

Digital Agriculture in Manitoba

Strategic Roadmap for 2022-2025



Manitoba's Digital Agriculture Table

Manitoba's Digital Agriculture Table was founded in 2020 with a vision to increase collaboration and cohesion between Manitoba's thriving industry and academic communities in order to advance the digital agriculture ecosystem in the province. The strength of this group comes from the collaborative nature of the participants and their expertise throughout the digital agriculture sector.

What is Digital Agriculture?

Digital Agriculture is the application of intelligent technologies to any or all the components of the agri-food value-chain before, during, and after on-farm production.

as defined by the Manitoba Digital Agriculture Table

Vision

Manitobans from our robust agri- food industry and post- secondary institutions have committed to sharing their expertise to enhance our competitive advantage, growing our collective agricultural capacity and the economy of Manitoba.

Agriculture is a vital sector in Manitoba's current and future economy.

As an industry, digital agriculture in Manitoba is in the early stages of its life cycle. The application of intelligent technologies before, during and after on-farm production provide opportunities for greater productivity and sustainability gains across the value-chain. As a Province, we have industry-leading legacy companies, a community of start-ups and world-class researchers across our post-secondary institutions. Collaborative activity across industry and academia, supported by Manitoba's Digital Agriculture Table, will ensure that everyone in Manitoba can participate in and realize the potential of digital agriculture. Manitoba is well positioned to seize this opportunity.

The strength of Manitoba's Digital Agriculture Table comes from the diverse cross section of industry and academic experts that participate. Despite the COVID-19 pandemic, the collaborative efforts of industry and academia to advance the digital agriculture ecosystem in Manitoba were significant. Manitoba is in a unique position as a connected, mid-sized center to leverage intelligent technologies to benefit the economy and provide current and future work-integrated learning and career opportunities. This will include the continuous development of strategic partnerships between industry and academia.

As we continue to collaborate to address challenges in the industry, there are new opportunities emerging. The future of digital agriculture will include developing competencies that focus on technology application, employee readiness and human skills. This will require the continuous evolution of industry and academia's approach to education, programming, experiential learning opportunities and human skills development. Developing awareness of skills requirements for students in Manitoba through career readiness, technical skill development, and mentorship opportunities will play a key role.

The strategic partnership of industry and academia will continue to be the enabling factor to anticipate and address current and future challenges and opportunities in the industry.

2021 Provincial Snapshot:

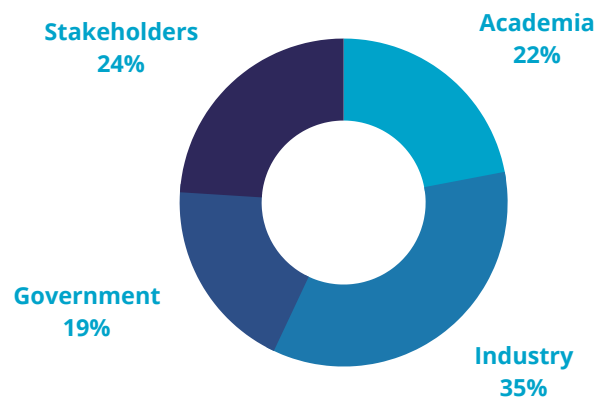
- 6.6% of GDP in Manitoba is from Agriculture and Agriprocessing
- 35,260 – Manitobans working in Agriculture and Agriprocessing
- 5.2% of jobs in Manitoba are directly or indirectly related to Agriculture
- \$7.7 billion – Manitoba Agrifood Exports
- \$14.8 billion – Manitoba Agriculture and Agriprocessing Sales
- \$7.7 million - Agri-food exports from Manitoba

Source Government of Manitoba. (June 2022) "Manitoba Agriculture and Agri-food Statistics: Farm, Crop, Livestock, Food"
<https://www.gov.mb.ca/agriculture/markets-and-statistics/publications-and-proceedings/pubs/mb-ag-statsfactsheet-june-2022.pdf>

Strategic Planning

As stewards of the group, MI-AP and EMILI work to convene meetings, engage stakeholders and act on the findings and direction of the group.

The group has experienced significant engagement from post-secondary institutions, industry leaders, government, and other stakeholders (sector councils and associations) since its founding. They have held seven formal meetings and engaged more than 200 stakeholders.



DEC 2021

- Review priorities
- Set goals to prioritize a strategic focus

JAN 2022

- Consolidate goals and actionable next steps
- Refine direction of key priorities

MAR 2022

- Metrics associated with goals
- Accountability
- Risk assessment

Based on the priorities established at the group's founding in 2020, Manitoba's Digital Agriculture Table embarked on a strategic planning exercise in December 2021 - March 2022, facilitated by Invision Edge.

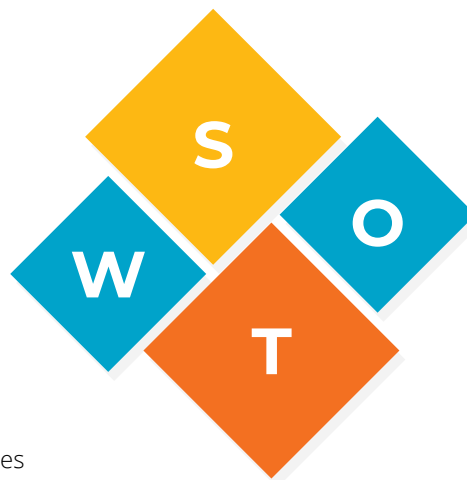
SWOT Analysis

Strengths

- Strong desire to collaborate from Industry and Academia
- Nimbleness, Ability to pivot
- Existing technology already on farms
- Manitoba's geography
- Manitoba's long history and expertise in agriculture

Weaknesses

- Separate groups with different priorities
- Duplication of efforts
- Time and effort to identify partners
- Industry often needs shorter term solutions while academia may view longer term solutions
- Breadth of resources required



Opportunities

- Greater awareness of collaboration opportunities (such as SMEs, research funding)
- Identification of big opportunities
- Mid-size centre with global expertise

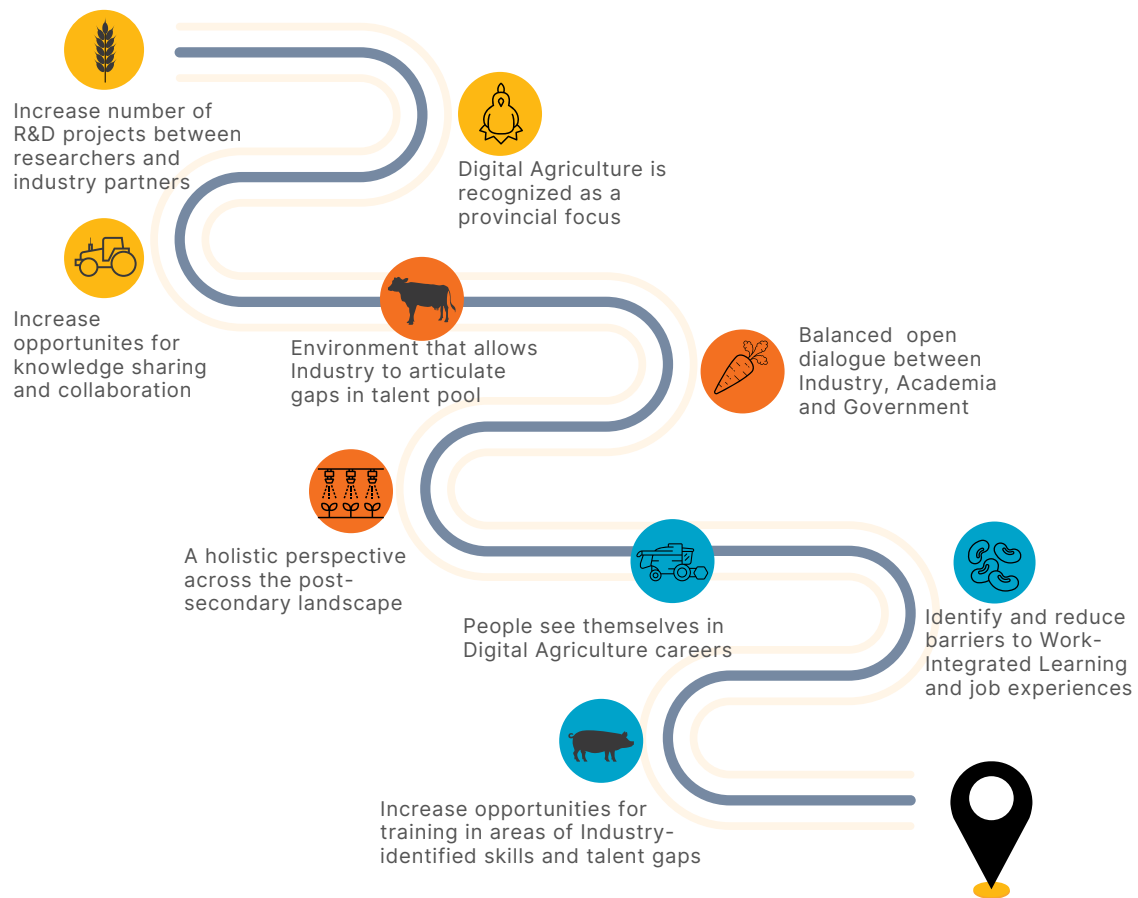
Threats

- (lack of) investment in broadband infrastructure in rural areas
- lack of alignment in industry and academia priorities
- lack of measurable performance outcomes that benefit both partners
- need to ensure value for end customer

Strategic Priorities

- Foster industry and academic alignment to increase research and development partnerships
- Skills and talent gap identification and mitigation
- Increase education and training to enhance career opportunities

Roadmap Timeline



Strategic Priority #1: Foster Industry and Academic alignment to increase research and development partnerships

Goal 1: Increase number of research and development projects, with aim to reach 25% growth by 2025

Outcome: Establish a 2021 benchmark of number of completed research projects in digital agriculture between research and industry partners at Manitoba's nine post-secondary institutions

Outcome: Create inventory of current R&D projects

Outcome: Identify new opportunities for R&D partnerships based on PSI expertise and Industry interest

Champions: PSIs, facilitated by MI-AP

Goal 2: Digital Agriculture is recognized as a provincial focus by government, industry, and academia

Outcome: Significant prioritization of Digital Agriculture by government (Prairies Canada, Agriculture and Agri-Food Canada, Manitoba Agriculture, Advanced Skills and Education, Economic Development Investment and Trade

Outcome: Increase in R&D expenditures by Industry

Champions: MI-AP and EMILI

Goal 3: Increase opportunities for knowledge sharing and collaboration between Industry and Academia

Outcome: Annual Academia - Industry Meeting (AIMday) focused on Digital Agriculture and Technology

Outcome: Annual forum to showcase research and innovation within Manitoba's Digital Agriculture ecosystem

Champion: MI-AP



Strategic Priority #2: Skills and talent gap identification and mitigation

Goal 1: Environment that allows for industry to articulate gaps in the talent pool

Outcome: From a province-wide perspective, establish a trusted environment to identify and strategize solutions between Industry and Academia

Champions: MI-AP, EMILI, PSIs, Industry collaborators

Goal 2: Balanced, open dialogue between Industry, Academia and Government

Outcome: Continue to engage the members of Manitoba's Digital Agriculture Table in support of advancing strategic priorities

Champions: MI-AP, EMILI

Goal 3: A holistic perspective for supporting Digital Agriculture growth across the post-secondary landscape

Outcome: PSIs are able to respond to inter-disciplinary skills gaps identified by Industry through curriculum additions and planning for longer-term programming.

Outcome: Creation of an inter-PSI EL-WIL group to triage requests from Industry and connect them with PSI expertise in the area of need

Champions: PSIs

Strategic Priority #3: Increase education and training to enhance career opportunities

Goal 1: People see themselves in Digital Agriculture careers (both students and those already in the workforce)

Outcome: Participation from industry in promotional activities of career opportunities (example: EMILI Explore Project for high school students, career panels with Farm and Food Discovery Centre and Ag in the Classroom)

Outcome: Communicate the diverse career opportunities within Digital Agriculture sector to PSI Career Development offices and highschool guidance counsellors

Outcome: Develop targeted strategies to increase representation of women and Indigenous people in the sector

Champions: EMILI, Industry collaborators

Goal 2: Identify and reduce barriers for industry and academia to engage in Work-Integrated Learning and job experiences

Outcome: Create working group to develop list of barriers and strategies to address them

Champions: MI-AP, EMILI, Industry Partners, PSI WIL Coordinators

Goal 3: Increase opportunities for training in areas of Industry-identified skills and talent gaps

Outcome: PSI develop short courses, or micro-credentials, in consultation with Industry

Champions: PSIs and Industry Partners



MI-AP and EMILI will work to coordinate ongoing collaborative efforts to meet these stated priorities and goals.

About MI-AP

Manitoba Industry - Academia Partnership is an initiative to facilitate industry-academia collaboration for the economic, societal health, and vitality of Manitoba.

MI-AP will undertake a coordinated approach to:

- Enhancing alignment and communication between industry and post-secondary to increase work-integrated learning opportunities;
- Increasing industry awareness of the expertise, available technologies and research facilities at PSIs in Manitoba;
- Accelerating opportunities for Indigenous students to participate in the post-secondary sector and in the labour market.

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This roadmap developed in collaboration with EMILI

About EMILI

The Enterprise Machine Intelligence and Learning Initiative (EMILI) is an industry-led non-profit organization established to accelerate the growth of the agri-food industry in Manitoba, and the other prairie provinces, by promoting digital agriculture and digital agriculture technologies.

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EMILI

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