BE WHAT THE WORLD NEEDS



OFFICE OF THE VICE-PRESIDENT RESEARCH

2022-2023 ANNUAL REPORT

LAND ACKNOWLEDGEMENT

The University of Saskatchewan is on Treaty 6 Territory and the Homeland of the Métis. We pay our respect to the First Nations and Métis ancestors of this place and reaffirm our relationship with one another.



"What does the Fox say?" by Dr. Kayla Buhler (PhD)

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VICE-PRESIDENT'S ADDRESS

Creativity, respect, integrity, results, and excellence are the five pillars of the Office of the Vice President Research (OVPR). With every grant we submit, program we build, and story we write, these pillars guide our important work. More than ever, I am excited for the future of research, scholarly and artistic work (RSAW) at the University of Saskatchewan as we build on the momentum we've created this year, using these five pillars as the centre of our processes and execution.

As I step into my third year as vice-president research at the University of Saskatchewan, I am overcome with a sense of gratitude for the continued support I've received in my time here. I continue to feel a great sense of responsibility, privilege, and honor to serve one of Canada's top research-intensive medical-doctoral universities. I am able to contribute, listen and grow every day with members from this extraordinary institution. This sense of pride and responsibility guides me and my team in the research office.

In 2022/23 , we embarked on an ambitious task to collaboratively build our research intensity and further increase USask's RSAW efforts to align us as one of the top research-intensive programs in Canada's U15 institutions. Over the past year we have made progress toward this ambitious goal. It's USask's accelerated research intensity that distinguishes us, elevates us, increases enrolment and drives our reputation locally, nationally and internationally.

Our research productivity, funding and impact has never been greater, while our influence at national and global tables has never been greater. USask's President, Peter Stoicheff, chairs the governing body of the U15 Group of Canadian Research Universities - an association of fifteen leading research universities across Canada. I am thankful for the continued leadership, support and guidance the OVPR receives from USask's president's office.

USask's growing accomplishments are being noticed and reflected in our ranking efforts. We are now recognized for our outstanding research achievements in many of the top world rankings. This includes placing 58 out of 1406 universities in the Impact Rankings from the Times Higher Education. For the first time, USask received a ranking in three categories in the QS world subject rankings. Also, USask achieved its highest-ever placement in the Research Infosource rankings—tenth among

the 50 universities ranked—a jump of two spots from 2021.

None of our RSAW aspirations would be possible without the efforts of many minds working together. We have embarked on a relentless pursuit of collaboration with senior leadership across USask, including our vice presidents, deans, associate deans of research, and centre directors. We will continue to build these important relationships that advance RSAW throughout the campus community.

Particularly of note in our mindful pursuit of advancing RSAW is how we best use our resources. I'm pleased with the relationships we've built and the strides we've made with USask's budget committee. Our joint commitment to building this great university has ensured that essential projects are accurately funded before implementation.

In April, we launched our "Be What the World Needs" campaign, an ambitious goal, but one that I am confident we are well on our way towards accomplishing. The OVPR plays a crucial role in responding to this call. We offer programs, services and supports that help USask researchers, scholars and artists reach their potential and maximize their talents.

At USask, we are moving the needle in the important mission to positively change our research narrative. This influence extends beyond our provincial boarders, as our work is being regarded and celebrated nationally and internationally. This past year, I was honoured to be a special advisor to the Report of the Advisory Panel on the Federal Research Support System – the report amplifies the importance of supporting research and innovation across Canada. In it, we emphasis that RSAW can maintain, change and improve every aspect of our lives.

Although it is tempting to revel in these successes, it is important to reflect upon where we are going, what we can do better, and how and from where we can seek guidance. As we continue to build and invest in our strategy and in our research community, I strongly believe that we have the right people in place to advance our research, scholarly and artistic work at this university.

I invite you to dive into this report to get a fulsome overview of our successes, and also learn a little more about where we plan to go next.

I am pleased to present this annual report from the Office of the Vice-President.

Baljit Singh
Vice-President Research
University of Saskatchewan



Office of the Vice-President Research

The Office of the Vice-President, Research provides key services and supports to researchers and links USask research to communities across the globe. Collectively these units support local, national and international partnership development, grant and contract submissions and management, knowledge mobilization including intellectual property development, and highlight the university's potential and the achievements of our research community.

International Office:

IO supports the USask community to engage in international research by identifying funding opportunities, and bringing teams and global partners together to work on international projects. The IO supports and coordinates international initiatives highlighted in the university's International Blueprint for Action 2025 – A vision for a globally significant university.

"Developing Drama," by Prof. Carla Orosz in drama, College of Arts and Science.

Innovation Mobilization and Partnerships:

IMP builds strong ecosystem and research partnerships to mobilize USask innovations with the goal of creating external value for society, the economy, and the environment. IMP teams conduct technology transfer, research contracting, intellectual property management, venture creation, and innovation ecosystem engagement activities. IMP is the organizational home of Opus, USask's pre-accelerator program for founders with research-backed innovations with which they want to build new companies.

Research Acceleration and Strategic Initiatives:

RASI supports the university research community in the incubation and development of research grants, infrastructure projects and initiatives. The office provides researchers and the university with services and programs that afford a competitive edge when applying for external research funding, to ensure alignment with granting agency requirements, and to support good management of external funding. RASI supports the development of a robust research culture through the Undergraduate Research Initiative, implementing programs and services to provide meaningful research, scholarly or artistic experiences to undergraduate students at the University of Saskatchewan.

Research Profile and Impact:

RPI tells the university's research story to the world – through strategic communications in print, video, web, social media, advertisements, speeches, presentations, opinion editorials, and events. RPI plays a critical role in building USask's reputation as a U15 institution, which in turn helps bolster our placement in university rankings and attract top talent, public and private investment, as well as support from alumni and partners. As the university's liaison with federal and provincial granting agencies, RPI ensures compliance with communication requirements and leads high-profile events to showcase our research funding successes. In 2022-23, RPI continued to offer a full range of research communications supports, including the highly-subscribed Discovery Digest, press releases, videos, social media, speaking notes, opinion editorials, and other print media.

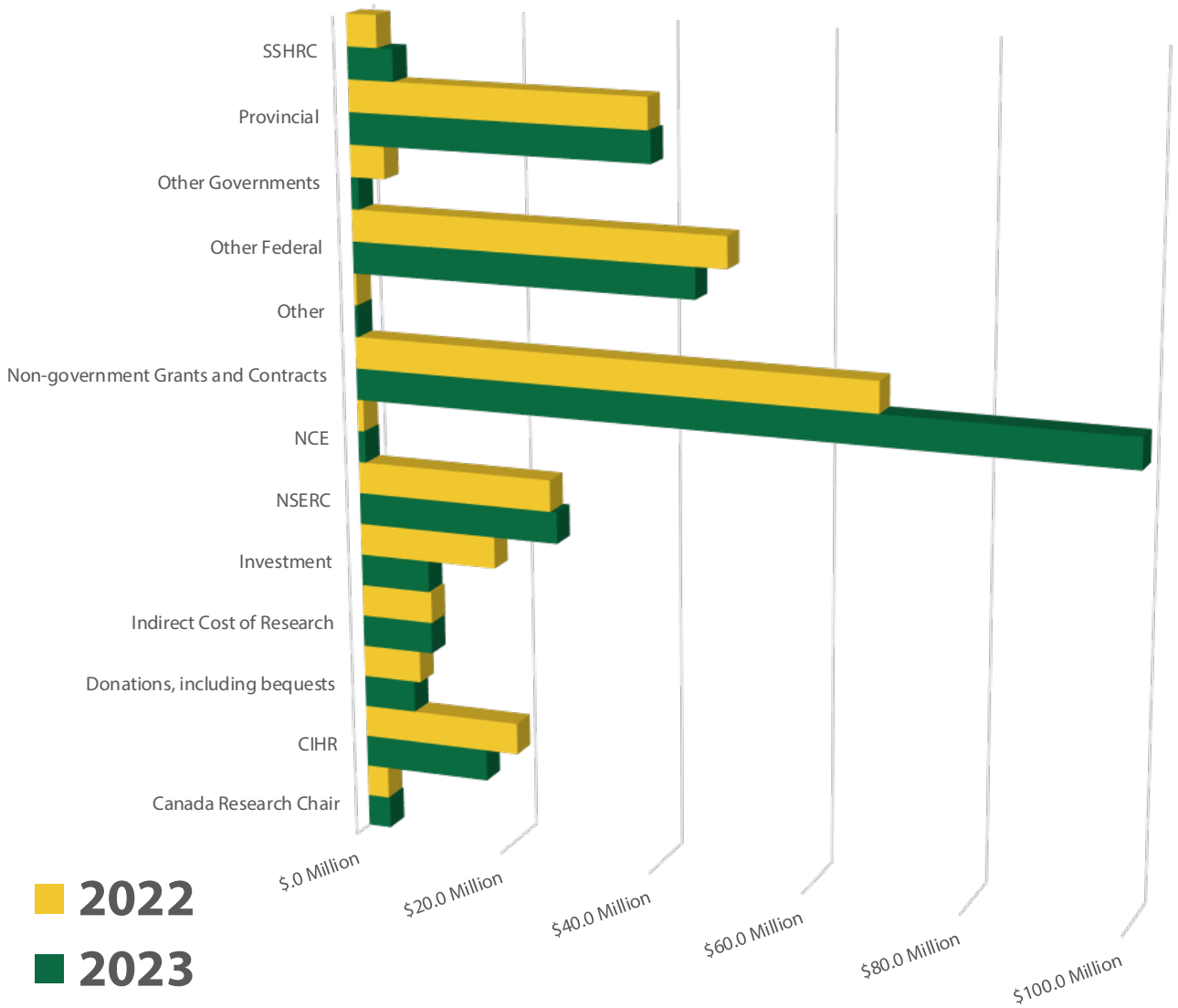
RESEARCH FUNDING

From April 1, 2022 – March 31, 2023 (Reporting Year 2023), collectively the OVPR supported researchers in securing:

Research Revenue

***Definition**: the amount of research funding as it is received by the university each year.*

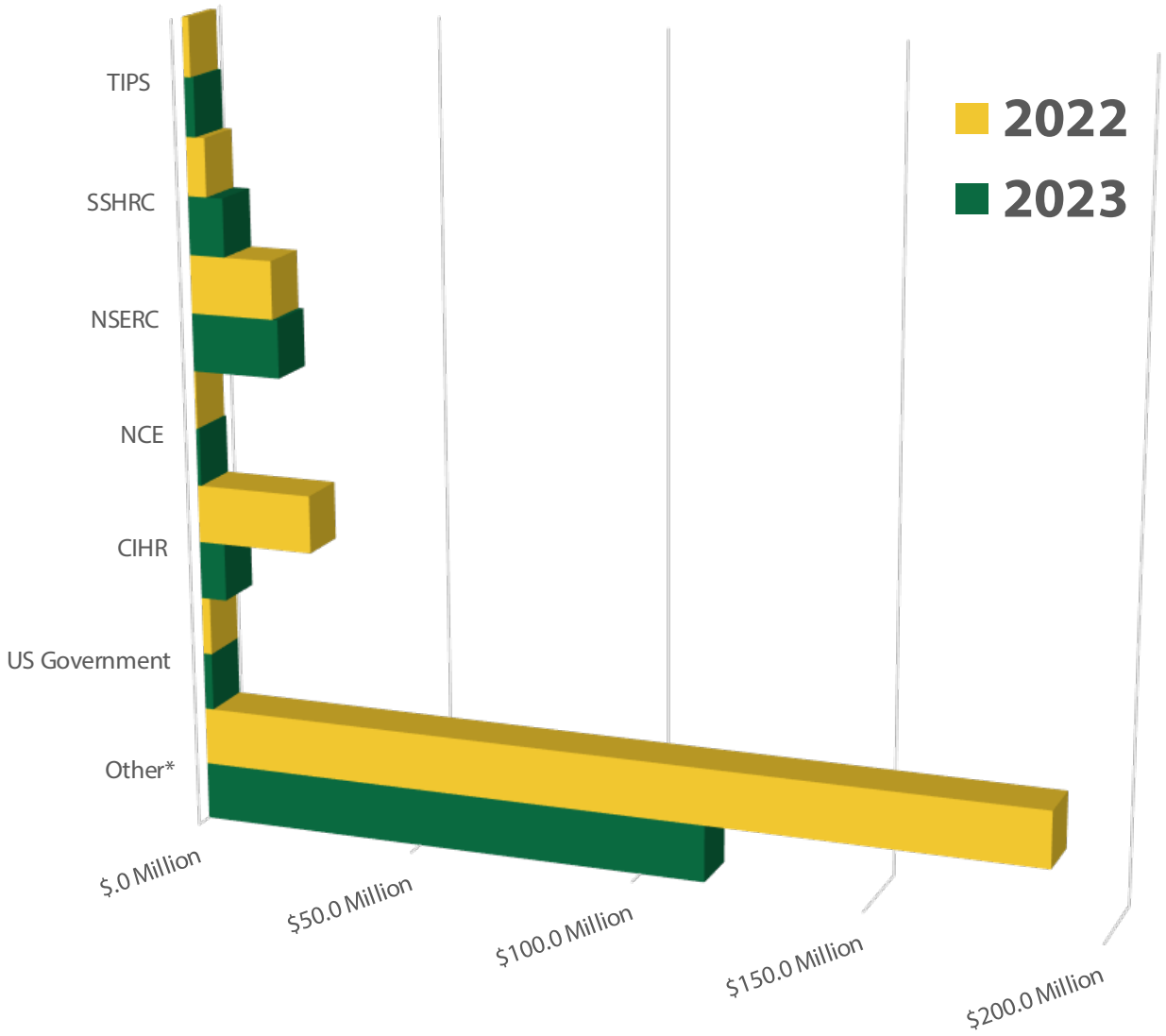
$264 M in research revenue, an increase of $14 M over the previous year.



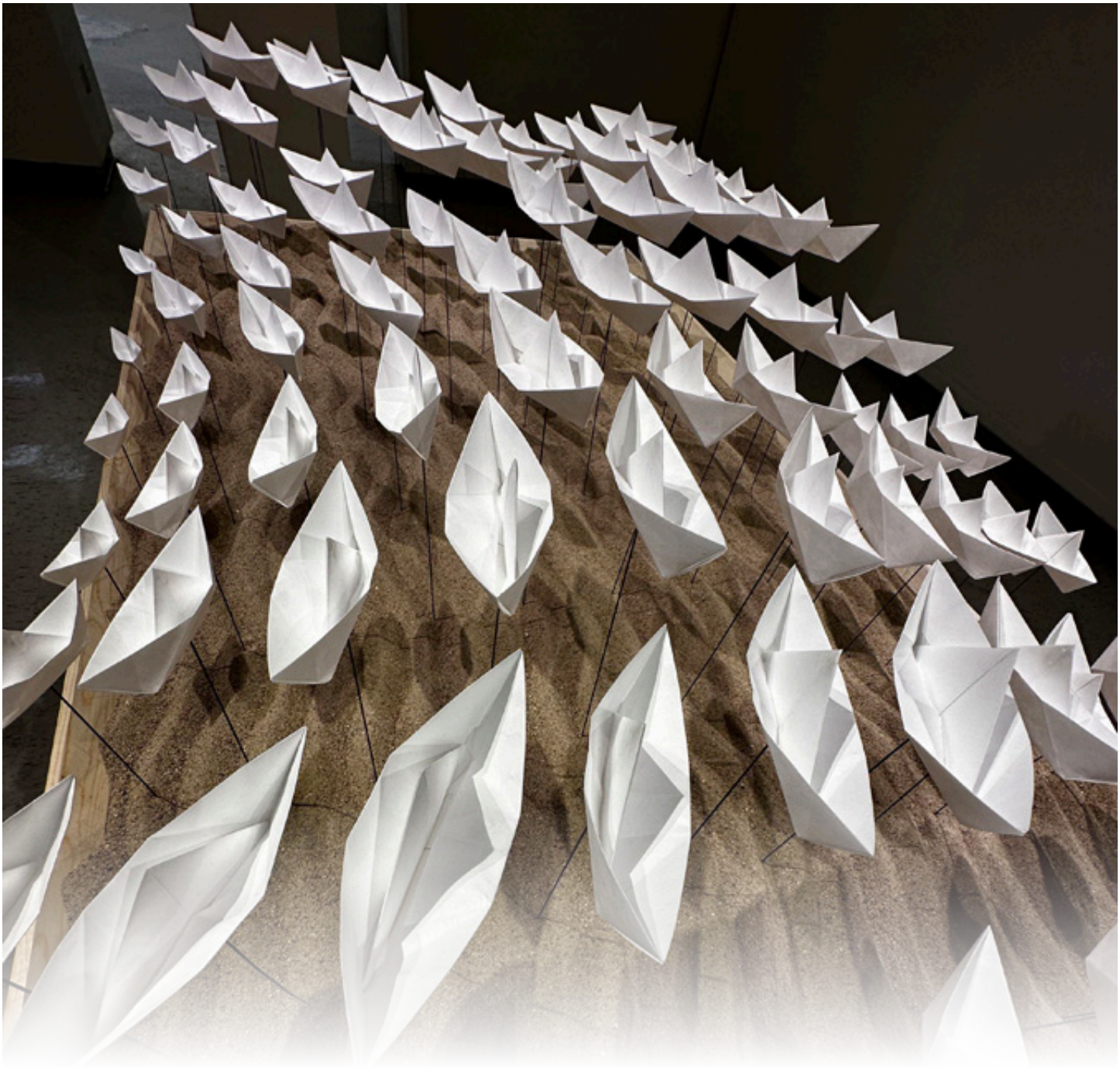
Awarded Research Funding

***Definition**: the total awarded budget for research projects with an acceptance date in the time period listed.*

$152 M in awarded research funding, a decrease of $88 M over the previous year.



Other* *includes non-Tri-Agency federal grant and contract funding, provincial research funding, and all other grant and contract funding.*



"Chorus," by Master of Fine Arts student Demilade Otayemi.

Key grant successes in the last year include:

A) Large-scale Research Training Grants

RASI supported three successful, large-scale training grants, including USask's first ever SSHRC Partnership Training Grant.

NSERC CREATE Dr. Wenjun (Chris) Zhang, UnLIMITED: Uniting for Leading Indigenous and non-Indigenous Medical Instrumentation, Technology, Entrepreneurship, and Design, $1.65 M in funding. The UnLIMITED training program will be the first in Canada to incorporate both engineering and Indigenous perspectives while training graduate students in medical device design and innovation.

NSERC CREATE Dr. Jay Famiglietti, Food-Water Nexus Education and Training (FWNET), $1.65 M in funding. The program will provide interdisciplinary training in hydrology, agriculture, technology, innovation, and policy to reduce global inequities in food security.

SSHRC Partnership Training Grant Dr. Maureen Reed, TRANSdisciplinary Education Collaboration for Transformations in Sustainability (TRANSECTS), $2.5 M in funding. International Office provided $50 K to support this proposal from the Global Ambassador Fund and International GCSF. TRANSECTS brings together teams from academia, Indigenous and rural communities, governments, international networks, private and civil society from Canada, Germany, and South Africa to tackle issues related to climate change, biodiversity loss, poverty, and water security.

B) Canada Foundation for Innovation Major Science Initiative Success

Four successful CFI MSI proposals were awarded, resulting in $170M in funding. USask received 27 per cent of national funding from CFI for this program to ensure that the university's three existing national research facilities (CLS, VIDO-InterVac, SuperDARN) have the support needed to operate and stay on the leading edge of research, while adding a fourth national research facility – the Global Water Futures Observatories (GWFO). GWFO is one of only six new research centres from across Canada to receive MSI funding.

C) Canada Research Chairs

In 2022-23, ten Canada Research Chair (CRC) searches were underway and three CRC nominations were submitted, including one successful CRC awarded (results pending for the additional two submissions), and three CRCs officially announced.

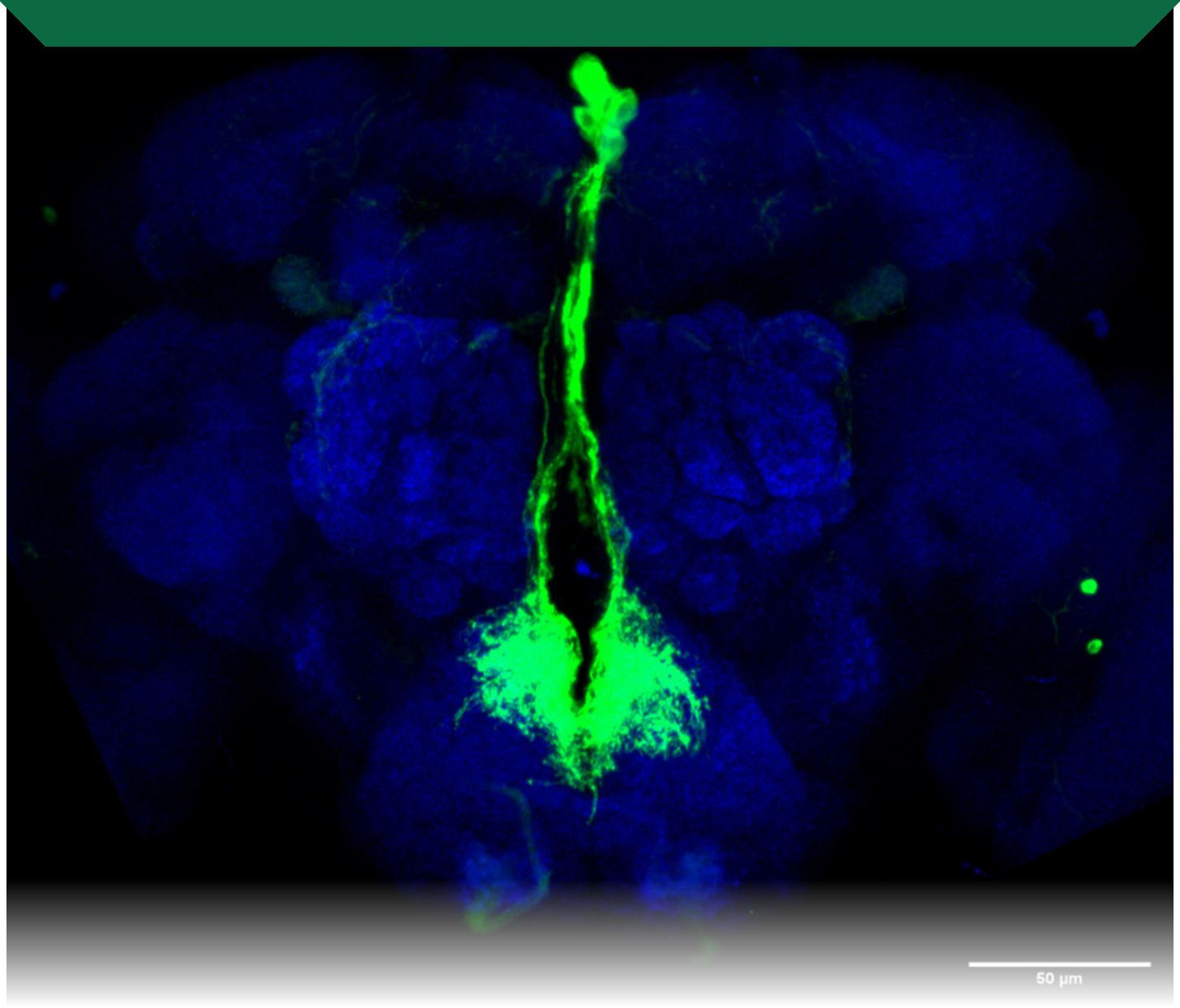
The impressive CRCs announced this year focus on unique research that involves exploring the importance of Indigenous partnerships, culture, and decolonization. They include:

- Dr. Robert (Bobby) Henry (PhD), an assistant professor in Indigenous Studies at College of Arts and Science, and the executive director of the Saskatchewan Network Environments of Indigenous Health Research (SK-NEIHR), improves public understanding of street gangs and lifestyles through community-engaged research, and informs policies that can reduce the "hyper-incarceration" of Indigenous persons.
- Dr. Kristina Bidwell (PhD), a professor at the College of Arts and Science, investigates how stories—both written and oral—create meaning and influence actions within intercultural collaborations and conflicts.
- Dr. Lori Bradford (PhD), an assistant professor from the Ron and Jane Graham School of Professional Development in the College of Engineering, and the School of Environment and Sustainability, leads the creation of new knowledge to support both individual practices and a shift in engineering culture.



Left to right, VP Research Baljit Singh presents pins and certificates to newly-named CRCs Bobby Henry, Kristina Bidwell, and Lori Bradford.

INTELLECTUAL PROPERTY MANAGEMENT



IMP supported commercialization of research innovations:

- Received 20 invention disclosures from eight colleges/schools.
- Filed 15 patents, contributing to a total of 184 patent families currently active.
- Secured 15 license agreements, which are now part of 86 active licenses under management.

"Hunger Games: May the Neurons be Ever in Your 'Flavour,'" by Narsimha Pujari, veterinary biomedical sciences doctoral student

INTERNATIONAL PARTNERSHIPS



The International Office actively supports faculty in developing international connections.

Academic and Research Partnerships

- The International Office houses over 300 international agreements with 225 entities in over 60 countries (including one with the Government of Saskatchewan on International Education). In 2022/23, 24 new and 36 renewed agreements were signed.
- Eight of the 24 new agreements signed were with institutions in Bangladesh, Germany and India. These three countries are home to world-renowned historic institutions, modern innovative research facilities and have pioneering and progressive specialist research centres. By investing in strategic alliances with Bangladesh, India and Germany, USask can open its windows to the world.

The 2023 Images of Research–a mosaic of all 143 submissions.

Delegation Support and Government Engagement

- The International Office supported 35 inbound and 20 outbound delegations from 25 countries. Fifty briefing notes on countries, regions, specific institutions, or research areas were provided to USask Senior Leaders and/or government in 2022/2023.
- To extend our global impact on International Education, the International Office has participated in more than 100 meetings with provincial, federal, or international government representatives.

RESEARCH INITIATIVES



Internationalizing the USask experience:

The International Office hosted events at all accessibility levels to ensure an internationalization experience for all.

- "Country Conversations: Experience the World from Your Campus Community" with the Science and Higher Education Attachée of France. This led to USask becoming a member of the France Canada Research Fund (FCRF).
- A reception event for the managing directors of the Global Offices of the Saskatchewan Ministry of Trade and Export Development was hosted in partnership with USask Government Relations and Saskatchewan Polytechnic. This event highlighted USask as a research and innovation driver in Saskatchewan.

"Managing River Monsters in the Amazon Jungle," by Alex Pelletier, toxicology doctoral student.

- A Heads of Mission Reception was held to welcome 30 country ambassadors, high commissioners and senior diplomatic officials hosted in Canada in partnership with the Saskatchewan Ministry of Trade and Export Development and USask Government Relations.
- Organised a Prairies Regional Conference on "Engaging India – Engaging Canada: Interdisciplinary Perspectives" in partnership with the Shastri Indo-Canadian Institute which welcomed over 100 people from seven different prairie post-secondary institutions including 50 participants from India. The sessions were on topics related to Agriculture, Food Security, Social and Cultural Dimensions of One Health, Energy, Environment, and Indigenous Perspectives and Skill Development.
- Hosted a two-day Gender Equality Workshop with leading Canadian expert Karen Craggs-Milne focused on a "Feminist Lens in Development" in partnership with the Saskatchewan Council for International Cooperation. Approximately 20 USask faculty, staff, students, and colleagues from Saskatchewan Polytechnic attended.
- Organized a USask-Germany round table with over 50 USask faculty to understand opportunities in international research between German institutions and USask.

Undergraduate Research Initiative

To create the next generation of researchers, the Undergraduate Research Initiative (UGR) provides research and discovery experiences to undergraduate students through a four-part strategy – course-based experiences, assistantships, knowledge transfer or dissemination activities, and research skill development. Highlights for 2022-23, include:

- 408 students registered in SURE: Student Undergraduate Research Experience, a co-curricular program that supports student skill development.
- 1900 students completed a course-based First Year Research Experience (FYRE).
- USask spearheaded the FutureNow initiative, which coordinated 32 students from USask, URegina, SaskPolytech and FNUniv to go to the provincial legislature to present their research projects.
- USask students were awarded 66 NSERC Undergraduate Student Research Awards (NSERC – USRA), including 4 Indigenous NSERC USRAs, 1 SSHRC USRA, and 1 CIHR USRA.

TedX:

In January, RPI hosted a one-day TEDx event – a series of short, focused talks, demonstrations, and performances on a wide range of subjects – to showcase the amazing research, scholarly and artistic works (RSAW) of our USask community.

The theme was "Be What the World Needs," in alignment with the university's mission and brand platform. Nine researchers, faculty and staff members were prepared to present engaging and motivating talks over the course of an afternoon in-person training session and over 100 students and faculty participated in the event. After the event, each speaker's talk was edited into a single-watch video and shared broadly on all USask social media channels. Feedback has been so positive that plans for a 2023/24 TedX event are currently underway.

Storytelling:

RPI continues to use its successful toolkit to tell USask's research story. This includes our Images of Research event, Discovery Digest e-newsletter, social media channels, our Young Innovators series, and much more.

In 2022-23 RPI accomplished the following:

- Created more than 10 media pitches
- Prepared 123 press releases (either solely by the unit or by working with college and centre communicators.)
- Had 140 images submitted into our Images of Research event, the highest to date.
- Grew USask Research's LinkedIn profile from 462 to 1,369 organically (no budget expenditure)
- Built USask Research's twitter page with positive results and following
- Maintained our large following of Discovery Digest readers – 54.1 per cent average open rate.
- Had 24 Young Innovator stories written and sent to the Saskatoon Star Phoenix.

Signature Areas of Research Renewal:

Signature Areas are areas of research and scholarship, enabled by our research capacity, investments, history and sense of place, that help to position USask as a leading university in

Canada and the world.

In 2022, a campus-wide review and renewal of our signature areas of research was completed. Led by the VPR and the Provost, the review ensures that USask continues to focus on distinctive areas of research and scholarship and identify new possibilities for collaboration.

Three new Signature Areas were identified:



Communities and Sustainability (Dr. Lori Bradford (PhD), Dr. Vicki Squires (PhD), and Dr. Dionne Pohler (PhD))



Health and Wellness (Dr. John Gordon (PhD) and Dr. Jennifer Lang (PhD))



Quantum Innovation (Dr. Steven Rayan (PhD))

The areas of Water Security and Energy and Mineral Resources were also revised and refocused.

Building on the success of the six Signature Areas first identified in 2011 - Agriculture, Energy and Mineral Resources, Indigenous Peoples, Synchrotron Sciences, One Health, and Water Security – the new Signature Areas will provide focus and energy for new areas of research and scholarship that will continue to build the reputation and impact of USask.

HORIZONS PROJECTS



The Government of Saskatchewan's $31 million investment, called the Horizon's Fund, provided USask with an opportunity to improve its financial sustainability, strengthen its contributions to the province and accelerate the university's recovery from the global pandemic. Of the twenty-six Strategic Priority Initiatives supported by the Horizons Fund, the Office of the Vice-President Research spearheaded five projects to improve internal processes, support and promote research and innovation, and build the USask research enterprise.

Opus

During the past year IMP launched Opus, a pre-accelerator program for USask founders with research-based innovations they wish to use as the basis for a startup venture. Opus is designed to provide participants with foundational knowledge and one-on-one coaching to build business acumen, as well as personal connections to mentors, experts, industry, funders, and business service providers.

"Cautiously Curious Caribou," by Cody Malone, veterinary microbiology doctoral student.

In June 2022 the Opus pilot program kicked off with 16 aspiring founders who received more than 30 hours of formal programming and the services of the IMP team to help them build intellectual property and go-to-market strategies. The participants were matched up with support from 32 entrepreneurial thinking mentors and business coaches over the eight-month pilot. Technologies spanned biotech, artificial intelligence, drug therapies, and novel research tools. Select members of the pilot cohort will continue in a second year of programming in 2023, along with 20 new participants, who will all have access to the infrastructure and workspace provided in the new research/tech hub called Collider, located in Innovation Place.

Living Skies Post-Doctoral Program

Postdoctoral Fellows (PDF) are the engines of thriving research programs. The numbers of PDFs are often correlated with the quality and quantity of research productivity, which directly influence a university's impact, reputation, and rankings. Increasing the number of USask PDFs is essential to growing the research enterprise at USask, improving our national and international rankings, and strengthening our ability to administer competitive research programs, secure federal research funds, and recruit early career researchers.

In 2022-2023, the OVPR launched the Living Skies Post-Doctoral Program pilot to create a new kind of PDF recruitment on campus. The goals of the pilot are to:

- Increase the number of post-doctoral fellows recruited to USask.
- Focus on interdisciplinary PDF teams working on projects, and
- Provide a different kind of mentorship experience for each LS PDF (and community or external partners) by pairing each PDF in the cohort with at least one primary faculty mentor, and one external mentor from a private or public sector partner.

Utilizing $2 million provided by the Horizons grant, and an additional $400,000 in program support provided by VIDO, two calls for applications were issued (May 2022, Nov 2022) with 29 PDFs being approved. Recruitment of these positions is underway.

Addressing the Human Ethics Resourcing Bottleneck

Delays in ethics approvals have been an ongoing challenge for USask researchers. Many research projects, especially in-person research with human subjects, were put on hold due to the COVID-19 pandemic. When restrictions were lifted, researchers were eager to resume their research and the research ethics office was inundated with applications. While the initial surge of applications resulted from pent-up demand, research ethics applications will continue to

increase as a reflection of the growing research enterprise at USask.

To address long wait times for application approvals:

- Dr. Kurtis Swekla, DVM, was appointed University Veterinarian and Director of Animal Care. Dr. Swekla is leading a process to make unit budgeting and processing sustainable over the long term.
- Dr. Gordon McKay was appointed Interim Director of Human Ethics for one year to lead the Behavioural and Biomedical Ethics teams, and to develop a long-term sustainability plan for the ethics office.
- Vacancies were filled and three additional term positions were hired, increasing the team to seven staff, to address backlogs and improve ethics review processes.

To date, the team has worked with the Research Ethics Boards to reduce the time from application to response to approximately one month, allowing researchers to get on with their research.

Research Grant Management

Research Grant Management is a pilot program seeking to address the long-recognized gap in post-award support for research and scholarship in the social sciences, humanities and fine arts. Informed through consultation with staff and faculty, and supported by two Research Specialists (Post-Award) who were hired in Fall 2022, this holistic program complements and augments existing services and supports, making it easier for faculty to manage their research, scholarly and artistic works and projects.

With an initial focus on the College of Arts and Science, this program will inform a new model for managing grants that results in greater faculty satisfaction, time saved on administrative tasks for both faculty and staff, and enables increased engagement and participation in research, scholarly and artistic works. Research Specialists (Post-Award) have met with 98 per cent of faculty who hold research grants in the Arts and Science cohort, have helped reduce research funds in deficit by $140,000, and are actively working to improve processes, build knowledge, and develop resources.

Rankings, Awards and Reputation Initiatives

USask's University Plan commits us to achieve "noticeable improvement in academic rankings within disciplines and across the university as a whole," so that our rankings reflect our expertise

and accomplishments.

Rankings influence enrolment decisions made by prospective students and their parents, and affects our ability to attract and retain world-class researchers, faculty, and other highly qualified personnel. Rankings illuminate the efforts of faculty who are leading the University's vision for teaching, research, and engagement, and are often cited as indicators of institutional quality and prestige.

To date, the rankings project has prioritized engagement and education, focusing on the delivery of presentations on rankings methodologies and results to multiple groups on campus. Ongoing work will establish formal practices for data management and submission processes, along with efforts to identify where and how rankings metrics and indicators intersect with other important initiatives on campus – for example, the sustainability strategy and signature areas of research.

The OVPR also facilitates USask faculty applications for external awards to encourage and build external recognition for breadth and quality of research, scholarly and artistic works (RSAW) created by our faculty. Since March 2022, working with facilitators and other supporters from colleges and schools, the RPI Awards team has supported a total of 26 nominations for awards and recognitions.



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