AGENDA ITEM NO: 7.1

UNIVERSITY COUNCIL

PLANNING AND PRIORITIES COMMITTEE

ITEM FOR INFORMATION

PRESENTED BY:	Christian Willenborg, Chair, Planning and Priorities Committee
DATE OF MEETING:	March 20, 2025
SUBJECT:	**Provisional Centre for Canadian Sustainable Digital Agriculture**
ACTION:	**For Information Only**

SUMMARY:

Dr. Angela Bedard-Haughn, Dean and Dr. Steve Shirtliffe, Professor both from the College of Agriculture and Bioresources submitted a proposal to the Planning and Priorities Committee (PPC) for a Provisional Centre for Canadian Sustainable Digital Agriculture on January 29, 2025.

The intent of this centre is to establish a defined hub for interdisciplinary collaborations that utilize digital technologies to increase the sustainability of agriculture across the value chain. Given the interdisciplinary nature of the centre, the goal will be to will bring together expertise from a wide range of disciplines. Researchers in agronomy, soil science, plant breeding, animal science, agricultural economics, food science, computer science, geography, engineering, and policy (amongst others) will collaborate to drive innovation in safe, sustainable food production.

CONSULTATION:

The proposal for a Provisional Centre for Canadian Sustainable Digital Agriculture was brought to the Planning and Priorities Centres Subcommittee on January 10, 2025 followed by a presentation at PPC on January 29, 2025. The subcommittee was impressed by the content of the proposal, its fit with institutional priorities, and the potential for the proposed provisional centre to build on existing research excellence within this area. Both committees agreed that a fast-tracked provisional centre application was appropriate given the desire to maintain research momentum, and the possibility of capitalizing on external funding opportunities and industry partnerships. Based on the positive recommendations from the subcommittee, PPC voted in favour of the proposal noting a few consultations to take place as part of the progress report in January 2026.

As per item 4.3 in the **Centres Policy,** a progress report must be submitted to the Centres Subcommittee in January 2026 with a full proposal to be submitted and approved by January 2027.

ATTACHMENTS:

- Proposal for the Provisional Centre for Canadian Sustainable Digital Agriculture

UNIVERSITY OF SASKATCHEWAN
Governance Office

University Council

105 Administration Place E290
Administration Building Saskatoon,
SK S7N 5A2 Canada
Email: governance.office@usask.ca

MEMORANDUM

TO: Angela Bedard-Haughn, Dean, College of Agriculture and Bioresources and Steve Shirtliffe Professor, Agriculture and Bioresources

FROM: Christian Willenborg, Chair, Planning & Priorities Committee (PPC)

DATE: January 30, 2025

RE: **Proposal for a Provisional Canadian Digital Sustainable Agriculture Centre**

Thank you for attending the Planning and Priorities Committee meeting on January 29, 2025 to present your proposal for the Provisional Canadian Digital Sustainable Agriculture Centre. The committee participated in a fulsome discussion whereby the following motion was carried:

Motion: That the establishment of the Provisional Canadian Digital Sustainable Agriculture be approved for 2 years effective January 29, 2025.

The approval of this provisional centre will be reported by PPC to University Council for information on March 20, 2025.

As per item 4.3 in the **Centres Policy,** a progress report must be submitted to the Centres Subcommittee in January 2026. Within this progress report, PPC has asked for the following to be included:

- Consultation with participatory Colleges on expectations for the members sitting as part of the centre.
- Address if the **Digital Integration Centre of Excellence (DICE)** at Saskatchewan Polytechnic is a collaborator or competitor.
- Address whether any relationships have been explored with TELUS Agriculture.

If you decide to move forward with the center, full approval will need to be obtained by January 2027.

Thank you for your important work for the province and the University of Saskatchewan.

Cc: Baljit Singh, Vice President Research
Angela Lieverse, Chair, PPC Centres Subcommittee
Jordan Sherbino, Governance Officer

Proposal for Establishment of a Provisional Centre: Canadian Sustainable Digital Agriculture Centre (CSDAC)

Agriculture is at the core of civilization as it provides food for humanity; it also occupies the largest land area of any industry on the planet. To achieve global food security while keeping the planet healthy, food production from the existing land base must be increased sustainably. The industry is now evolving rapidly, developing and adopting digital tools and technologies to manage food production precisely. The University of Saskatchewan has emerged as an important hub for digital agriculture research through initiatives like the Canada First Research Excellence Fund (CFREF) funded Plant Phenotyping and Image Research Centre (P^2IRC), which brought together researchers from different colleges across campus. A Western Economic Diversification Grant for the Omics and Precision Agriculture Laboratory (OPAL) provided equipment for use in this area. In addition to these major initiatives, many faculty across the campus have research projects that utilize digital technologies and big data to increase the sustainability of agriculture. Previous and ongoing initiatives like those above have cultivated a cohort of researchers who have developed cross-campus collaborations.

The proposed Canadian Sustainable Digital Agriculture Centre (CSDAC), led by the College of Agriculture and Bioresources (AgBio) at the University of Saskatchewan, will establish a defined hub for interdisciplinary collaborations that utilize digital technologies to increase the sustainability of agriculture across the value chain. We recognize that sustainability must encompass environmental, economic and social sustainability, so CSDAC will bring together expertise from a wide range of disciplines. Researchers in agronomy, soil science, plant breeding, animal science, agricultural economics, food science, computer science, geography, engineering, and policy (amongst others) will collaborate to drive innovation in safe, sustainable food production. Domain experts in agriculture will utilize advanced tools including satellite imaging, UAVs, and cutting edge analysis via Artificial Intelligence (AI) to enable efficient crop management, sustainable soil management, accelerated plant breeding, and animal production systems while minimizing environmental impacts of agriculture. For example, these tools can ensure crops and livestock receive the optimum level of nutrients, increasing yield efficiency while avoiding overapplication of nutrients that can be costly and result in pollution. Through the integration of multiple disciplines, sustainable efficiencies will be brought to the entire food production system with benefits to all of society.

By uniting researchers and infrastructure across campus and beyond, CSDAC will position Saskatchewan as a leader in AI-empowered digital agriculture, fostering partnerships and solutions for global challenges in food security and environmental stewardship. The Canadian Sustainable Digital Agriculture Centre (CSDAC) is envisioned as a world class Centre that catalyzes collaborative research, promotes industry involvement and fosters undergraduate and graduate mentorship in the area of digital and sustainable agriculture.

Interim Director

Dr. Steve Shirtliffe, Professor in the Department of Plant Sciences, will serve as the Interim Director for CSDAC. Dr. Shirtliffe's Agronomic Crop Imaging Lab hosts a well-funded research program in agronomy and digital agriculture, including successful multi-disciplinary collaborations with academics and industry professionals alike. He has previous leadership experience as Acting Department Head for Plant Sciences and he led the consultation and design process for AgBio's Precision Agriculture certificate.

Objectives and goals of the new centre

At the provisional stage, the objectives and goals of the CSDAC are as follows:

- **Elevate visibility and impact** of our work in sustainable digital agriculture as a national and internationally recognized centre
- **Enhance collaborative networks** across campus and across our broader innovation ecosystem, identify opportunities through workshops and symposia
- **Catalyze new initiatives and innovations** through small seed-funding opportunities targeted at new research collaborations and new faculty
- **Lead large collaborative research initiatives** in areas of sustainable digital agriculture such as future CFI, CFREF or NFRF applications
- **Advance cutting-edge applications** of data-driven analytical techniques including Artificial Intelligence (AI) and Machine Learning (ML) to increase the efficiency and sustainability of agriculture; establish the Agriculture signature area as one of the domain expertise pillars for applications of AI and ML methodology
- **Disseminate new knowledge and technology** through open houses, field days, and conferences
- **Facilitate industry engagement** on research, collaboration, innovation, commercialization, and training areas
- **Serve as a training hub** for the recently-launched Precision Agriculture Certificate in AgBio and as a recruitment vehicle for the NSERC CREATE Computational Agriculture Program (co-developed by Computer Science and Plant Sciences); other training programs will be developed as opportunities are identified

Rationale/necessity for seeking provisional status

There are three primary reasons for seeking to establish a provisional centre at this time:

1. We are working with a funding partner on a major donation to support this work; establishing a provisional centre now will a) increase probability of funding success and b) ensure a rapid transition from concept to action once funding is in place.
2. We see strong industry interest/demand for interdisciplinary collaborators, from external partners below, and from producers seeking to drive innovation in ag.
3. We need a nexus for new hires interested in this fast-growing area, including the new cluster hire of five faculty members in Sustainable Digital Agriculture across AgBio.

Preliminary memberships (partial list)

In addition to Dr. Shirtliffe, preliminary members will include:

- Computer Science: Ian Stavness Mark Eramian, Carl Gutwin, Lingling Jin

- Engineering: Scott Noble, Warren Helgason, Reza Fotouhi, Khan Wakid
- Geography: Xulin Guo
- AgBio: Peter Slade, Tristan Skolrud, Patrick Lloyd Smith, Nicholas Tyack, Greg Penner, Kirstin Bett, Eric Lamb, Curtis Pozniak, Derek Peak, Angela Bedard-Haughn; all five members of the AgBio cluster hire in Sustainable Digital Agriculture (TBA)

External partners (partial list only)

Some of the world's leading companies in digital agriculture are based in western Canada, including Precision.ai, Croptimistic, Nutrien/Echelon and Farmers Edge. We anticipate continued and diversified collaborations with these companies under CSDAC, along with others listed below, with existing relationships and/or expressed interest in this area:

- SK Ministry of Agriculture, including Water Security Agency and SK Crop Insurance
- First Nations and MNS (key contacts determined via *kihci okâwîmâw askiy* Centre)
- Provincial and national commodity groups including WGRF
- Bayer, FCC, FCL, MNP, Simplot, Ceres Global Ag Corp/Grupo Trimex

Proposed governance model

At the provisional stage, the CSDAC will be overseen by the Interim Director, who will report to the Dean (or designate). The Director's Management Committee will include up to six faculty members with demonstrated interest/expertise in collaborative research in sustainable digital agriculture. The Management Committee will include at least one early-career member and at least two from outside AgBio. Its mandate will include strategic planning for the Centre, member recruitment, identifying funding/development opportunities, and drafting a full Centre proposal, including the longer-term governance model (see below). In addition, we will establish an Advisory Committee of up to six representatives drawn from our list of External Partners (above), who will provide guidance on key needs for industry and co-develop knowledge and tech transfer events.

Anticipated and secured financial and other resources

We currently have strong interest from a major donor to support the Centre; if that funding is successful, the CSDAC will be well-supported to achieve its objectives. If unsuccessful, we will draw on smaller pools of strategic funding (AgBio reserves and/or smaller donor funds) to support the initial planning and development workshops while seeking external partnerships. Many of our industry partners have expressed and/or demonstrated strong interest in this area of research and we are confident that funds will be available. AgBio is the most research-intensive unit on campus and many of our research projects include funding for collaboration and extension/tech transfer, so sustained activity can be incorporated into the centre's operating model.

Proposed timeline for submitting the documentation for obtaining formal approval

As noted above, we will establish a Management Committee that will be tasked with refining the goals and objectives, establishing a governance model for the formal centre, and recruitment of both internal members and external partners. This foundational work, to be completed in 2025, will support the development of a full proposal by no later than September 2026, so formal approval can be in place by January 2027.