education Council
iGRO	Internal Grant for Research Opportunities
NGO	Non-governmental organization
NSERC	National Sciences and Engineering Research Council
OARI	Office Applied Research and Innovation
OCI	Ontario Centre for Innovation
ORF	Ontario Research Fund
SSHRC	Social Sciences and Humanities Research Council
SONAMI	Southern Ontario Network for Advanced Manufacturing Innovation
TAC	Technology Access Centre

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Information Sources

The Strategy and Implementation Roadmap are informed by inputs from diverse stakeholders and multiple sources including:

Primary and secondary research to develop an understanding of the Canadian applied research landscape and funding priorities;

Review of benchmarks to understand best practices and lessons learned from leading Canadian applied research colleges and small universities;

Consultations and workshop with external partners, funders and research subject matter experts to understand the needs of industry and community partners; and

Consultations and workshop with internal stakeholders to gather perspectives on the strategic vision, unique value proposition, research priorities and opportunities for Fleming's applied research enterprise.

SMEs: Subject matter experts

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Reference Data for Infrastructure Investments

Data from Fleming

- Fleming 2019 – 2023 capital, building & equipment spent: ~4.9M

- Fleming 2024 budget spend on capital, building & equipment: ~2.4M

- Funding to establish CIAP and CAMIIT: ~8M ([Source](#))

Total research income/funding of benchmark organizations:

- Lambton: 2021-2022 sponsored research income: 14M

- Niagara College: 2021-2022 total funding: 35M

- Sheridan: 2021-2022 external funding: 7M

- George Brown: 2021-2022 sponsored research income: 8.4M

Example Support Roles at Benchmark Organizations

Benchmark	Research Support Roles	
Lambton College	Research Operations	Manager of Research Development and Outreach
		Manager of Research Operations
		Finance Coordinator
	Research Partnerships	Research and Outreach Developer
		Project and Partnership Developer
	Marketing & Communications	Promotional Material Developer
Niagara College	Research Partnerships	Associate Director of Strategic Partnerships
		Research Network Manager
	Business Development	Manager of Business Development
		Business Development Coordinator
	Research Operations	Manager of Finance Operations and Compliance
		Research Services Support Officer
	Marketing & Communications	Communications Lead
		Web and Graphic Design Officer

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Example Support Roles at Benchmark Organizations

Benchmark	Research Support Roles	
Sheridan College	Research Operations	Research Grant Support Officer
		Research Finance Administrator
		Special Projects Assistant
		Technical Operations Specialist
	Business Development	Research Development Lead
	Marketing & Communications	Research Communications Officer
George Brown College	Research Operations	Manager of Research Budget, Reporting & Asset Management
		Research Resource Coordinator
		Senior Program Manager
		Finance and Administrative Assistant
	Business Development	Senior Business Development Manager
		Manager of Industry Liaison & Business Development
	Marketing & Communications	Knowledge Transfer Coordinator
		Information Architect

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