REQUEST FOR DECISION

Committee Name: Planning and Priorities Committee, University Council
Date: November 19, 2026
Presented by: Angela Lieverse, Chair, Planning and Priorities Committee

Subject: Nutrien Digital Agriculture Centre – Full Centre Approval

MOTION

It is recommended by the Planning and Priorities Committee that Council approve the establishment of the Nutrien Digital Agriculture Centre reporting to the Dean of the College of Agriculture and Bioresources, effective November 19th, 2026.

CONTEXT AND BACKGROUND

The Nutiren Digital Agriculture Centre (NDAC) was granted provisional status on January 30, 2025 with a vision to provide a university-wide hub for sustainable digital agriculture, coordinating shared research platforms, interdisciplinary training, and engagement with industry, government, Indigenous partners, and producer organizations.

NDAC will position Saskatchewan as a global leader in sustainable digital agriculture. The Centre is intended to provide institutional support for work that is currently distributed across projects and time-limited grants. Its three flagship platforms are the Geospatial Agroecosystem Inference Generator (GAIG), UAV Crop Phenomics, and Smart Farms/Digital Agronomy. The Centre will also support large collaborative funding applications, seed grants, the Precision Agriculture Certificate, and the NSERC CREATE Computational Agriculture program.

NDAC secured a $7-million Nutrien commitment: $1 million for renovation of the Agriculture Building hub, $3 million over 10 years for the director/chair and core operations, and up to $3 million over eight years for future initiatives.

Additional support includes College of Agriculture and Bioresources infrastructure and administration, the Jason Reed Fund, and graduate training support. The Director is appointed by and reports to the Dean of Agriculture and Bioresources. As with all centres, NDAC will report annually and undergo a formal five-year review.

CONSULTATION

NDAC received provisional status from PPC in January of 2025. As a reminder, provisional status cannot exceed two years. On October 14th, 2026, the proposal for NDAC to receive full centre status was reviewed by PPC's Centre's Subcommittee where members discussed governance, participation, financial sustainability, and key lessons from the provisional-centre phase. Feedback focused on clarifying advisory committee processes, broadening representation across the university, strengthening participation from key areas, and recognizing the need to leverage external funding to support the centre's ambitions.

On October 28, 2026, the NDAC proposal came forward to PPC where members reviewed the information from the subcommittee and voted in favour of the proposal.

ATTACHMENTS

1. **NDAC Centre Proposal**

UNIVERSITY OF SASKATCHEWAN
College of Agriculture
and Bioresources

APPLICATION FOR THE ESTABLISHMENT OF A FULL CENTRE

1. **OVERVIEW OF THE CENTRE**

Name of the proposed centre

The College of Agriculture and Bioresources proposes formally establishing the **Nutrien Digital Agriculture Centre (NDAC)** at the University of Saskatchewan (USask). The provisional centre was granted status on January 30, 2025, and was named the Canadian Sustainable Digital Agriculture Centre (CSDAC). The name was provisionally changed to the Nutrien Centre for Sustainable and Digital Agriculture in the agreement between Nutrien and the University of Saskatchewan, announced February 3, 2025. Finally, the permanent name for the centre of **Nutrien Digital Agriculture Centre (NDAC)** was adopted with the approval of the sub-agreements between Nutrien and the University of Saskatchewan in May 2026.

Brief description of mission/vision of the centre

Vision: The vision of the centre is to advance, and position Saskatchewan as a global leader in sustainable digital agriculture.

Mission Statement: Our mission is to advance sustainable digital agriculture by developing accessible data-driven research platforms that support interdisciplinary collaboration and serve as a hub for student training and engagement with key stakeholders, strengthening sustainability across the agricultural value chain.

The goals of the NDAC are:

- **Provide a collaborative research and training space** in the Agriculture Building as a home for the Centre and a gathering place for stakeholders in digital agriculture
- **Develop collaborative research platforms** including Unoccupied Aerial Vehicle (UAV) Crop Phenotyping, Geospatial Agroecosystem Inference Generator (GAIG) and Smart farm
- **Lead large collaborative research initiatives** in areas of sustainable digital agriculture such as future Canada Foundation for Innovation (CFI) , Canada First Research Excellence Fund (CFREF), Digital Research Alliance of Canada (DRAC) and New Frontiers in Research Fund (NFRF) applications
- **Enhance collaborative networks** across campus and across our broader innovation ecosystem, identify opportunities through workshops and symposia
- **Catalyze new initiatives and innovations** through seed-funding opportunities targeted at new research collaborations and new faculty
- **Advance AI-driven analytical methods** to improve the efficiency and sustainability of agriculture, positioning USask as a centre of expertise in agricultural AI.
- **Elevate visibility and impact** of USask's digital agriculture work as a recognized national and global leader
- **Serve as a training hub** for undergraduate and graduate students and professionals, supporting the Precision Agriculture Certificate, the NSERC CREATE Computational Agriculture program, and future training pathways as opportunities emerge

2. RATIONALE FOR THE CENTRE

Agriculture is at the core of civilization as it provides food, fibre, and fuel for humanity. It also occupies the largest land area of any industry on the planet making its environmental impact significant. To achieve global food security while keeping the planet healthy, food production from the existing land base must be increased sustainably. Agriculture is also a defining sector for Saskatchewan's economy, environment, and rural communities. Over the past decade, the nature of agricultural data has been transformed by the availability of:

- Extensive public datasets on soils, weather, land use, and production
- Satellite Earth observation and UAV-based measurement
- Field and individual animal-level management, sensor, and smart farm data

At USask, major initiatives such as the Canada First Research Excellence Fund, the Plant Phenotyping and Imaging Research Centre (P2IRC), the NSERC-funded CREATE in Computational Agriculture, and the Sustainable Agriculture Research Initiative (SARI) funded Precision Plant Sustainability Network (PPSN) have built substantial capacity in digital agriculture across AgBio, Engineering, and Arts & Science. In addition, numerous faculty members continue to conduct research and collaborate in projects funded from the Agriculture Development Fund (ADF), WGRF, and commodity groups.

Despite this strength, much of the activity remains distributed across individual projects and time-limited grants. The absence of a shared institutional framework:

- Limits the integration of diverse data sources
- Constrains the development of durable platforms beyond the lifetime of any single grant
- Makes it difficult to present a unified institutional presence to major funders, industry, and policy partners

Currently there is no group or centre to represent this diverse collection of academics in sustainable digital agriculture.

2.1 What unique niche at USask will the centre address that cannot be accomplished through existing administrative structures?

NDAC will be the integrator for USask research, teaching and outreach in sustainable digital agriculture by:

- Serving as a **university wide hub** for sustainable digital agriculture, with governance, staffing, and infrastructure dedicated to shared platforms.
- Providing **long-term stewardship** of geospatial, UAV, smart farm, and analytical pipelines that no single department can sustain alone.
- Offering a **coherent entry point** for partners seeking collaboration in digital agriculture, rather than relying on ad hoc, investigator-specific connections.
- Enabling **high-risk, high-reward research** by providing core technical capacity and shared infrastructure that individual labs cannot afford or maintain on their own.

NDAC provides the institutional framework required to coordinate, and amplify USask's digital agriculture strengths, something that cannot be achieved through existing departmental structures or short-term projects alone.

2.2 How will department/colleges/schools on campus contribute to and benefit from the centre?

College of Agriculture and Bioresources

- Provides the Centre's physical home, administrative support, and core director role.
- Benefits directly from shared platforms that support plant, soil, animal, and economic research, including the digital agriculture cluster hires in all AgBio departments.

College of Arts and Science

- Contributes expertise in computer science (Artificial Intelligence (AI) /Machine Learning (ML), computer vision), geography, and planning (remote sensing, geospatial analytics), and biology (ecosystem and wildlife interactions).
- Gains access to large-scale agricultural datasets, and real-world applications for computational and spatial methods.

College of Engineering

- Contributes expertise in mechanical systems (UAVs, sensors, robotics), and civil/environmental engineering (hydrology, infrastructure).
- Benefits from field-scale testbeds, smart-farm instrumentation, and agronomic-use cases for engineering solutions.

Other Colleges and Schools

- Other colleges including Edwards School of Business, the School of Environment, and Sustainability will gain access to platforms for integrating economic, policy, and sustainability analytics with agricultural data.
- Western College of Veterinary Medicine will have collaboration opportunities with AgBio researchers in precision animal production
- Opportunities exist for joint graduate supervision, cross-listed courses, and involvement in large collaborative grant applications.

Across campus, NDAC offers:

- Shared infrastructure and data resources that support multi-disciplinary research.
- A physical hub for seminars, workshops, and collaborative meetings.

- A mechanism to recognize and coordinate digital-agriculture work under a single institutional identity.

2.3 What role is the centre expected to play in the national/international research environment? Are there comparable centres?

2.3.1 USask Centres

Within USask the following centres or units have some similarities and offer substantial opportunities to enhance research at USask through increased collaboration. The original mandate of GIFS/OPUS had similarities with NDAC, however the current mandate is focused on plant-breeding platforms and genomic platforms for industrial partners.

Differentiation from Other USask Units	Core Mandate	NDAC's Distinction	Opportunities to Collaborate
CDC	Crop Breeding and Genetics	NDAC supports the UAV-Phenomics - not breeding or crop genomics	Extensive collaborations using the UAV-Phenomics platform
GIFS	Technology services in Accelerated Plant Breeding, Crop genetics	NDAC research platforms are for use by academics with industry collaboration	Collaboration on UAV-Phenomics platform
GIWS	Water Security & Hydrology	NDAC Ag-focused shared digital platforms; geospatial, and UAV phenotyping integration access	Integrate prairie, and agriculture-related aspects of hydrology into GAIG. UAV use for remote sensing.
SENS	Graduate education, research on environmental sustainability	NDAC Agricultural focused GAIG platform.	Utilize GAIG for environmental decisions, and analysis of data.

NDAC is uniquely positioned to lead Canada in the area of sustainable digital agriculture. While named research centres exist at comparable Canadian Universities there are no defined centres that are comparable to NDAC in the scope of its mandate and its diverse membership. What sets NDAC apart from all Canadian institutions is the diverse membership from multiple disciplines within NDAC. This diverse membership at USask is the result of more than a decade of interdisciplinary research that has created a collaborative research culture in digital agriculture at USask.

2.3.2 Comparable Canadian Centres

The following table outlines existing Canadian centres that are somewhat comparable to NDAC. The majority of comparable centres are single-faculty research programs. Of the centres that are listed, Olds College Smart Farm offers the most comprehensive and highly visible demonstration of commercially available digital agriculture technology but does not have a graduate-level research program to develop digital, and sustainable agriculture solutions. EMILI out of the University of Winnipeg is somewhat similar to Olds in that it collaborates with commercial smart farms, but it also has a faculty associated with it, conducting research in AI-related topics in agriculture. In eastern Canada, UPEI, and Dalhousie have research programs led by individual faculty. At McGill, Dr. Adamchuk has been a pioneer in Canadian precision agriculture and works mostly in sensors. Guelph has the potential to have a strong digital centre based on the faculty that are there, however there is little collaboration in research. AAFC has several researchers engaged in digital agriculture research (two of which have come from USask). There are active collaborations on several projects in crop phenotyping and agriculture remote sensing. DICE is SaskPolytech's applied digital R&D centre, building practical AI, data, sensor, drone, and automation tools across industries focusing on mining and manufacturing. In summary there are no existing Canadian centres that offer the interdisciplinarity, shared research platforms, and academic programs comparable to NDAC.

Comparable Centres – NDAC Collaboration Table

Name	Core Mandate	NDAC's distinction	Opportunities to Collaborate
EMILI	Digital agriculture adoption, smart-farm partners	Computer science focus on AI	Collaborate on Image Analysis
SaskPoltech DICE	Digital innovation hub for AI, IoT, robotics	Tech prototyping; NDAC field validation	Co-develop & test sensors
Olds College Smart Farm	Digital demonstration Smart farm	NDAC conducts research	Opportunities for validation of NDAC products
UPEI Precision Agriculture Research Program	Individual faculty Precision agriculture for climate mitigation, BMPs, AI, drones	NDAC has multiple faculty, and wider mandate	Implementation of GAIG in eastern Canada, UAV research
McGill Precision Agriculture, and Sensor Systems (PASS) Research Team	Individual faculty Engineering focused, site-specific sensors, and analysis	NDAC has multiple faculty, and wider mandate	Collaborations on proximal soil sensors

Dalhousie Atlantic Institute for Digital Agriculture	Individual faculty Atlantic digital ag; precision agriculture tools	NDAC has multiple faculty, and wider mandate	Implementation of GAIG in eastern Canada
University of Guelph (MSAg)	UAV phenotyping data-enabled agriculture	Talent pipeline; NDAC practical diagnostics placements	Implementation of GAIG in central Canada
U Manitoba Digital Agronomy & Weeds Lab	Weed remote sensing, decision tools, LiDAR phenotyping	NDAC has multiple faculty, and wider mandate	Collaboration on research projects
UCalgary Simpson Centre + Computer Science	Policy labs plus AI, ML, robotics, IoT for agriculture	Policy, and CS research; NDAC field diagnostics execution	Collaborate on projects
AAFC Remote Sensing Capability	Satellite, and UAV imagery, crop monitoring analytics	National imagery; NDAC converts signals to prescriptions	Collaboration on Fed/University grants; Prairie decision maps
PAMI	Ag machinery engineering, validation, producer-focused testing network	Engineering capacity	Partner for field implementation

2.3.3 Comparable International Centres

There are several international centres with similar mandates to NDAC that are normally defined by their geographic area. The Centre will first continue to develop existing collaborations with International Centres. The Centre is also working to establish relationships with other international centres based on a coordinated approach that mirrors target countries and institutions identified by the Office of the Vice President of Research (OVPR).

Existing International Centres Collaboration

To develop an international reputation and impact, NDAC will collaborate with several existing collaborators globally. We are currently developing these collaborations by:

- Presenting at international conferences
- Developing plans to host international conferences – North American Plant Phenotyping Network
- Supervising or being committee members of students from other institutions

- Hosting collaborators
- Including international collaborators on large grant applications

We are currently targeting the following labs, and institutions (this is a partial list that will evolve):

Sydney Institute of Agriculture, Australia
• Precision Agriculture Soil Carbon & Landscape Processes Group

University of Illinois Urbana–Champaign, USA
• Agroecosystem Sustainability Center (ASC)

University of Göttingen, Germany
• Centre of Biodiversity, and Sustainable Land Use (CBL)

Targeted International Centres for Collaboration:

University of Bonn, Germany
• Institute of Geodesy, and Geoinformation (IGG)
• PhenoRob Cluster of Excellence

Indian Agricultural Research Institute (IARI)
• Precision Farming Development Centre

Indian Institute of Technology – Ropar
• Digital Agriculture

International Soil Reference and Information Centre – Wageningen, the Netherlands
• World Soil Information

3.0 RESEARCH AND ACADEMIC GOALS

The Nutrien Digital Agriculture Centre (NDAC) is designed to serve as the University of Saskatchewan's cross-campus hub for advancing digital, data-driven, and sustainability-oriented agricultural research. NDAC's research, and academic goals reflect a coordinated strategy to integrate satellite Earth observation, UAV phenotyping, field scalable experimentation, Indigenous knowledge systems, and advanced AI analytics into shared, enduring research platforms that benefit students, researchers, industry partners, and communities across Saskatchewan and beyond.

NDAC will unify previously scattered digital agriculture initiatives at USask including P2IRC, OPAL, CREATE, as well as existing projects in animal, plant, soil, agronomy research into a coordinated research ecosystem with durable infrastructure, strong governance, and clear pathways for collaboration.

By enabling interdisciplinary research, shared data systems, and high-value partnerships with academia, industry, and government will substantially elevate USask's national and international research profile in sustainable digital agriculture

NDAC's research and academic goals center around three flagship platforms. The first two platforms are well developed and will be the initial operational focus of the centre while the last is being developed.

(1) **GAIG – Geospatial Agroecosystem Inference Generator**
(2) **UAV Crop Phenomics**
(3) **Smart Farms**

Together, these platforms are designed to transform the agricultural research ecosystem at USask by supporting integrated, multi-scale, multi-disciplinary research that increases the sustainability of agriculture across the entire value chain.

3.1 Research Vision

The Centre's research vision is to position Saskatchewan as a global leader in sustainable digital agriculture by enabling coordinated access to data, analytics, and research infrastructure that supports transformative science, practical agronomic decision making, and evidence-based policy development.
Central to this vision is NDAC's role in creating shared, durable research platforms that:

- Aggregate, and operationalize diverse data streams (Earth Observation, UAV, field trials, soil, biological, socio-economic, Indigenous knowledge)

- Foster cross disciplinary collaboration across AgBio-, Engineering, Arts & Science, and community partners
- Support high impact, multi-institutional grant applications (NFRF, CFI/JELF, DRAC)
- Accelerate innovation in sustainable agriculture, climate adaptation, and resource efficiency

3.2 Flagship Platforms

Theme 1: Landscape Scale Agroecosystem Analytics (GAIG)

The **Geospatial Agroecosystem Inference Generator (GAIG)** is NDAC's flagship geospatial AI platform, designed to model, quantify, and value agroecosystem services across western Canada with wall-to-wall 10-metre spatial resolution. GAIG acts as a digital twin of the western Canadian Agro-ecosystem, and by incorporating AI-driven analyses allows optimization of sustainability. It integrates multiyear satellite EO, soil, topographic, hydrological, and weather data, and allows us to use ground-referenced data to infer decision-relevant analytics at a sub-field scale. The Centre will fund a data manager to assist USask and other researchers in accessing the computational framework of GAIG and to allow collaborative analysis of georeferenced data from a variety of disciplines.

Initial applications include:

- Quantification and understanding within-field differences in crop yield
- Marginal land optimization, and climate-resilient land-use planning
- Nitrous oxide risk quantification at sub-field level
- Indigenous-led stewardship, mapping, and governance

GAIG is already positioned for major competitive funding: an NFRF Transformation LOI was submitted in 2025 (ranked highly internally) and a Digital Research Alliance of Canada proposal was submitted January, 2026 to secure national compute, and storage resources.

Theme 2: High Throughput Crop Phenomics (UAV Program)

NDAC's **UAV Crop Phenomics** platform delivers high throughput, multi-spectral drone imaging that supports plant breeding, crop physiology, and agronomic research. The platform features standardized workflows for analyzing multi-spectral and thermal images of field plots within plant-breeding programs.

Scientific goals include:

- Supporting breeding programs at Crop Development Centre, and across AgBio with rapid phenotypic data
- Developing machine-vision models for trait inference, and stress detection

- Enabling early generation selection to improve breeding efficiency

This platform benefits from a dedicated phenotyping van, a multispectral UAV fleet, an experienced field crew, and strong cross-college expertise in computer science, and engineering.

Theme 3: Smart Farms and On Farm- Experimentation

The College of Agriculture and Bioresources has access to various field research facilities including the Rayner Dairy, the Livestock and Forage Centre of Excellence, The Kernen Crop Research Farm, and the Herman Austensen Research Farm. NDAC will collaborate with these facilities to explore specific data pipelines to facilitate AI-driven data analytics to further sustainable agricultural research.

The Digital Agronomy portion of the Smart Farm platform focuses on field-scale decision support through integration of producer data, experimental designs, and analytics to optimize farm practices under real-world conditions.

3.3 Academic Goals and Training Strategy

A core objective of NDAC is to establish USask as Canada's pre-eminent training hub for interdisciplinary digital agriculture. The Centre will work with the academic units that govern and administer related academic programs to support these programs.

- Continue the development of the **Precision Agriculture Certificate**, supporting >40 students annually, and contributing to curriculum renewal.
- Recruit, train, and support graduate students through the **NSERC CREATE Computational Agriculture Program**, which admitted its second cohort of 16 students in 2025. In the future new programs will be explored with international institutions.
- Provide interdisciplinary mentorship through cross-college supervisory teams (AgBio-, Engineering, Arts & Science)
- Create new internships, and research opportunities through seed grants

By integrating platform-level data, real-world field experiences, and advanced analytics, NDAC will train the next generation of agricultural data scientists, agronomists, AI specialists, and sustainability professionals.

3.4 Seed Grants

To catalyze early-stage collaborative research across its platforms, NDAC will establish a Seed Grant Program that enables trainees and new faculty to generate proof-of-concept results aligned with the Centre's Research and Academic Goals. The program is designed to accelerate innovative

ideas, expand platform utilization, and support the development of competitive multi-investigator funding proposals.
The purpose of the seed grants is to:

- **Promote collaborative utilization of NDAC's shared research platforms** (GAIG, UAV Crop Phenomics, Smart Farms/Digital Agronomy).
- **Advance the Centre's research and academic goals** by supporting exploratory work in sustainable digital agriculture, climate adaptation, AI enabled analytics, and -Indigenous led geospatial solutions.
- **Generate proof of concept analyses and preliminary results** that form the foundation for full-scale grant applications (e.g., ADF, NSERC, MITACS).

Seed grant projects must clearly articulate how the proposed work engages with one or more NDAC platforms or contributes to the Centre's cross-cutting priorities (AI-driven decision systems, climate and ecosystem services modelling, Indigenous data sovereignty, and integrated economic and policy analysis). Priority will initially be given to support trainees of newly hired faculty focused on digital agriculture and applications that utilize NDAC platforms.
Seed grant outcomes are expected to include early datasets, prototype analytical methods, interdisciplinary collaborations, and platform adoption that strengthen future large-scale proposals. By connecting exploratory ideas with NDAC's technical and collaborative infrastructure, the program serves as a direct implementation mechanism for the Centre's broader research, and training strategy. Decisions on the Seed Grants will be made by an ad-hoc working group appointed by the director and consisting of Centre members.

3.5 Advancing USask's Institutional Research Strengths

These research and academic goals directly advance the University Plan's calls to *unleash discovery*, *embrace interdisciplinarity*, and *seek solutions* through collaborative data-driven research, addressing global food and climate challenges. They also reflect AgBio's priority to *lead and facilitate sustainable agriculture and environmental research*, *engage students in discovery*, and *adapt innovative knowledge to application* in ways that strengthen community well-being and ecological resilience.

4. CONTRIBUTION TO INDIGENIZATION, EQUITY, DIVERSITY & INCLUSION, AND SUSTAINABILITY

NDAC's work advances key institutional commitments in the University Plan 2025, and the AgBio Strategic Plan by supporting Indigenization, equity, diversity, inclusion, and sustainability through its research platforms, partnerships, and training activities.

4.1 Indigenization

NDAC's Indigenization efforts are guided by the University Plan 2025 principle of *nīkānītān manācihitowinihk / ni manachīhitoonaan* ("Let us lead with respect"), and AgBio's priority to deepen reciprocal relationships with Indigenous communities. Established alongside the *kihciokāwîmāw -askiy* (Great Mother Earth) Knowledge Centre, NDAC is committed to collaboration, respect for Indigenous governance, and OCAP-aligned data sovereignty. The NDAC director will meet quarterly with the director of *kihciokāwîmāw -askiy* Knowledge Centre to ensure the centres remain aligned.

During the provisional phase, NDAC engaged partners, including Candice Pete Cardoso and Dr. Melissa Arcand. Through these conversations, shared priorities were identified: improved access to geospatial information for land-based decision making; mapping of traditional land use and restoration areas; analytical support for agricultural land valuation; and assistance in strengthening community land management systems. Interest was also expressed in training opportunities and in the use of NDAC's digital workspace for workshops on GAIG, GIS tools, and UAV-based applications.
In response, NDAC will focus its Indigenization work on four commitments:

1. **OCAP-aligned data governance**, ensuring Indigenous ownership, and control of data in all projects incorporating indigenous data.
2. **Co-development of geospatial and agronomic tools**, combining community knowledge with soils, vegetation, and remote-sensing data.
3. **Training and capacity building** through workshops and seminars co-delivered with *kihciokāwîmāw -askiy Knowledge Centre*, FSIN, and the Saskatchewan Aboriginal Land Technicians.
4. **Relationship -based engagement**, grounded in ethical space and long term, trust-based collaboration.

These commitments ensure that Indigenous communities are active partners and leaders in digital agriculture research, particularly in areas involving land stewardship and environmental governance.

4.2 Sustainability

Sustainability is a central element of the University of Saskatchewan's strategic weave, expressed in the aspiration for *"increased impact on communities' capacity to protect the environment, and promote ecological sustainability."* The AgBio Strategic Plan reinforces this priority through its focus on sustainable agroecosystems, community resilience, and environmental stewardship.

NDAC advances these commitments by making the sustainability of the agroecosystem a central objective, and by applying digital tools such as geospatial analytics, UAV phenotyping, smart-farm instrumentation, and AI-enabled modelling to support evidence-based environmental decision making. Addressing sustainability requires broad collaboration and NDAC serves as a campus integrator, connecting researchers, trainees, Indigenous partners, producers, industry, and government. Through these partnerships and shared platforms, the Centre enhances the capacity of Saskatchewan's agricultural and rural communities to protect the environment and support long term ecological resilience.

4.3 Equity, Diversity, and Inclusion

NDAC will embrace USask's commitment to equity, diversity, and inclusion by fostering research and training environments that reduce systemic barriers and enable full participation by all team members. The Centre will use transparent and unbiased processes for engaging students and collaborators, promote inclusive recruitment and supervision practices, and support research teams that value a diversity of backgrounds, perspectives, and career stages. Training activities will incorporate practices that promote respectful, accessible, and safe working environments, including clear mentorship expectations and proactive support for trainees.

In its research design and implementation, NDAC will encourage consideration of accessibility, consultation with diverse perspectives when appropriate, and reflection on ethical implications related to data use, participation, and dissemination. Rather than focusing on demographic measures, the Centre will emphasize concrete, actionable practices that embed inclusion in daily operations and will review and refine these practices regularly to support continuous improvement.

5.0 ASSESSMENT

The Nutrien Digital Agriculture Centre (NDAC) will evaluate its progress using a set of key performance indicators (KPIs) organized into thematic categories aligned with the Centre's mandate, research goals, and institutional commitments. KPIs will be tracked annually and reported through the Centre's Annual Report. Baseline values will be established in the first full year of operation (2026), after which annual growth will be expected.

5.1 Key Performance Indicators:

1. Research Activity and Scholarly Outputs

These indicators assess NDAC's ability to generate high-quality research and expand USask's visibility in sustainable digital agriculture. Typical metrics tracked though UnivRS including:

- Value of flagship projects applied for, and secured (e.g., NFRF, CFI/JELF, DRAC, ADF)
- Number of peer reviewed papers, conference papers, reports, and preprints
- Number of new datasets, workflows, and digital tools released through NDAC platforms
- Number of centre-level global collaborations
- Number of international, and national research partnerships

2. Platform Utilization and Collaborative Research

These indicators measure adoption and impact of NDAC's shared research platforms and their ability to foster interdisciplinary collaboration.

- Number of collaborations among centre members
- Number of interdisciplinary teams using GAIG, UAV Phenomics, or Smart Farms/Digital Agronomy
- Number of external research groups (within and beyond USask) accessing NDAC platforms
- Number of seed grants awarded, and successfully completed
- Number of co-developed projects with Indigenous partners, producers, industry, and government

3. Training, HQP Development, and Student Engagement

These indicators evaluate the Centre's contribution to USask's talent development mission.

- Number of student internships facilitated
- Number of graduate students and postdocs involved in NDAC affiliated-research
- Number of students trained in defined programs such as Computational Agriculture and the Precision Agriculture Certificate
- Number of HQP supported through interdisciplinary supervisory teams

4. Partnerships, Visibility, and External Engagement

These indicators capture NDAC's effectiveness in building broad impactful networks across sectors.

- Number of new partnerships developed (industry, government, Indigenous, producer groups, international agencies)
- Number of conferences, workshops, symposia, or major events hosted or sponsored
- Engagement at global events (e.g., FAO, ESA, CSA collaborations)
- Number of invited talks or stakeholder presentations delivered by Centre members

5. Centre Growth and Membership

These indicators track the Centre's internal development and alignment with university priorities.

- Total number of NDAC members (faculty, trainees, collaborators)
- Number of newly engaged USask departments, colleges, or external organizations
- Growth in capacity (staffing, platform expansion, infrastructure adoption)

5.2 Five Year- Evaluation Framework

In accordance with USask policy, NDAC will undergo a formal review in Year Five (2031). Based on the 5 KPI categories in 5.1 as well as additional criteria this review will assess:

1. **Research Activity and Scholarly Outputs**
    - Growth in funded projects
    - Evidence of interdisciplinary and cross-sector research
    - Development and use of GAIG, UAV Phenomics, & Smart Farm pipelines tools
2. **Platform Utilization and Collaborative Research**
    - Publications, datasets, tools, and knowledge mobilization outputs
    - National and international recognition
    - Contribution to USask's visibility in sustainable digital agriculture
3. **Training, HQP Development, and Student Engagement**
    - Participation and progress of graduate students
    - Mentorship practices
    - Post-graduation pathways and HQP placements
4. **Partnerships, Visibility, and External Engagement**
    - Depth and diversity of collaborations
    - Evidence of mutual benefit with Indigenous partners
    - Engagement with industry, government, and global agencies
5. **Centre Growth and Membership**
    - Effectiveness of advisory structures
    - Financial sustainability

- Alignment with university strategic priorities
- Overall functioning of the Centre's operational model

6. **Strategic Contributions and Institutional Fit**
    - Advancement of USask, and AgBio strategic goals and centre fit
    - Long-term unique contributions from centre
    - Evidence of broad interdisciplinary value

Based on this review, the Centre will be recommended for renewal, modification, or transition, following university procedures.

6.0 LIST OF PROPOSED MEMBERS

Director:

Steve Shirtliffe
steve.shirtliffe@usask.ca
(306) 331-7354

Academic Advisory Committee (AAC)

It is anticipated the current members of the Management Committee for the Provisional Centre will transition to the AAC.

Scott Noble – Mechanical Engineering
Flavia van Cleef – Plant Sciences/ Animal and Poultry Science / Plant Sciences
Peter Slade – Agricultural and Resource Economics
Kwabena Nketia – Plant Sciences
Chantel Chizen – Soil Science

External Advisory Committee

To be appointed – please see section 7.4 for categories.

Faculty Members

Members of the AAC are defacto faculty members
Angela Bedard-Haughn – Soil Science
Kirstin Bett – Plant Sciences
Sebastien Box-Couillard - Economics
Rosalind Bueckert – Plant Sciences
Adam Carter – Crop Development Centre
Mark Eramian – Computer Science
Yuan Fang – Food and Bioproduct Sciences
Carl Gutwin – Computer Science
Xulin Guo – Geography and Planning
Warren Helgason – Civil, Geological, and Environmental Engineering
Lingling Jin – Computer Science
Valentyna Klymiuk – Crop Development Centre
Patrick Lloyd Smith – Agricultural and Resource Economics
Tia McDonald – Agricultural and Resource Economics
Bryan Mood – Soil Science
Bailey Peterson-Wilhelm – Agricultural and Resource Economics

Curtis Pozniak – Crop Development Centre
Corinne Schuster-Wallace – Geography and Planning
Tristan Skolrud – Agricultural and Resource Economics
Nicholas Tyack – Agricultural and Resource Economics
Tom Warkentin – Crop Development Centre
Allison Ward – Animal and Poultry Science

Administration

Data Manager – **Thuan Ha**
Data Systems Administrator – (being filled)
Executive Assistant (30%) – **Jill Lavertu**
Communications (in kind – AgBio & VP research) – Leslie-Ann Schlosser (coordinator); AgBio comms **(being filled)**
Financial Management (in kind - AgBio) – **Josh Andal**

7.0 GOVERNANCE

7.1 Leadership Structure

Director

The Nutrien Digital Agriculture Centre (NDAC) is led by a director appointed by the Dean of the College of Agriculture and Bioresources. The Director reports directly to the Dean and is responsible for the overall leadership, coordination, and oversight of all Centre operations. This responsibility includes, but is not limited to:

- Setting and implementing the strategic direction of the Centre
- Oversight of all research platforms, and technical infrastructures (GAIG, UAV Phenomics, Digital Agronomy)
- Allocation and management of financial resources, including donor-supported funds such as the Nutrien gift and Jason Reed Fund
- Hiring, supervision, assessment, and where applicable, renewal of Centre staff (Data Manager, Data Systems Administrator, administrative support)
- Ensuring secure, ethical, and compliant data governance in alignment with FAIR principles, OCAP, and relevant University policies
- Preparing annual reports for the Dean and when required, for internal and external stakeholders.

The Director may delegate tasks to staff or working groups; however, the Director retains responsibility for final operational decisions. The governance, accountability, and approval functions of the Centre remain the responsibility of the Director.

Consultation

To support transparency, collegiality, and strong faculty engagement, the Director will seek input from Faculty Members associated within NDAC, and from an Academic Advisory Committee (AAC), established by the Director.

7.2 Faculty Membership

Affiliated Faculty Members

Faculty Members constitute the core academic membership of NDAC. Membership is open to all eligible faculty of the University of Saskatchewan whose work aligns with the Centre's mission and is granted by the Director of the NDAC.

Faculty membership is open to faculty from:

- Agriculture and Bioresources
- Engineering
- Arts & Science
- Medicine
- Veterinary Medicine
- and other USask colleges contributing to the Centre's mission.

Faculty Members:
• Lead or contribute to research aligned with Centre platforms
• Participate in training and experiential learning initiatives
• Engage in interdisciplinary projects
• Support outreach and external partnerships
• Provide academic input through the AAC

Membership is voluntary and non-governance in nature.

Communication with Faculty
To ensure strong communication, the Director may provide a written update to the Centre to Faculty Members affiliated with the NDAC once per academic term (Fall and Winter), summarizing major developments, key decisions, and upcoming initiatives related to the Centre's research, training, and engagement activities.

7.3 Internal Operations Committee
To support coordinated operations, the Director will oversee the Internal Operations Committee. This Committee focuses on the day-to-day operational and administrative functions of the Centre. The Committee will meet bimonthly.

Purpose
The Internal Operations Committee provides operational coordination and subject matter expertise in support of the Centre's platforms, programs, and partnerships. It serves in an advisory and supportive role only and exists to support the research, training, and outreach activities of NDAC Faculty Members.

Composition of the Internal Operations Committee
Membership is based on functional roles and will initially include:
• Director (Chair)
• Data Manager
• Data Systems Engineer
• Lead, UAV Crop Phenomics
• Lead, Digital Agronomy
• Representative from AgBio Communications
• Representative from AgBio Finance
• Representatives from participating colleges (e.g., Arts & Science, Engineering), as appropriate
Members serve in an operational capacity and are not governors of the Centre. Additional members may be added by the director as the centre develops.

Responsibilities
• Coordinating workflows across platforms and functional units
• Ensuring alignment among research, data systems, training, and engagement activities

• Identifying operational requirements for infrastructure, computing, data systems, and staffing
• Supporting major institutional funding applications (e.g., NFRF, CFI/JELF, DRAC)
The Internal Operations Committee normally meets bimonthly, with additional meetings convened as required. The group supports the Centre through operational, and technical input.

7.4 External Advisory Committee (EAC)

Purpose
To provide strategic insight on developments in sustainable and digital agriculture and to support the Centre's approach to relationship development with industry, government, Indigenous partners, producer organizations, and international organizations. EAC members will be chosen for strategic and translational expertise in digital agriculture to support the long-term sustainability of the research platforms, rather than to represent specific sectors or commodities.

Principles
• Advisory in nature, providing input to inform the Director's decision-making responsibilities
• No role in budget, staffing, or operational oversight
• Clear guidelines regarding donor representation
• Meets at least annually and is convened by the Director as needed

Composition
5–10 members from the following with reference to desired skills
• Industry organizations: research translation & scaling
• Government agencies: policy, regulation, incentives
• Indigenous organizations: land stewardship
• Producer organizations: adoption, feasibility, usability
• International organizations: foresight, global comparability
At least one member will have end-to-end digital agriculture experience, to provide grounded insight into how data, analytics, and decision systems function across the full workflow from field application to adoption. Members are appointed by the Director in consultation with the Dean for renewable terms. All members would be expected to comply with relevant conflict of interest policies of the College and University.

Scope of Advice
The EAC will advise on the following:

• Sector trends, challenges, and opportunities
• Applied research needs and collaboration opportunities
• Responsible innovation and knowledge mobilization
• National and international partnership development
- Other issues as requested by the Director

Funding decisions, budget oversight, staff evaluation, and operational approvals are excluded.

7.5 Academic Advisory Committee (AAC)

Purpose
The Academic Advisory Committee provides structured advice on the Centre from NDAC Faculty Members, and ensures that faculty perspectives inform the Centre's research, training, and platform-development priorities.

Composition
The Committee consists of 5–7 NDAC Faculty Members, including at least two members from outside of AgBio. Members are invited by the Director from among the Faculty Members (Section 7.4). AAC members are appointed by the Director for renewable two-year terms to ensure continuity and broad participation across colleges. Participation is voluntary and non-governance in nature.

Role

The AAC will advise on:
• research directions and platform development
• interdisciplinary opportunities
• graduate training and curriculum linkages
• academic risks, challenges and emerging opportunities
• academic components of major institutional grant applications
• alignment of faculty led initiatives with Centre priorities
Other areas as identified by the Director.

Meetings
It is recommended that the Committee meets quarterly. Additional meetings may be held at the request of the Director.

External Partner Affiliates
External Partner Affiliates include industry, government, Indigenous, producer, and community organizations collaborating with NDAC through projects or platforms. They hold no governance authority.

7.6 Working Groups (Time Limited)

Time-limited working groups may be established by the Director to address specific operational tasks, such as:
• Platform onboarding and technical documentation

• Cloud native workflows and computational related activities
• Symposium planning, including the 2026 Centre launch

Working groups disband upon task completion, and hold no governance authority.

7.7 Accountability and Reporting

NDAC follows standard University of Saskatchewan academic reporting and accountability practices:
• The AAC & Working Groups report to the Director, NDAC
• The Director reports to the Dean, College of Agriculture and Bioresources.
• An Annual Report is provided to the Dean, and shared with university governance bodies (e.g., Planning & Priorities Committee) as required.
• As per University Council policies, a comprehensive five-year review is required for renewal of full Centre status.
• The Annual Report will include a brief summary of the advisory and operational meetings held during the year, including the Internal Operations Committee, the Academic Advisory Committee, and the External Advisory Committee.

All Centre activities comply with USask policies relating to:
• Research ethics
• Indigenous data sovereignty
• Data governance, and cybersecurity
• Financial oversight, and auditing
• Capital project management

7.8 Rationale for the Governance Model
This governance model:
• Aligns with University Secretariat guidance regarding committee authority
• Preserves a clear, and unambiguous accountability line to the Dean
• Maintains advisory bodies that are focused and bounded
• Ensures faculty are the academic core of the Centre
• Supports strong partnership management, including with major donors
• Avoids cross-college governance complexity that introduces administrative risk
• Ensures agility in rapidly evolving domains such as AI, Earth observation, and UAV analytics
• Builds on effective provisional phase structures
• Ensures accountability, transparency, and multi-college academic engagement
• Provides additional safeguards through structured consultation, transparent meeting practices, and a defined escalation pathway for significant concerns

8.0 Five Year- Projection of Resources (2026–2031)

8.1 Secured Resources

Nutrien Gift (secured):
NDAC is supported by a $7-million commitment from Nutrien to the University of Saskatchewan over a 10 year period:

- **$1 million** dedicated to the renovation of the NDAC physical space in the Agriculture Building (secured).
- **$3 million over 10 years** (2025-2034) to support the Centre Chair/Director and core operations (secured; annual allocation for NDAC operations is known and stable).
- **$3 million over 8 years** (2027-2034) up to this amount is available as a "future initiatives fund" to support Centre activities, seed initiatives, and program development (secured).

College of Agriculture and Bioresources (secured):

- Financial administration and communications support through the Dean's Office

Jason Reed Fund (secured):

- $100,000 - partial funding used to support Data Manager Position

Graduate and Research Program Support (secured):

- Student funding and training opportunities through the NSERC CREATE Computational Agriculture program

Expected or Anticipated Resources (not yet secured)

- **Matching funds for a future CFI/JELF application** to support mobile soil and landscape analysis equipment.
- **Compute and storage resources through Digital Research Alliance of Canada (DRAC)** (application submitted).
- **Future donor seed funds** to support small-scale research initiatives, internships, and platform adoption.
- **Industry-supported internships**, where applicable, through existing partnerships (e.g., Ceres).

These expected resources are aligned with active applications and partnership discussions already underway.

8.2 Expenditures

Human Resources

Secured, and planned positions include:

- **Director (1.0 FTE):** Supported through Baseline operating funds from the College of Agriculture and Bioresources and a Nutrien gift for the Director/Chair stipend of $12,000/ year (Centre Chair/Director component).
- **Cluster Hire in Sustainable and Digital Agriculture (5.0 FTE**). Supported through Baseline operating funds from the College of Agriculture and Bioresources
- **Data Manager (1.0 FTE):** Supported initially through Nutrien operations funding, and Jason Reed Fund.
- **Data Systems Administrator (1.0 FTE):** Supported via Nutrien operations funds (where relevant).
- **Administrative Support (0.3 FTE):** Supported via Nutrien operations funds (shared arrangement).

These roles are essential to maintaining NDAC's research platforms, onboarding researchers, and supporting data governance and training activities.

Operational Costs

Operational costs over the five-year period are expected to include:

- Seed projects funding
- Maintenance and operation of GAIG compute environments
- UAV fleet maintenance, licensing, insurance, and mission management
- Smart Farm and MORSE related data collection and processing support
- Software licenses for geospatial, HPC, and AI/ML workflows
- Knowledge mobilization, and communications activities
- Event hosting (symposia, workshops, training sessions)
- Travel associated with collaborative research, industry engagement, and international partnerships (FAO, ESA, CSA, etc.)
- Student research internships funded through seed programs

These expenditures reflect a continuation of activities already demonstrated during the Centre's provisional phase.

Capital and Infrastructure Costs

- **NDAC Renovation ($1 million, secured):**
  Renovation of the Agriculture Building collaborative research hub (adjacent to the atrium) is funded through the Nutrien gift.
- **Computing Infrastructure:**
  Cost-shared with USask Advanced Research Computing, supplemented through the active DRAC proposal. No additional speculation is made.
- **UAV Phenotyping Equipment:**
  Ongoing operational costs are associated with existing fleets, and the phenotyping van; these are supported by project funds and Centre operations, and recouped via a fee for service model being developed.

8.3 Five Year Resource Plan (High Level Summary)

Year 1 (2026–27):

- Complete renovation and launch of NDAC hub
- Hire Data Manager and Data Systems Administrator
- Begin full platform onboarding and training programs
- Continue DRAC/CFI/NFRF application cycles

Year 2–3 (2027–29):

- Expansion of GAIG layers and geospatial pipelines
- Increased Smart Farm/Digital Agronomy integration
- Growth in seed grant program and student internships
- Strengthening of industry and government partnerships
- Annual symposium and recurring training events
- User fees implemented for cost recovery and long-term sustainability for research platforms

Year 4–5 (2029–31):

- Consolidation of external funding streams
- Evaluation of platform adoption and user fees
- Strategic planning for renewal and expansion

This staged approach ensures stability while allowing the Centre to scale research activity without financial overreach.

8.4 Sustainability Model

The financial sustainability of NDAC is grounded in:

- **Secured long term- philanthropic support** from Nutrien
- **University supported administrative infrastructure** through AgBio
- **Grant funded research activities** leveraging NDAC's shared platforms
- **Strong industry, and government interest** in geospatial analytics, UAV phenomics, and digital agronomy
- **Seed grant activation** to grow membership, and collaborative proposals

Together, these form a stable foundation through the initial five year period, and beyond.

9. CONSULTATION

Between February 2025 and February 2026, extensive consultations were undertaken to inform the development of the Nutrien Digital Agriculture Centre (NDAC). These discussions ensured that the Centre's mandate, research platforms, governance model, and physical footprint align with USask priorities, community needs, and sector demand.

Internal Academic Consultations

Consultations were held with faculty across AgBio departments (new cluster hires), and with individual faculty from Arts and Science and Engineering. These discussions confirmed strong support for a shared digital agriculture platform model and shaped the development of GAIG, UAV Crop Phenomics, and Smart Farm/Digital Agronomy pipelines. Members of Engineering (Noble), and Computer Science (Stavness) served on the provisional management committee, providing ongoing cross-college guidance.

Indigenous Community Consultations

Engagement with *kihciokāwîmāw -askiy Knowledge Centre* (Candice Pete Cardoso, Melissa Arcand) identified priorities related to access to geospatial mapping, traditional land use and restoration mapping, agricultural land valuation, and support for community land management systems.

Industry and Producer Consultations

Discussions with Nutrien, SaskTel, Farm Credit Canada, Croptimistic, MNP, the Saskatchewan Crop Insurance Corporation, WGRF, SaskWheat and individual producers highlighted the need for robust, scalable digital tools for sustainability analytics, producer-facing decision support, and climate-related modelling.

Government and Public Sector- Consultations

Meetings with the Saskatchewan Ministry of Agriculture, Saskatchewan Crops and Irrigation Branch, the Federal Minister of Artificial Intelligence and Digital Innovation, Government of Canada Senators, the Canadian Space Agency, Innovation Saskatchewan and the AgriARM network focused on data-driven agronomy, irrigation, climate resilience, provincial demonstration capacity, and policy-aligned analytics.

International Engagement

Consultations with the Food and Agriculture Organization (FAO), the European Space Agency (ESA), numerous Research Institutions and Universities in India as well as individuals from international universities established pathways for collaboration related to Earth observation, AI-enabled geospatial analytics, data federation, and student training.

Campus Administrative Consultations

USask Planning and the Project Management Office were consulted throughout the development of the physical centre, enabling progress on the renovation of NDAC's Agriculture Building hub.
The University Secretariat provided guidance on governance and advisory committee structure, and AgBio- Communications and Advancement supported branding and strategic communications.
Several members of the Office of the Vice President of Research were consulted related to Centre planning and research opportunities such as CFI, NFRF, and the Canada First Impact+ Chair program.

Summary

These consultations confirmed strong interest in a coordinated centre for sustainable digital agriculture, validated the Centre's three flagship platforms, informed its commitments to Indigenous partners, shaped training and partnership strategies, and supported the development of a governance, and operational model aligned with university expectations and stakeholder needs.

10. ENDORSMENT

Please find attached a letter of endorsement from Trever Crowe, Acting Dean of Agriculture and Bioresources.

UNIVERSITY OF SASKATCHEWAN
College of Agriculture
and Bioresources
AGBIO.USASK.CA

May 05, 2026

Re: Letter of endorsement – Nutrien Digital Agriculture Centre

Dear Review Committee

Supported by a generous donation from Nutrien, the provisional Nutrien Digital Agriculture Centre (NDAC) was approved in January, 2025. Now, I am excited to endorse this proposal to elevate the NDAC to the status of a full centre. It's important to understand that the generation and use of data in agriculture, food production and environmental stewardship are not new. Researchers in various USask colleges and schools have been doing this for decades, and the availability of quality date to support informed decision making has never been more important. The NDAC is exactly what is needed now to help consolidate efforts and support interdisciplinary collaboration.

Recently, the College of Agriculture and Bioresources recruited five new faculty members with a focus on sustainable and digital agriculture, the digital-ag cluster hire. This cluster of new faculty members joins an interdisciplinary group within the NDAC, currently with scholars from the Colleges of Engineering, Arts and Science and the College of Agriculture and Bioresources (AgBio).

The NDAC is a centerpiece within AgBio's strategic plan. We envision that with the NDAC, AgBio and the University of Saskatchewan will be positioned as a national and global leader in digital agriculture. The NDAC is destined to have an exciting future and will attract a large and diverse group of collaborators from around campus. Researchers involved with the Story Collider, the CFI-funded "disruptive technology facility", for example, with its enhanced capabilities to analyze and present data in visual formats would appear to be a logical partner.

The NDAC will represent a network of scholars, working toward improved sustainability, enhanced production efficiency and food security. We are confident that the Centre will be a hub of innovation, with a strong track record that will attract external funding and research partners from industry and other academic institutions. Digital agriculture is a high priority in the College of Agriculture and Bioresources, and the Nutrien Digital Agriculture Centre is a feature in our overall strategy. Advancing the Centre to full status is the next important step.

I fully support this proposal and look forward to celebrating its future successes. Please don't hesitate to contact me if you have any questions.

Best regards

Trever Crowe

Trever Crowe, PhD, P.Eng., PAg
Acting Dean and Professor

TCG/cdv

Appendix 1.
Annual Report

Nutrien Centre for Sustainable and Digital Agriculture Provisional Centre (NCSDA)

Annual Report —February 2025 – January 2026

Prepared January 2026 by Steve Shirtliffe

Director's Message

2025–26 marked NCSDA's transition from concept to centre. Following Council's approval in February and Nutrien's subsequent funding announcement, the Nutrien Centre for Sustainable and Digital Agriculture was born. This year has been busy and exciting as we began the process of building a centre from the ground up. We formed a strong management committee and began work on developing our vision.

We decided that the best way to bring researchers together is to offer collaborative research platforms which allow for interdisciplinary collaboration across and beyond campus. The first of these shared research platforms was GAIG (Geospatial Agroecosystem Inference Generator) which was developed for a NFRF letter of intent. We brought together a team of USask researchers and developed a strategy to utilize and share AI driven analyses of geospatial data to increase the sustainability of agriculture.

Work was also begun on the future home of NCSDA in the Agriculture Building just off the atrium. With the expert assistance of Planning, Design & Construction we developed a plan for the centre and brought on Stantec to realize our vision for the centre. Construction will take place in 2026 and will result in a showcase space for the collaborative research.

Beyond the research platforms our focus is on engagement and facilitation; we support researchers and training; and cultivate partnerships that turn data into decisions for producers, industry, researchers, and policy makers. The coming year is about execution, operationalizing GAIG, running the 2026 UAV phenotyping campaign, completing construction, submitting our full centre proposal, and opening the centre with a research symposium in the fall of 2026.

Thanks to our members, partners, and the University community for laying these foundations. During the Be What the World Needs campaign finale, I accepted Nutrien's gift and told the audience, "Be prepared for big things." I remain committed to the goal of firmly establishing the University of Saskatchewan as a global leader and the premier institute for sustainable digital agriculture in Canada.

Steve Shirtliffe, Director

Land Acknowledgment

The University of Saskatchewan main campus is situated on Treaty 6 Territory and the Homeland of the Métis. We pay our respects to the First Nations and Métis ancestors of this place and reaffirm our relationship to one another. NCSDA was created at the same time as kihci-okāwīmāw askiy (Great Mother Earth) Knowledge Centre and is committed to working together to further reconciliation.

1) About the Centre

1.1 Mandate and Scope

The College of Agriculture and Bioresources proposed the establishment of the Nutrien Centre for Sustainable and Digital Agriculture (NCSDA) as USask's cross-college hub for sustainable digital agriculture. Provisional status was granted on January 30, 2025; following Nutrien's gift announcement on February 3, 2025, the name changed from the provisional Canadian Sustainable Digital Agriculture Centre (CSDAC) to NCSDA.

1.2 Mission and Vision

Mission. Advance sustainable digital agriculture by developing data-driven research platforms that support interdisciplinary collaboration, student training, and stakeholder engagement to strengthen sustainability across the agricultural value chain.
Vision. Position Saskatchewan as a global leader by enabling collaborative access to shared platforms that empower students, producers, researchers, and partners across public, private, and community sectors.

2) 2025–26 Highlights

• **Nutrien gift announced:** $15M commitment to USask, including $7 million support for establishing and operating NCSDA (includes $1M for renovation; $3M over years 1-10 for chair/director/ops; $3M over years 3-10 Future Fund).
• **Governance established**: Management Committee active; three subcommittees (Renovations; Data & Computation; Digital Display) operating with written mandates.
• **Research platforms prioritized**: GAIG confirmed as first platform; Phenomics (UAV crop phenotyping and animal phenomics concept) advanced as second and Digital Agronomy (Smart farm & Digitized on-farm research).
• **Renovations advanced on dated schedule:** Class D (Oct 28, 2025) → 60% Completion drawings (Jan 24, 2026) → 99% (Feb 17, 2026) working towards a submission to spring meeting (April 21&22) of Board of Governors with a planned opening in October 2026.

• **Research Funding :** NFRFt(New Frontiers in Research Fund Trasnformational) LOI in 2025 (internally ranked strongly, not funded; resubmission planned), CFI/JELF planning (Oct 2026 target), Digital Research Alliance of Canada application coordinated for GAIG compute/data.
• **Partnerships & visibility:** Engagement with FAO (Food and Agriculture Organization), ESA (European Space Agency)/CSA (Canadian Space Agency); SaskTel, kihci-okāwīmāw askiy (Great Mother Earth) Knowledge Centre, FCC (Farm Credit Canada), SCIC (Saskatchewan Crop Insurance Corporation), Nutrien; outreach via Ag in Motion, USask GIS Day, and Edwards BRIDGE panel.
• **Academic programs:** Provided input on the Precision Agriculture Certificate (PAC) offered (third offering; >40 students/year); CREATE (NSERC program) Computational Agriculture second cohort began with 16 students.

3) Governance and Administration

3.1 Management Committee

Provides strategic oversight during the provisional phase (platform priorities, renovations, funding alignment, advisory timing). Members in 2025 meetings include: Steve Shirtliffe (Director/Chair); Flavia Van Cleef; Scott Noble; Ian Stavness; Peter Slade; and Kwabena Nketia. The management committee met monthly during 2025 and formed subcommittees to manage specific tasks. The mandate of the provisional centres management committee is to manage the centre and prepare the full centre proposal to be submitted by the end of 2026.

3.2 Subcommittees

• **Renovations**: Members: Chanel Chizen (Chair), Steve Shirtliffe, Flavia Van Cleef, Daphne Hanneson;
Mandate: Coordination with SCIC, Planning Design and Construction, and Stantec to oversee renovations of NCSDA Collaborative Research Space.

• **Data Infrastructure**: Members: Kwabena Nketia, Peter Slade, Jeremy Kiss, Chantel Chizen, Ali Lotfi, Ian Macphedran, Craig Harkema, John Costa
Mandate: Determine IT requirements, coordinate DRAC proposal, compute/storage planning (GAIG, phenomics).

• **Digital Display**: Members: Steve Shirtliffe (co-chair), Thuan Ha, Kira Glasscock, Ian Stavness (co-chair), Kyle Berezowski, Carl Gutwin, Craig Harkema;
Develop public-facing content/visualization (video displays, touchscreen table).

• **Hiring committee**: Members: Chanel Chizen (Chair), Steve Shirtliffe, Peter Slade;
Developing job descriptions, advertising, interviewing and hiring positions for the centre.

3.3 Advisory Committee

Planned to be formed in early 2026 to inform the full centre proposal and opening symposium; composition to include industry, producers, public sector, and rightsholders.

4) People and Capacity

4.1 Organizational Structure & Staffing (Provisional Phase)

• **Director:** Steve Shirtliffe: appointed Feb 1, 2025 for a five-year renewable term (to Jan 31, 2030); reports to the Dean, College of Agriculture and Bioresources.
• **Management Committee:** Steve Shirtliffe (Chair), Flavia van Cleef, Scott Noble, Ian Stavness, Peter Slade, and Kwabena Nketia.
The committee met monthly in 2025 and is mandated to manage the provisional centre and prepare the full centre proposal.
• **Data Manager**: Designs and runs NCSDA's secure, scalable research computing and data systems, supporting teams with training databases, monitoring, and training. Supported by Jason Reed Fund for 2026. Interviews happening in early February, 2026.
• **Data Systems Administrator**: Designs, deploys, and maintains secure, scalable cloud and data systems that enable advanced digital agriculture and research workflows at the NCSDA. Recruitment beginning in February 2026.
• **Administrative Support:** meetings, documentation, scheduling (0.3 FTE).

Base operations plan = 2.3 FTE (Data Manager; Data Systems Administrator, 0.3 Administrative Assistant)

4.2 Cluster Hires and Faculty Engagement (AgBio)

Agriculture and Bioresources dedicated 5 new faculty positions to digital and sustainable agriculture in a cluster hire that occurred in 2025 with one position for each department.
• **Kwabena Nketia** (Precision Agronomy, Plant Sciences)
• **Chantel Chizen** (Digital Pedology, Soil Science)
• **Yuan Fang** (Food Safety & Microbiology, Food and Bioproduct Sciences)
• **Tia McDonald** (Agricultural Data Analysis, Agricultural and Resource Economics)
• **Allison Ward** (Sustainable Animal Production Systems, Animal and Poultry Science)
Selected existing AgBio faculty collaborators include: Kirstin Bett, Rosalind Bueckert, Curtis Pozniak, Tom Warkentin, Flavia Van Cleef, Angela Bedard-Haughn, Mellisa Arcand, Slade, Patrick Lloyd-Smith, Tristan Skolrud, Nik Tyack

4.3 Cross-College Participation

Members from Arts & Science (Computer Science; Geography & Planning; Biology) and Engineering (Mechanical) are engaged; two seats on the Management Committee are held by Scott Noble (Engineering) and Ian Stavness (Computer Science).

5) Research Platforms

5.1 GAIG — Geospatial Agroecosystem Inference Generator

GAIG is a large-scale, open-source geospatial artificial intelligence (AI) platform to model, value, and improve agroecosystem services across mixed agricultural landscapes at 10-metre, wall-to-wall, near-real-time resolution. It integrates satellite Earth observation (EO), Drone imagery, field data, Indigenous knowledge (aligned to OCAP), and economic modelling. Initial applications include Indigenous-led stewardship, marginal land optimization, grassland grazing strategies, and soil carbon quantification.
Funding & infrastructure: DRAC compute/data; WGRF funding; NFRF resubmission planning.

5.2 Phenomics — UAV Crop Phenotyping

We use drones to collect crop-phenotyping data through a consistent workflow: flying, capturing images, processing them, and generating analytics such as canopy cover, crop uniformity, and vegetative indices. The program includes extensive quality-control procedures, and we are targeting quick turnaround of phenotypic information to plant breeders to inform selections.
We use a fleet of multispectral DJI drones and a dedicated phenotyping van and field crew. This work will involve extensive collaboration with CDC partners

5.3 Digital Agronomy — Field-scale Decision Agronomy

Purpose and scope: The Digital Agronomy platform focuses on on-farm, field-scale decision support by combining producer data, experimental designs, and analytics to optimize agronomic practices under real-world conditions. It complements GAIG (regional analytics) and Phenomics (measurement/traits) by closing the loop at the farm level with adaptive experimentation and recommendations.
MORSE (Modulated On-farm Response Surface Experiments) is a University of Saskatchewan method for running agronomic experiments directly on commercial fields by using farm machinery to apply many input levels in a spatially aware design, enabling estimation of field-scale response surfaces. It integrates precision-controlled equipment, crop imaging, and spatial/statistical analysis to produce evidence-based, on-farm recommendations that address the limits of small-plot or strip trials
Funding & infrastructure: Funded by Saskatchewan Producer Groups.

6) Facilities & Renovations

6.1 Scope & Design Intent

A collaboration hub off the Agriculture Building atrium with video wall, touchscreen table, workstations, and coffee area; designed for ~25 occupants, with lighting/acoustics tuned for openness, and visible public-facing displays to showcase platform outputs.

6.2 Schedule

Coordinated with Lisa Leis (Interior Designer) and Samara Tang, Project Manager, Project Management Office.
Class D (Oct 28, 2025) → Approval to proceed (Nov 4, 2025) → Design Development review (Nov 25, 2025) → Construction Drawings start (Dec 3, 2025) → 60% set (Jan 2, 2026) → 99%/Class B (Feb 17, 2026) → Tender/Construction targeted Summer–Fall 2026.

6.3 Budgets & Envelope Reconciliation

Project total: $1 million.
Indicative construction: $184–250K (excl. media wall/table); furniture: $70–105K.
Reconcile against the $1.0M renovation envelope (A/V, digital displays, IT/network, furniture, professional fees, contingency).

6.4 Concept Drawings

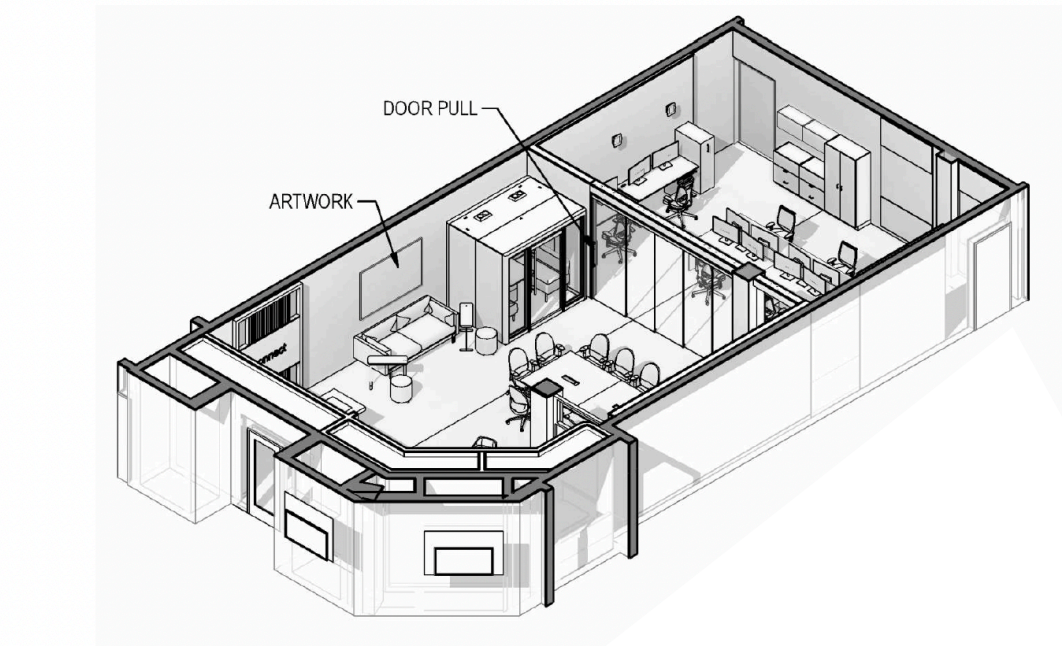


FIGURE 6.1. Concept Plan – Collaboration Hub (Scale: 1:100). Caption: Overall plan showing, collaboration table, workstation bay, coffee area, and sliding glass wall. Source: Stantec; Date: Dec 2025.



FIGURE 6.2. Interior view showing video wall structure, acoustic treatments, retractable glass wall and workstations. Source: Stantec; Date: Dec 2025.



FIGURE 6.3 Interior view showing nutrition area and collaborative spaces. Source: Stantec; Date: Dec 2025.

7) Funding & Finance

Nutrien gift to USask totalling $15M - $7 million to create and fund NCSDA (includes $1M renovation; $3M/10 years for chair/director/ops; $3M/ years 3-10 Future Fund).

Jason Reed Fund ($100K) supports a Data Manager position for 2026.

NFRF-Transformation (New Frontiers in Research Fund): LOI (2025) framed GAIG; not funded but strong internal ranking; planning for next full cycle (anticipated 2027). Top ranked LOI from USask; planned resubmission next funding cycle (possible early 2027)

CFI/JELF (Canada Foundation for Innovation / John R. Evans Leaders Fund): Planning toward Oct 2026 with 40% match; coordinate with OVPR (Office of the Vice-President Research). Planned equipment purchase: MPS (Mobile Proximal Soil Sensing platform).

DRAC (Digital Research Alliance of Canada): Application coordinated for GAIG compute/data. Submitted January 2026.

7.3 Operating Summary (FY 2025–26, provisional)

NCDSA is still without a fund for the centre as the sub-agreements for the centre have not been finalized by the University Relations office. In the meantime, the centre's financial needs are being supported by the college of AgBio. Administrative support for finance for the centre is provided by AgBio (Josh Andal)

For 2025 there were very few expenses as the centre is mostly in the planning stages and no positions had been hired. The provisional annual budget for 2026 is as follows (to be finalized with AgBio):

- **Administrative Support (0.3 FTE):** Angelica Dick $25,830 position is shared with the Department of Plant Sciences.
- **Data Manager:** $118,000/ year ($100,000 from Jason Reed fund will support for 2026). Expenses for 2027 and on.
- **Technical Data Manager:** $98,400. Expenses for 2026 and on.
- **Director & Chair stipend**: $12,000 — $6000 for 2025.
- Subtotal (Planned): $259,230; Annual Budget: $380,000

8) Partnerships & External Engagement

• **Nutrien**: Meetings with Sally Fils (Sustainability Programs) and Rene Glushyk (Community Relations/USask relationship) on carbon, water, and ESG-aligned GAIG applications; branding/style-guide coordination in progress. Planning collaborative outreach event for July 2026.
• **kihci-okāwīmāw askiy (Great Mother Earth) Knowledge Centre**: Meeting with Candice Pete-Cardoso and Melissa Arcand discussing interest in land- based/geospatial mapping, stronger data access and a seminar.
• **Saskatchewan Crop Insurance Corporation (SCIC):** Meeting with President Jeff Morrow; scope for data sharing and producer-privacy; NCSDA to provide data-use outline suitable for SCIC Board.
• **SK Ministry of Agriculture:** Presented to agronomy and irrigation staff. Discussed potential collaborations with Sask Irrigation.
• **AgriARM**: Centre vision and platform goals presented; provincial collaboration opportunities discussed. [FLAG: follow-ups].
• **European Space Agency (ESA)** Meetings at ESA-ESRIN (Frascati) with Zoltan Szantoi and Andrian Kreiner on FutureEO/InCubed research tenders, internships, and alignment with GAIG; CSA investment context. Director will visit ESRIN in May.
• **Food and Agriculture Organization (FAO):** Rome meetings including Director -General Qu Dongyu; innovation/data federation (e.g., WaPOR evapotranspiration) discussed for GAIG integration; World Food Forum participation.
• **SaskTel**: Multiple meetings (Fall 2025) exploring role as data conduit for NCSDA platforms; connectivity-enabled workflows for phenotyping and GAIG deployment.
• **Farm Credit Canada (FCC):** Discussion with Avi Kay (Assistant VP Finance) on sustainability analytics and producer tools/ESG reporting and potential collaboration pathways (PrairiesCan, federal innovation).
• **Sask Polytech DICE (Digital Integration Centre of Excellence)**: Met with Terry Peckham, to to explore collaboration on bare-earth satellite maps and Ground Truth Ag protein-quality data.
• **Innovation Saskatchewan:** Briefings on innovation funding and pilot project opportunities linked to GAIG and Digital Agronomy.
• **PrairiesCan:** Exploration of innovation/commercialization funding and pilot opportunities; alignment with provincial priorities. Initial contacts have been made with further exploration of collaborative opportunities to be explored in 2026.
• **IICA (Inter-American Institute for Cooperation on Agriculture)**: Participation at Olds College events enabling hemispheric dialogue on digital agriculture; potential collaboration avenues identified.
• **TriMex / Ceres**: Positive responses to GAIG; field pilot interest; guidance on next steps requested. Ceres is collaborating with the Centre by hosting a PhD student for a research internship.

9) Teaching, Training & Outreach

NCSDA provides academic input but does not administer academic programs.

Precision Agriculture Certificate (PAC): Administered by AgBio. Third offering; >40 students/year; one new class added.

NSERC CREATE – Administered by Arts and Science. Computational Agriculture: Second cohort launched.

Communications: Temporary website live; centre video in production by USask Media Services ; public-facing displays under the Digital Display Subcommittee; branding/style guide in progress with Nutrien and AgBio communications.

Outreach: The director described NCDSA and presented results from its research platforms at the following events:

- **Farming Smarter Conference & Trade Show (Lethbridge)** — **2025-02-13**: *Remote Sensing for Crop Agronomy – More Than Pretty Pictures.*
- **Ministry of Agriculture Agronomy and Irrigation Annual Meeting (Regina)** — **2025-03-12**: *Remote Sensing for Crop Agronomy – More Than Pretty Pictures.*
- **CSHS & CSA Joint Conference (UBC Okanagan, Kelowna)** — **2025-06-24**: *Keynote/Plenary* (title not posted on program).
- **Discover Ag Webinar (Virtual)** — **2025-09-16, 10:30 AM**: *Farming from Above: The Future of Agriculture with Satellites and Drones*.
- **Edwards School BRIDGE Panel (Saskatoon)** — **2025-10-29**: Panel on positioning in the ag-tech ecosystem
- **USask GIS Day (Saskatoon)** — **2025-11**: Centre presentation showcased at event.
- **Saskatchewan Crops Forum (Saskatoon)** — **2026-01-13**: *Harvesting Data: How can producers benefit from big data and AI?* (with Jessica Agnew).
- **Agronomy Update 2026 (Virtual, Alberta)** — **2026-01-13**: *How to use the information collected on-farm to improve production, agronomics and economics.*

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10) Risks & Mitigations (In-Year)

• ***Renovation schedule & budget adherence***
Mitigation: maintain milestone cadence; communications with project manager; pre-stage procurement.
• ***Compute/data capacity vs. demand***
Mitigation: hire Data Manager + Concierge; DRAC capacity; onboarding templates; OCAP/FAIR workflows.
• ***Advisory group timing & scope***
Mitigation: smaller multisector group in early 2026; align governance with Secretariat guidance.
• ***Branding/comms dependencies***
Mitigation: develop communications plan; phase website/assets; coordinate with Nutrien/AgBio communications; track analytics; determine if USask resources exist for additional communications support.

11) Looking Ahead (2026–27 Priorities)

• Submit full centre application in April 2026
• Establish advisory committee by May 2026
• Hire Data Manager and Data Systems Manager
• Complete Class B → tender → construction (Summer–Fall 2026)
• Complete renovations on time and on schedule – assistance Project Manager
• Organize Symposium to coincide with physical opening of the centre
• Operationalize data movement to DRAC infrastructure
• Advance CFI/JELF (Oct 2026) and NFRF (next full window) strategies; track DRAC outcomes.
• Continue to meet with Stakeholders
• GAIG prototype begins operation
• UAV Crop phenotyping continues
• Plan for Smart Farm transition at Herman Austenson Research Farm

12) Compliance with PPC Provisional Approval Requirements

As per University Council Centres Policy item 4.3, a progress report must be submitted in January 2026.

The Planning & Priorities Committee (PPC) requested the following items be addressed:

• ***Consultation with participating Colleges on expectations for members sitting as part of the centre***

Status: Acting Dean, Trever Crowe, has communicated with representatives of the Collage of Arts and Science as well as the College of Engineering. Mike Bradley, Dean of Engineering has shared his support but we have received any communication from the Dean of Arts and Science.

• ***Clarify whether the Digital Integration Centre of Excellence (DICE) at Saskatchewan Polytechnic is a collaborator or competitor***

Status: The Director has met with Terry Peckham the director of DICE to discuss the research mandate of both centres. DICE is mostly involved in the mining and defence sectors of the economy. We discussed possible collaborations in the areas of bare earth satellite maps which could be used both in soil science and mineral exploration as well as utilizing protein grain quality data from the startup Ground Turth Ag.

• ***Address whether any relationships have been explored with TELUS Agriculture*** — **Status:** The director is scheduled to meet John Jansen, VP TELUS Agriculture in late January 2026 to discuss collaborations using GAIG and the Telus Digital agronomy systems.

• ***Full approval for the centre must be obtained by January 2027***

Status: Preparation of the full centre proposal is underway. Parts 1 & 2 will be reviewed by the management committee in the January meeting with the remaining sections being reviewed in February and March for a planned submission full centre application by April 2026.

Appendices

Appendix A — Acronyms

A/V — Audio/Visual
AI — Artificial Intelligence
CFI — Canada Foundation for Innovation
CREATE — Collaborative Research and Training Experience (NSERC)
CSA — Canadian Space Agency
DICE — Digital Integration Centre of Excellence (Saskatchewan Polytechnic)
DRAC — Digital Research Alliance of Canada
EO — Earth Observation
EOI — Expression of Interest
ESA — European Space Agency
FAIR — Findable, Accessible, Interoperable, Reusable
GAIG — Geospatial Agroecosystem Inference Generator
IICA — Inter-American Institute for Cooperation on Agriculture
JELF — John R. Evans Leaders Fund
LOI — Letter of Intent
MORSE — Modulated On-farm Response Surface Experiments
MOU — Memorandum of Understanding
NCSDA — Nutrien Centre for Sustainable and Digital Agriculture
NDA — Non-Disclosure Agreement
NFRF — New Frontiers in Research Fund
OCAP — Ownership, Control, Access, and Possession
OVPR — Office of the Vice-President Research
PAC — Precision Agriculture Certificate
SCIC — Saskatchewan Crop Insurance Corporation
UAV — Unmanned Aerial Vehicle