COUNCIL COMMITTEE ON RESEARCH
AGENDA

Monday, September 12, 2016 at 2:00am-4:00pm
527 Boardroom Administration Humanities Building

	Agenda Items	***Materials***
1	Introductions	
2	Approval of Agenda	
3	Approval of the Meeting Notes of May 5, 2016	*Appendix A*
4	Chair's Report (J. Wagner)	
5	Vice-President (Research) Report (D. Malloy) a. CFI Innovation - Update b. CRC Update – Renewals and Fall Call c. Strategic Research Plan d. Board of Govenors Report e. CFREF –Results f. Prosal for the SaskPower Clean Energy Chair	 *Appendix C* *Appendix D* *Appendix G*
6	Research Impact Subcommittee Report (N. Önder)	*Appendix E*
7	JELF – Proposal (Sally)	*Appendix F*
8	Other Business	
9	Adjournment	

CCR Sub-Committees	
Standing - CFI - NSERC Research Tools and Instruments - Research Trust Fund/Sabbatical Research Grant	Ad-hoc - Research Impact - Research Space Allocation - Terms of Reference

Distribution	
Dave Malloy, VPR	Cory Butz, Science
Dena McMartin, AVP	Miguel Sanchez, Social Work
Thomas Brehdol, Graduate Studies and Research	Cara Bradley, Library
Sally Gray, Director of Research Office	Katherine Arbuthnott, Campion College
Nilgun Onder, Arts	Andrew Miller, First Nations University of Canada
Ron Camp, Business Administration	Mary Hampton, Luther College
Ken Montgomery, Education	Christian Riegel, Director HRI
Raphael Idem, Engineering & Applied Science	Chris Somers, CRC Rep.
Kathleen Irwin, Fine Arts	Raymond Blake, History
Darren Candow, Kinesiology & Health Studies	Joan Wagner, CHAIR , Nursing
Glenn Donnelly, Nursing	Rubina Khanam, GSA
	Denise Stilling, Council Member

COUNCIL COMMITTEE ON RESEARCH

Meeting Notes of
May 4, 2016 (AH527 Boardroom)

Present: A.Volodin (Chair, Math/Stats), D.Candow (KI), M.Sanchez (SW), N.Onder (AR), C.Somers (CRC), D.Malloy (VPR), A.Sterzuk (ED), R.Camp (BU), A.Eberlein (FGSR), J.Wagner (NU), A. Muddle (Campion)

Regrets: D.McMartin (AVPAR),J.Longo (JSGSPP), S.Gray (Research Office), G.Donnelly (NU), C.Bradley (LI), A.Miller (FNUniv), J.Butt (GSA), A.Mudde (CA) C.Butz (SC), A.Henni (ENGG), K.Irwin (FA), M.Hampton (LU), C.Riegel (HRI),

1. Introductions

2. Approval of Agenda

CARRIED

3. Approval of the Minutes of March 9, 2016

Minutes were amended to correct the date. CARRIED

4. Chair's Report (A. Volodin)

- Update on Policy on Ad-Hoc Committee
  - We are continuing to work on this and will update you when possible.
- Update on MAP and JSGSPP Research Centres: Executive of Council Decision
  - Both centres were approved at Executive of Council on March 23.
- Introduction of new CCR Chair
  - CCR will meet again in September. Dr. Joan Wagner will be the Chair of CCR beginning Sept, 2016.

5. VPR Report (D. Malloy)

- Guidelines and Processes for Strategic Research Clusters
  - Guidelines were presented and discussed by CCR. One question was raised about the process for de-establishment. VPR will follow up.
- Emerging Strategic Research Cluster
  - Education and Arts would like to discuss the potential for being part of the emerging cluster. A follow-up meeting will be scheduled.
- Strategic Research Plan Update
  - The committee continues to meet. E-mails have been sent to the University community asking for reviews and comments.
- VPR's Board of Governors Report
- CRC Competition Update
  - A few comments were raised.
    - The process should be more transparent.
    - Committee members should be identified.

- Decisions should reflect the University Strategic Plan and the Strategic Research Plan.
- A report should be written explaining the rationale for decisions.

7. Research Impact Subcommittee Report (N. Önder)

- The Research Impact Subcommittee met on April 27, 2016.Dr. Andrew Miller from FNUniv joined the meeting to give us his perspective on Indigenous perspectives on research and research impact. The discussion was very productive and informative. The subcommittee will meet again on May 26th to finalize a report on research impact. It will share the report with the Working Group on the Strategic Research Plan and with CCR.

10. Other Business

- None.

11. Adjournment

APPENDIX C

TOGETHER peyak aski kikawinaw

WE ARE STRONGER

SERVING THROUGH RESEARCH

UNIVERSITY OF REGINA

STRATEGIC RESEARCH PLAN - 2016-2021

Executive Summary

The Strategic Research Plan 2016-21 provides the strategic research direction for the University of Regina during the five-year period January 1, 2016 to December 31, 2021. The Strategic Research Plan (SRP) is intended to be aligned with and linked to the University of Regina's Strategic Plan 2015-2020: "*peyak aski kikawinaw Together We Are Stronger*".

Over the next five years, we are committed to the following strategic research objectives[1]:

- *Strengthen support required for students and researchers to deliver high impact outcomes*
- *Advance the profile and awareness of research successes locally, provincially, nationally and internationally*
- *Increase research partnerships and projects with First Nations and Métis people, communities and organizations, including the First Nations University of Canada*
- Develop and implement processes, procedures and tools to help ensure the University's strategic research plan is actualized.
- Increase research revenues.
- Facilitate and support high quality research with dissemination practices including public engagement.

Critical to the University's success are its thematic areas of research priority (strategic research clusters), which the University has identified as a function of their critical mass of researchers, performance (impact[2]) and distinctiveness: Anxiety, Stress & Pain; Digital Future; Integrated Human Health: Equity, Disease & Prevention; Social Justice & Community Safety; and, Water, Environment, & Clean Energy.

Implementation of the SRP 2016-2021 includes the following four main elements:

- SRP communications for University faculty and researchers;
- Annual operational plans to provide more detail on how the vision, mission and strategic objectives will be achieved;
- Development of a comprehensive set of measures of success to track achievement; and,
- Reporting to communicate progress and results to the Board of Governors and the broader University community.

Introduction – Context and Process

The Strategic Research Plan (SRP) provides the strategic research direction for the University of Regina during the five-year period January 1, 2016 to December 31, 2021. The SRP is intended to be aligned with and linked to the vision, mission, values and strategic priorities set out in the University of Regina's Strategic Plan 2015-2020: "*peyak aski kikawinaw Together We Are Stronger*".

The University of Regina Strategic Plan 2015-2020 (UR Plan) identifies three strategic priorities:

- Student success;
- Research impact; and
- Commitment to our communities.

The University also identified two overarching areas of emphasis that thread throughout each priority:

[1] Content in italics is quoted from the University of Regina's 2015-2020 strategic plan.
[2] Refer to the Measures of Success section on page 8 for a definition of impact.

- Indigenization; and
- Sustainability.

Our Research Vision
The University of Regina endeavours to develop and maintain a supportive and diverse research environment and a culture of excellence for all scholars. Specifically, we intend to be recognized as leaders nationally and internationally in our thematic areas of strength identified in our five research clusters.

Overview of the 2016-2021 Strategic Research Planning Process
In 2016, a 15-person working group led by the Vice-President (Research) representing University-based and Faculty-based Research Centres, graduate students, Council Committee on Research, Indigenization, Strategic Research Clusters and Research Office guided development of the SRP. Input was gathered from faculty, staff, graduate students and other University stakeholders through two rounds of consultation. This valuable input was central to the working group's work in putting together the 2016-2021 SRP.

Purpose of the Strategic Research Plan
The purpose of the SRP is to build on the UR Plan and put into action our mandate to serve our people and our community through our research. Serving the community through creative and free enquiry and the dissemination of the outcomes of our research defines the university. It is our privilege and obligation to be society's hub for the pursuit of knowledge.

We endeavor to do this through research that is meaningful to the academy and responsive to the needs of society.

Update on Previous Strategic Research Plan Accomplishments
Significant progress was made toward achieving all four goals stated in the University's Strategic Research Plan 2010-2015 "Working Together Towards Common Goals: Serving Through Research":

- Accomplishments under the first goal, "Encourage, nurture, promote and sustain excellence in all aspects of research", include:
    - The University of Regina currently leads Canadian comprehensive universities and universities in this province in research impact[3] and international research collaboration.[4]
    - From 2010 to 2016, graduate student enrolments have increased 23%.
- Accomplishments under the second goal, "Foster and support signature themes of research that demonstrated and sustained excellence", include:
    - Based upon research impact, critical mass of researchers, distinctiveness, and commitment to partners in the community and the Province of Saskatchewan for high impact research, we have identified five thematic areas of research priority. These research areas represent clusters of researchers who have distinguished themselves for

[3] Averaging over four years, the University's "impact" as calculated by Thompson Reuters' NCI (including all Web of Science subject areas) exceeded that of a comparator group of Simon Fraser University, University of Victoria, York University, University of Waterloo, University of Guelph, University of Saskatchewan and University of New Brunswick.
[4] Research InfoSource, Spotlight on International Research Collaboration, www.researchinfosource.com/pdf/Spotlight2014Comprehensive.pdf.

success in publication, grants competition, community involvement and local, national and international impact (see **University of Regina's Strategic Research Clusters** section).

- Accomplishments under the third goal, "Provide the needed space, infrastructure and administration to support excellence in research" include:
    - A significant increase in space and infrastructure for research was realized including completion of the 5th floor of the Research and Innovation Centre and 2 Research Drive.
    - In the spring of 2013, the Provincial Auditor was invited to review the University of Regina's research administration. In a complementary process, the University commissioned an external review[5] to provide recommendations on improving research support for faculty. Implementation of recommendations from both reviews is virtually complete. Highlights of accomplishments include:
        - Restructuring and increased staffing for the Research Office including additional Research Facilitators and IP support.
        - Increased accounting capacity for research endeavors.
        - Enhanced reporting on research activities including quarterly reporting by the VP Research to the Board of Governors
        - Strengthening of governance and policies for the University's Centres and Institutes.
- Accomplishments under the fourth goal, "Demonstrate the relevance of pure and applied research to the community" through identification and promotion of the success stories of our scholars include:
    - In the last five years, the number of research-related stories featured on the U of R homepage increased significantly from 11 in 2010 to 105 in 2015. Proportionally, the number of these stories also increased; in 2010, roughly one in five stories posted on the web were research-related and by 2015, the ratio increased to one in three.
    - Our Communications unit has developed and promoted a series of articles on the research and personal profiles of the University's 10 Canada Research Chairs. In addition, throughout 2013-14 the University promoted the accomplishments of the Canada Research Chairs through advertisements on inside cover of University Affairs.
    - To promote and celebrate the University's research-related successes both within and outside the immediate University community, the Office of the Vice-President (Research) launched *Innovating Life: Quarterly Research Update from the University of Regina* in 2013.
    - In 2015, a Research Communication Strategist joined the External Relations team to lead the development of strategic communications that support our research enterprise.

Strategic Research Objectives

Research impact is a strategic priority adopted directly from the UR Plan. "Research" encompasses creative endeavors and other scholarly activities that foster new knowledge and/or respond to community needs. The objectives and supporting actions outlined below are focused on research impact, graduate student success and on our researchers' commitment to our communities.

Objective: Strengthen support required for students and researchers to deliver high impact outcomes.
Supporting actions:

[5] "Consultation Report on Research Administration at the University of Regina" by M. Crago and M. Kirk. 2013.

- *Increase the research funding budget.*
- Increase resources to attract and retain high-caliber researchers.
- Increase resources to attract top-quality Canadian and international graduate students holding funding and to develop scholar exchanges
- Work towards ensuring that scholarship support is available for all eligible graduate students. Support for Ph.D. students should be equivalent to support offered by Tri-Council fellowships.
- Develop awards for excellence in research.
- *Prioritize research resources and develop new funding partnerships that align with the five strategic research clusters.*
- Create internal research chairs for Indigenous Research and thematic areas of research strength (strategic research clusters).
- *Stimulate new research partnerships and funding opportunities,* [including with industry], *that are responsive to community needs and build capacity with local communities, including First Nations and Métis communities.*
- *Increase institutional research support for grant writing and research administration.*
- *Encourage the development of interdisciplinary research and academic programming among Faculties, the Library and departments through an internal interdisciplinary funding program.*
- *Increase support for research on topics with relevance to sustainability.*
- Dedicate resources to mentor new faculty to assist them with delivering high impact research in an academic setting.
- Rebalance teaching loads, where needed, to allow for greater engagement in research.
- Provide training and support in the use of research software.

Objective: Advance the profile and awareness of research successes locally, provincially, nationally and internationally.

Supporting actions:

- Increase support for public presentations and scholarly dissemination of research findings.
- *Profile University of Regina research successes internally and externally.*
- *Create a targeted communications strategy to keep University of Regina stakeholders, community members, and media updated on research developments.*
- *Provide necessary resources to publicize our research successes.*
- *Foster the development of more community-based research projects.*
- *Implement key strategic recommendations from the Sustainability Strategic Plan.*
- *Continue to build partnerships through the United Nations University Regional Centres of Expertise on Education for Sustainable Development.*
- *Enhance research collaborations with other universities and colleges, both in Canada and internationally.*
- Promote graduate studies and research opportunities at the U. of R. nationally and internationally.
- Review and enhance mechanisms for high-quality open access publications.

Objective: Increase research partnerships and projects with First Nations and Métis people, communities and organizations, including the First Nations University of Canada.

Supporting actions:

- Create internal research chairs for Indigenous Research.

- Enhance research and collaborations involving First Nations University of Canada, the Gabriel Dumont Institute, Indigenous Peoples' Health Research Centre and other potential partners, communities or stakeholders.
- *Regularly host an Indigenous research showcase to broaden awareness of Indigenous research and Indigenous research methods.*
- *Encourage and support awareness* [and recognition] *of Indigenous ways of knowing in research and graduate programs.*
- Publish and promote Indigenous language materials, as well as the research, traditional knowledge, poetry, and non-fiction stories of Indigenous scholars and authors through the University of Regina Press.
- Attract and support Indigenous undergraduate students, graduate students and post-doctoral fellows.

As observed by the Provincial Auditor[6], the University must describe how it intends to actualize the SRP and how it intends to measure success. This suggests a fourth objective. Also, refer to the **Implementation** section that follows.

Objective: Develop and implement processes, procedures and tools to help ensure the University's strategic research plan is actualized.
Supporting actions:

- Communicate the SRP to the University faculty and researchers.
- Develop annual operational plans to provide more detail on how the vision, mission and strategic objectives will be achieved.
- Develop a comprehensive and diverse set of measures of success to demonstrate achievement.
- Report on progress and results to the Board of Governors and the broader University community.

University of Regina's Areas of Thematic Research Priority

The University of Regina has emerged as a centre of excellence on a number of research fronts. Based upon research impact, critical mass of highly qualified personnel, distinctiveness, and commitment to partners in the community and the Province of Saskatchewan for high impact research, the University has identified five thematic areas of research priority, which represent clusters of researchers:

- Anxiety, stress & pain;
- Digital future;
- Integrated human health: Equity, disease & prevention;
- Social justice & community safety; and
- Water, environment & clean energy.

The University's research is not limited solely to these areas of strategic priority and they do not diminish the important contributions of individual researchers and creative practitioners. In fact, individual research strengths collectively formed the foundation of the University's strategic research directions and will continue to foster new opportunities (see 'Emerging thematic areas of research priority' section).

[6] Provincial Auditor Saskatchewan. 2013 Report – Volume 1.

Strategic Research Cluster Overviews[7]

Anxiety, stress & pain. Our researchers are tackling complex and costly human problems related to anxiety, stress and pain, their clinical evaluation, manifestation, causal factors and their management, with the goal of improving functional ability and quality of life for millions of people.

Digital future. Our researchers are leading the way to the Digital Future through innovation and creativity with research in wise computing; visualization; data security & policy; design, creation and analysis of emerging technologies; and within the digital humanities. They are emphasizing effective, efficient and sensitive decision-making by working with new information accumulated from diverse sources in scaled quantities of heterogeneous, electronic data. The growth and continuous expansion of the data culture provides constant opportunities for our researchers to innovate, partner, develop and produce across fields such as commerce, science, education, healthcare, public administration, the arts and culture industries.

Integrated human health: Equity, disease & prevention. The central tenet of this cluster is to develop and disseminate research knowledge to improve the health of Canadians. Researchers in this cluster perform clinical, bio-medical, population and Indigenous health research, using methodologies from the natural, clinical and social sciences. This integrated health approach focuses not only on traditional biochemical/biomedical research, but also investigates social, political, economic, cultural and population aspects of health. This cluster serves as a focal point for promoting interactions between researchers, clinicians, policy makers and the public. It provides a resource for local community interactions and information on health research.

Social justice & community safety. The "Social Justice" component involves research and practice focused on equity and fairness at both individual and systemic levels. It considers inequities in social, political, and economic power, equitable access to opportunities and resources, as well as scholarship that involves reciprocal University-community engagement. The "Community Safety" component deals with prevention and protection of communities from circumstances or events that could place in jeopardy the safety of individuals or groups. Research in the Social Justice & Community Safety Research Cluster involves either of the above components, or a combination.

Water, environment & clean energy. The "Water and Environment" research component evaluates the impacts of natural and anthropogenic effects on grassland, forest and aquatic habitats, many of which are located within the prairie eco-region. The overall scarce, yet unpredictable availability of water across the prairies poses unique challenges to balancing the desire for high water quantity, quality and habitat integrity with water withdrawals for industrial, agricultural and urban uses, as well as their associated deliveries of pollutants back into lakes and rivers. Accordingly, a particular large body of research is dedicated to evaluate the impacts of climate, land-use, industrial and urban pollution on hydrology, water quality and food-web integrity of lakes and rivers in Saskatchewan. The Long Term Ecological Research approach in this cluster is crucial to identify the most serious threats to environments in semi-arid regions here and elsewhere, provide information to decision makers how to alleviate negative impacts, and develop adaptive management strategies for the impacts of anticipated climate change, population growth and increased development of natural resources. Further research focusses on finding new technologies for sustainable solid waste management, treatment of waste and produced waters. The "Clean Energy" research component focuses on developing environmental low

[7] Full descriptions of the strategic research clusters are available on the University of Regina website: http://www.uregina.ca/research/research-expertise/research-strengths/index.html

carbon technologies to mitigate carbon dioxide emissions associated with climate change. It also investigates new policies based on these technologies as well as their public acceptance. "Clean Energy" research also includes studies dealing with smart grids, intelligent transportation systems, and lean and agile manufacturing. Another component of research deals with the development of new technologies to exploit Canadian heavy and shale oil reserves.

Emerging thematic areas of research priority. Over the time period of this SRP, new concentrations of research excellence may emerge and show potential to become recognized as a strategic research cluster. As outlined in the guidelines for strategic research clusters, the Office of Vice-President (Research) will work with the associated faculty and researchers to determine if these new concentrations meet the criteria for a strategic research cluster. These candidates will be deemed "emerging clusters" over the period of the current plan and may be promoted to the status of strategic research cluster for the next incarnation of the SRP. The guidelines also include processes for review of strategic research clusters and de-listing a cluster if it no longer satisfies the qualifying criteria.

Implementation

Implementation of the SRP 2016-2021 is aligned with the framework described in the UR Plan and includes the following four main elements:

- SRP communications for University faculty and researchers;
- Annual operational plans to provide more detail on how the vision, mission and strategic objectives will be achieved;
- A comprehensive and complete set of research impact measures; and,
- Reporting to communicate progress and results to the Board of Governors and the broader University community.

Communications

A certain level of awareness of the SRP contents has been achieved through the significant consultation across the University community in order to gather input and complete the SRP. Upon approval of the SRP, a second round of communication focused on implementation of the plan and targeted to faculty and researchers will be completed.

Annual Operational Plans

The objective of an annual operational plan is to provide more detail on how the strategic research objectives will be achieved. Formal planning of research operations is not currently an established practice at the University and work will be required over the next five years to mature this capability.

It is assumed that operational plans will be developed for the following units:

- Office of Vice-President (Research), taking into consideration strategic research clusters;
- University-based centres / institutes;
- Research Office; and,
- Faculties including the Faculty of Graduate Studies and Research and faculty-based research centres / institutes.

Research Impact Measures

In 2016, the Council Committee on Research (CCR) Subcommittee on Research Impact reported "there cannot be a good one-size-fits-all approach to assessing research performance and measuring research impact. Uniform measures or metrics are more likely to be misleading or distorting than helpful because of diversity of research activities and many different forms of research impact across disciplines. It is important to recognize and value different types of research and research impact."[8]

As an illustration, research impact may be captured by the following[9].

Scholarship. Scholarship that can be measured using indicators such as:

- Bibliometric indicators;
- Downloads from Open Access repositories;
- Acknowledgements and other recognition as deemed appropriate;
- Prizes and awards;
- Reputation as measured by survey;
- Post-publication peer-review (book reviews, dedicated symposia); and,
- Juried exhibitions and performances.

Capacity. Capacity through teaching and mentoring at the undergraduate and graduate levels that can be measured using indicators such as:

- Number and quality of experiential learning/ research opportunities for students;
- Surveys of students and alumni;
- Employer surveys; and,
- Integration of research as a learning outcome in courses.

Economy. Economy that can be measured using indicators such as:

- Advisory roles and board memberships;
- Revenue opportunities and cost savings in the public, private and not-for-profit sectors resulting from research applied in practice;
- Income derived from patents, patent licensing, copyright and trademarks; and,
- Consulting contracts.

Society and culture. Society and culture that can be measured using indicators such as:

- Number and quality of partnerships between researchers and community groups;
- Requests for consultancy/advice from community groups;
- Media coverage of research (newspapers/ TV/ online);
- Requests for media appearances;
- Engagement of the public at events;
- Research-related social media; and,
- Public use of research-based resources on social and cultural issues.

Practice and policy. Practice and policy that can be measured using indicators such as:

- Invitations to participate as an expert witness, an advisor, on an expert panel or committee;

[8] "Report of the CCR Subcommittee on Research Impact" June 2016

[9] Adapted from "The Impacts of Humanities and Social Science Research Working Paper" October 2014 with permission of the Canadian Federation for the Humanities and Social Sciences.

- Citations in government documents;
- Consulting for governments or think-tanks; and,
- Commissioned reports, public policy documents and input.

Assessment of research impact will continue to be articulated within faculty performance criteria documents, to allow for diversity of research activities and forms of research impact across disciplines.

Reporting to Communicate SRP Progress and Results
The VP Research will provide a report on research to the University of Regina's Board of Governors at each meeting of the Board according to the following framework:

- A status report on the response to the Provincial Auditor's Report on Research at the University of Regina (PARR) - until implementation is complete;
- Report on the status of action plans to actualize the Strategic Research Plan;
- Performance measures with respect to the Strategic Research Plan
    - Progress in developing measures that are not yet operational;
    - Data for each measure that is operational; and.
    - Identification of targets and progress with respect to the targets.
- Research highlights and significant events since the last report, including but not limited to:
    - Significant funding grants awarded and contracts initiated;
    - Significant recognitions;
    - Major publications, presentations, Journal articles, books, monographs, performances as well as other research artifacts of note;
    - Relevant narrative-based indicators of significant research impact;
    - New partnership agreements;
    - Results of reviews of Centres and Institutes;
    - Commercialization and patent milestones;
    - Audit and other evaluation outcomes including any compliance issues;
    - Reports on Faculty-based Centres and Institutes; and,
    - Milestone events for major research agreements (achieved or missed).

In May 2015, the Board of Governors approved the following performance measures that fall within the Scholarship area.

Measure	Definition
Research Impact / Sustainability	
Tri-Council Grants	Total number of tri-council grants and Canada council grants held by faculty in the University's fiscal year
Research Revenue	Total Research Funding (contracts and grants) earned from all sources in the University's fiscal year.
Research Impact	
Normalised Citation Impact (NCI)	The NCI measures the quotient of an observed citation rate or impact of an institution and an expected citation rate for the institution or country (i.e., it compares the performance of an institution to the average performance of the world). Published by Thompson-Reuters InCites.
International Collaboration	This statistic represents the proportion of total publications at each institution over a five-year period that were co-authored with researchers outside of Canada and is based on universities on the 2014 Top 50

	Research Universities list that had a total of 250 or more publications over the five-year period. Publication data were obtained from Observatoire des sciences et des technologies' (OST) Canadian bibliometric database which contains data from the SCI-Expanded, SSCI and AHCI databases of Thomson Reuters.

Highlights of progress and results will be reported to other stakeholders including the broader University and external community as appropriate through communication channels such as the University of Regina's research magazine.

Conclusion

The Strategic Research Plan, developed through consultation with the University community and its stakeholders, shows coherence with the University of Regina's Strategic Plan 2015-2020: "*peyak aski kikawinaw Together We Are Stronger*". It also signals a commitment to the continued growth and pursuit of excellence in research across faculties and disciplines.

Strategic Research Plan Working Group

David Malloy, Vice-President (Research), Chair
Josef Buttigieg, Faculty of Science
Sally Gray, Research Office
Thomas Hadjistavropoulos, Faculty of Arts
Heather Haig, Faculty of Science
Howard Hamilton, Faculty of Science
Samantha Horswill, Faculty of Arts
Gordon Huang, Faculty of Engineering
Raphael Idem, Faculty of Engineering
Nicholas Jones, Faculty of Arts
Tom McIntosh, Faculty of Arts
Carmen Robertson, Faculty of Media, Art, and Performance
Christopher Somers, Faculty of Science
Marc Spooner, Faculty of Education
Michelle Stewart, Faculty of Arts

Project Manager / Facilitator:
Raymond Deschamps, Office of the Vice-President (Research)

Our commitment to

research that has impact

To download this Strategic Plan document,
visit www.uregina.ca/strategic-plan-research

University of Regina

APPENDIX D

UNIVERSITY OF REGINA

Board of Governors

Item for Information

Subject: Report on Research at the University of Regina

1. Status report on the response to the Provincial Auditor's Report on Research at the University of Regina (PARR) (until implementation is complete)

The Authorities Policy for Research Documents has been drafted and will be circulated for comments (e.g. Human Resources, Deans/Associate Deans Research, Finance) over the summer. Comments will be incorporated into a draft that can then go through formal approval channels.

The Research Office is working with Information Systems, Research Finance, and Human Resources to draft a request for proposals for a Grants Management System to centralize all research-related documents and integrate pre- and post-award functions as well as the tracking of research outputs.

2. Report on the status of action plans to actualize the Strategic Research Plan identified in response to PARR Recommendation 4

Strategic Research Plan. The Strategic Research Plan (SRP) working group has completed two rounds of consultations on the draft SRP 2016-2021: the first round included the University Executive Team, Deans and Associate Deans, the Council Committee on Research, Directors of University-based and Faculty-based Research Centres, Indigenous Advisory Circle, Advisory Committee on Sustainability, graduate student associations and the VPR's Strategic Research Team; the second round included the full University community. A final draft has been prepared and the executive summary of the draft SRP is appended to this report with a link to full draft plan. The working group is still on track for a September 2016 completion date.

International Research Plan. The Office of the VPR is working with UR International and the Research Office to define and document processes and procedures related to international research (e.g. research agreements, recruitment). This is anticipated to assist Faculties and other stakeholders by facilitating effective and efficient achievement of the international research goals.

Implementation Planning. The Research Office has prepared a 2016-17 plan for implementing the University's strategic plan and the Strategic Research Plan (appended to this report).

Digital Future Strategic Research Cluster. Our researchers are leading the way to the Digital Future through innovation and creativity in computing and digital media. They are performing research in data mining, wise computing; visualization; data security & policy; design, creation and analysis of emerging technologies; and within the digital humanities. They are emphasizing effective, efficient and sensitive decision-making by working with new information accumulated

from diverse sources in scaled quantities of heterogeneous, electronic data. The growth and continuous expansion of the data culture provides constant opportunities for our researchers to innovate, partner, develop and produce across fields such as commerce, science, education, healthcare, public administration, the arts and culture industries.

Researchers in the Digital Future cluster, led by Howard Hamilton, are partnering with the Ministry of Justice (Corrections & Policing section) and ISM Canada to apply analytics to data accumulated by Saskatchewan government services. Our researchers are devising techniques suited to the analysis of any sized amounts of complex data and applying these techniques to discover previously unknown or unconfirmed relationships in the data. These relationships may form the basis of new intervention strategies practiced by the Government of Saskatchewan to prevent undesirable outcomes for citizens at risk.

As one example, our researchers devised ways of mining the data while preserving the privacy of the individuals behind that data. With the new techniques, matches can be made between information from police, court, and correction services and then turned over to the appropriate authorities for further action, without revealing the identities of the individuals to the analysts. As well, information from social media, such as Twitter and Instagram, can be collected and matched with information in traditional data repositories. The goal is to target scarce government resources where they can do the most good.

3. Performance measures with respect to the Strategic Research Plan identified in response to PARR recommendation 5: data for each measure, identification of targets, progress with respect to the targets.

#	Strategic Priority/Strategic Theme	Performance Measure	Performance Measure Definition	2015-16 Target	2015-16 Final
10	Research Impact/Sustainability	Tri-Council and other provincial /federal grants	Total number of tri-council, Canada Council and other provincial/national funding agency/foundation grants held by faculty in the University's fiscal year	219 grants	195[1]
11	Research Impact/Sustainability	Research Revenue	Total Research Funding (contracts and grants) earned from all sources in the University's fiscal year.	$24.7M	$18.4M[2]
12	Research Impact	Normalised Citation Impact (NCI)	The NCI measures the quotient of an observed citation rate or impact of an institution and an expected citation rate for the institution or country (i.e., it compares the performance of an institution to the average performance of the world). Published by Thompson-Reuters InCites.	1.65	1.46[3]
13	Research Impact	International Collaboration	This statistic represents the proportion of total publications at each institution during the period of 2010-2014 that were co-authored with researchers outside of Canada and is based on universities on the 2014 Top 50 Research Universities list that had a total of 250 or more publications over the 5-year period. Publication data were obtained from Observatoire des sciences et des technologies' (OST) Canadian bibliometric database which contains data from the SCI-Expanded, SSCI and AHCI databases of Thomson Reuters.	55% of all research publications with an international affiliate	55%[4]

[1]Includes 12 Canada Council and other provincial/national funding agency/foundation grants.
[2]Includes $148,360 from Canada Council and other provincial/national funding agency/ foundation grants.
[3]Note – NCI (2008-2014) for UofS, York, Carleton, Memorial, Concordia, UofR, UNB, and Windsor. Uof R NCI was highest among these universities for impact factor and % cited. This was across all research disciplines.
[4]UofR ranked highest among the following: Brock, Carleton, Concordia, Memorial, Ryerson, Simon Fraser, UQAM, Guelph, UNB, UofR, Waterloo, Windsor, Wilfrid Laurier, Victoria, and York.

4. *Research highlights since the last report: funding, awards, recognition, major publications, partnerships, etc.*

- Katya Herman and Paul Bruno, Kinesiology and Health Studies, gave presentations at the first ever Health Sciences Pub held at the Bushwakker Brewpub on April 21. Dr. Herman's presentation was entitled "Your Chair vs. Your Health: How Sitting is Killing You and Dr. Bruno's presentation was entitled "May the Forces be With You: The Biomechanics of Sitting."
- Michelle Stewart, Justice Studies and graduate student Brittany Mario released the results of an independent research project titled "Confronting the Challenge: Community Supports, Stability and the Role of the Mental Health Disposition Court." The report shines a light on how the justice system deals with people who have serious mental illnesses and examines the progress and challenges faced by the Mental Health Disposition Court. The research was funded by the University's Partnership Research Grant. The partnership included the Ministry of Justice, the Provincial Courts and the Regina Community Clinic.
- Josef Buttigieg, Biology and Nuelle Novik, Social Work gave a presentation titled "Your Aging Brain: Why We Forget What We Are Talking About" at the Health Sciences Pub held at the Bushwakker Brewpub on May 19. Drs. Buttigieg and Novik talked about the implications of the aging brain from both the basis biomedical perspective and the social health perspective.
- Gordon Asmundson, Psychology, received the Alumni Association Award for Excellence in Graduate Research Mentorship. More than 35 graduate students have benefited from Dr. Asmundson's mentorship as both a graduate supervisor and thesis committee member. Those students have gone on to become local, national and international leaders as researchers, professors, and clinicians.
- Gordon Huang, Engineering and Applied Science, received a $98,000 research grant from the Agriculture Development Fund for two years to study ways of converting manure for possible use for heating and power generation. The Prairie Agricultural Machinery Institute and SaskMilk are partners on the project titled "Enhanced Low-Temperature Anaerobic Digestion of Manure for Biogas Heating at Remote Farms." The funding will mainly used for supporting graduate students.
- Yasser Morgan, Engineering and Applied Science received the Public Sector Leadership Award in Advanced Technology for his research into advanced communication, leading to improved public safety and emergency response. This national honour was awarded by the Canadian Advanced Technology Alliance (CATAAlliance), the largest high-tech association in Canada.
- Raymond Blake, History, received the Alumni Associations Award for Excellence in Research. The award focuses on the impact of the candidate's research in his/her discipline as well as on the public good.
- The Knowledge Seeker, by Blair Stonechild, FNUC, and Burning in this Midnight Dream, by Louise Bernice Halfe were launched at an event jointly sponsored by the University of Regina Press and Coteau Books held at First Nations University of Canada.
- Shanthi Johnson, Kinesiology and Health Studies, was awarded Fellow status by The Gerontological Society of America, the world's oldest and largest interdisciplinary organization devoted to research, education, and practice in the field of gerontology. The award is acknowledgement of her outstanding and continuing work in the field of gerontology.

Appendix: 2016-2021 Strategic Research Plan Executive Summary

Executive Summary

The Strategic Research Plan 2016-21 provides the strategic research direction for the University of Regina during the five-year period January 1, 2016 to December 31, 2021. The Strategic Research Plan (SRP) is intended to be aligned with and linked to the University of Regina's Strategic Plan 2015-2020: "*peyak aski kikawinaw; Together We Are Stronger"*.

Over the next five years, we are committed to the following strategic research objectives[1]:

- *Strengthen support required for students and researchers to deliver high impact outcomes*
- *Advance the profile and awareness of research successes locally, provincially, nationally and internationally*
- *Increase research partnerships and projects with First Nations and Métis people, communities and organizations, including the First Nations University of Canada*
- Develop and implement processes, procedures and tools to help ensure the University's strategic research plan is actualized.
- Increase research revenues.
- Facilitate and support high quality research with dissemination practices including public engagement.

Critical to the University's success are its thematic areas of research priority (strategic research clusters), which the University has identified as a function of their critical mass of researchers, performance (impact[2]) and distinctiveness: Anxiety, Stress & Pain; Digital Future; Integrated Human Health: Equity, Disease & Prevention; Social Justice & Community Safety; and, Water, Environment, & Clean Energy.

Implementation of the SRP 2016-2021 includes the following four main elements:

- SRP communications for University faculty and researchers;
- Annual operational plans to provide more detail on how the vision, mission and strategic objectives will be achieved;
- Development of a comprehensive set of measures of success to track achievement; and,
- Reporting to communicate progress and results to the Board of Governors and the broader University community.

Link to the draft 2016-2021 SRP: http://www.uregina.ca/president/executive-team/vp-research/SRP%202016-2021%20draft%20June%202016.pdf

[1] Content in italics is quoted from the University of Regina's 2015-2020 strategic plan.
[2] Refer to the Measures of Success section on page 8 for a definition of impact.

Appendix: 2016-17 Research Office Implementation Plan

University of Regina

Research Office

Implementation plan for the Strategic Plan and the Strategic Research Plan

June 30, 2016

Mandate and Activities of the Research Office

The Research Office at the University of Regina is composed of a dedicated group of professionals that work together to ensure high-quality research administration. It supports academic staff members across all disciplines and methodologies in their pursuit of excellence in research by providing comprehensive services for researchers and research partners including:

- Identifying funding opportunities and providing guidance with grant applications, budget preparation, and submission;
- Reviewing, negotiating, and developing agreements, such as non-disclosure or confidentiality agreements, MOUs, and research contracts;
- Working with researchers in the identification, protection, and commercialization of intellectual property (technology);
- Increasing awareness of and ensuring adherence to University policies, ethical research standards, and Canadian and international research-related and intellectual property laws and regulations and;
- Facilitating workshops, mentorship programs, and internal review programs

Planning Process

All staff members of the Research Office attended a day-long retreat on-campus on April 18 to talk about the University of Regina 2015-2020 Strategic Plan *peyak aski kikawinaw: Together We Are Stronger*. The Vice-President (Research) attended the beginning of the day to talk about his vision for the research portfolio. Following the day, the ideas were organized into a chart according to the specific objectives of the Strategic Plan, recognizing that the activities of the Research Office will also support the Strategic Research Plan. Current activities were considered and future opportunities were prioritized based on need and resource implications.

Fit with Strategic Plan (current activities)

Pillar	Objective	Supporting actions
Student Success	Enhance supports to better facilitate student preparedness for academic success.	The Research Office supports graduate and undergraduate students by participating in FGSR orientation, encouraging adequate student support in budget development, facilitating student hires, and presenting research ethics workshops to students.
	Embed Indigenous practices, ideas and principles in our academic pursuits.	The Research Office is facilitating an Indigenous Research Day to celebrate the diversity of Indigenous research at the UofR. Grant facilitators support projects that decolonize or Indigenize research. All staff participate in Indigenous awareness activities ranging from Tipi-raising Day to OCAP training for research with Indigenous

		communities.
	Strengthen the quality and impact of teaching and learning for all students.	The Research Office support tenure and tenure-track faculty by trying, where possible, to reduce the administrative burden of research (e.g. inputting CCV data, negotiating contracts). It facilitates applications for research chairs, and makes presentations to student groups upon request.
	Expand and enhance experiential and service learning opportunities in academic programming.	The Research Office supports this objective primarily by facilitating research funding that includes opportunities for student support. It is also involved in project planning for initiatives like the Ideation, Creativity and Entrepreneurship program and innovation support.
Research Impact	Strengthen support required for students and researchers to deliver high impact outcomes.	Most of the activities of the Research Office directly support this objective. The Research Office builds capacity by helping faculty attract the resources they need (by identifying funding opportunities; providing guidance with grant proof reading, budget preparation, and submission; reviewing, negotiating, and developing agreements, and research contracts). The Office helps transfer the results of research to society by working with researchers in the identification, protection, and commercialization of intellectual property (technology). It facilitates high quality research by increasing awareness of and ensuring adherence to University policies, ethical research standards, and Canadian and international research-related and intellectual property laws and regulations.
	Advance the profile and awareness of research successes locally, provincially, nationally and internationally.	The Research Office supports this objective by informing External Relations of funded projects and research outcomes. It responds to queries about university expertise, represents the university on partnered research projects, and works with external consortia to facilitate inter-institutional research. It also provides reports on research activities that can be used to promote research awareness.
	Increase research partnerships and projects	The Research Office supports this initiative by facilitating grant applications about, with,

	with First Nations and Métis people, communities and organizations, including the First Nations University of Canada.	and for Indigenous research and Indigenous communities. It works collaboratively with FNUniv on applications. In addition, the Research Office is coordinating an Indigenous Research Day.
Commitment to our Communities	Focus on our people by continuing to build a friendly, respectful, diverse, safe and welcoming university for all.	Activities in the Research Office that support this objective include participating in university events and serving on university committees. Staff are participating in workshops and professional development activities that increase knowledge and provide personal satisfaction. The office is a welcoming environment to all, and new co-workers are collaboratively integrated into the department. The office collaborates with other units on campus, such as Research Finance, SMS, and External Relations for the benefit of all departments and client faculty.
	Focus on institutional sustainability and transparency to ensure that we are a preferred institution at which to learn, conduct research, teach and work.	The Research Office contributes to transparency through reporting to the VPR and Board on research activities. It contributes to sustainability through overseeing adherence to research-related policy as well as effective record-keeping.
	Focus on connecting and engaging with all the communities we touch.	The Research Office contributes to this objective through matching researchers to other researchers, funding bodies, and partners and facilitating any ensuing partnership agreements.

Action Plan, 2016-17

What follows is a set of actions the Research Office can undertake with minimal new resources, where staff have the capacity to add activities into current processes. Each year, action plans will be reviewed to assess progress and to identify activities for the following year.

Pillar	Objective	Opportunity
Student Success	Enhance supports to better facilitate student preparedness for academic success.	• Include students in workshops where suitable. • Work with FGSR staff to increase their capacity to provide scholarship support.
	Embed Indigenous practices, ideas and principles in our academic pursuits.	• Expand Ownership, Control, Access and Possession (OCAP) training to all staff members in the Research Office. • Partner with appropriate individuals or groups to provide workshops on indigenous research practices and methodologies.
	Strengthen the quality and impact of teaching and learning for all students.	• Work with other units on campus to provide workshops on integrating research into teaching.
	Expand and enhance experiential and service learning opportunities in academic programming.	• Work with Donor Relations to develop a more integrated approach to funding that can support students.
Research Impact	Strengthen support required for students and researchers to deliver high impact outcomes.	• Create and implement a mentorship program for researchers. • Pilot a facilitator-in-residence program. • Pilot peer review of grant applications program. • Select and start implementing a grants management system. • Develop formalized processes for institutional grants, from application to post-award stages. • Develop a partnership recognition program. • Provide application assistance to postdoctoral fellows.
	Advance the profile and awareness of research successes locally, provincially, nationally and internationally.	• Update web site to have more content on research success. • Support research award applications in consultation with the Awards Officer. • Coordinate with Donor Relations and other units to integrate partnership activities.

	Increase research partnerships and projects with First Nations and Métis people, communities and organizations, including the First Nations University of Canada.	• Meet with the Indigenization lead to see how the Research Office can work with the Indigenous Advisory Circle on increasing research partnerships and supporting the work of the IAC with respect to research goals.
Commitment to our Communities	Focus on our people by continuing to build a friendly, respectful, diverse, safe and welcoming university for all.	• Create a professional development plan for the office that considers the needs of all members. • Take or update cultural awareness training for all staff members.
	Focus on institutional sustainability and transparency to ensure that we are a preferred institution at which to learn, conduct research, teach and work.	• Develop metrics for the Research Office and publish to the web site.
	Focus on connecting and engaging with all the communities we touch.	• Develop business plan to implement the new partnership strategy.

REPORT OF THE CCR SUBCOMMITTEE ON RESEARCH IMPACT
JUNE 2016

INTRODUCTION

The University of Regina's Strategic Plan "*peyak aski kikawina - Together we are Stronger*" (URSP 2015-2020) has identified research impact as one of three key strategic priority areas. The URSP defines research as "creative and other scholarly endeavors that foster new knowledge", and indicates that research should have "…meaningful impact at home and beyond". The Implementation Framework of the URSP calls for routine measurement of research impact as a means of tracking success in achieving the institution's objectives, ultimately feeding directly into the Performance Management Component of the plan which sets out "to assess three levels of performance in relation to the strategic and operational plans: 1) Institutional level, 2) Academic, Administrative and Research Unit level, 3) Individual level" (URSP, 2015-2020, p. 18). Moreover, in early Fall 2016, the University of Regina is scheduled to adopt a new Strategic Research Plan (SRP): *"Together We Are Stronger: Serving Through Research The University of Regina's Strategic Research Plan 2016-2021"*, which also sets out to develop indicators of research impact performance (SRP Draft for Review Group, May 2016, pp. 8-10). Thus, it is clear that the University of Regina places great importance on research impact which parallels the position of most other universities and major granting agencies. Nevertheless, given how research and research impact may vary across a campus by faculty, department, or unit, the URSP and the forthcoming SRP purposely and appropriately make no attempt to prescribe a particular method for measuring research impact. The draft SRP rather outlines some of the possibilities in which research impact may be captured and reported. This report supports this perspective and offers further insights into different forms of research impact and a variety of possible indicators.

The definition of research impact and the metrics used to quantify or describe it are likely to vary substantially in different research areas; for example, conceptions of impact may be limited to an academic discipline, or may be broadly thought to include community impact on policy, organizations, practices, or even observers at an art show or concert. Consequently, traditional bibliometric indices based on journal publications (e.g., h-index, impact factor, etc.) may adequately capture research impact for certain areas of study (e.g., Science, Engineering, etc.), but would be of little value for measuring impact in others (e.g., Fine Arts, community-based research, etc.). In addition, measurement of research impact cannot simply be a counting exercise; it must also assess the quality and importance of the work. Based on the uncertainties surrounding measuring or describing research impact, a subcommittee of the Council Committee on Research was created to provide some guidance regarding how to move forward. The subcommittee had two major goals:

1. **Determine what the University of Regina currently values as research impact in different areas on campus.**

2. **Identify those areas or types of research that need closer attention as the UR Strategic Plan unfolds over the next five years.**

The subcommittee gathered information about research impact assessment from faculty criteria documents and strategic research plans across campus, and created a summary description of research impact and associated indicators. The subcommittee held discussions on the question of key areas that need further attention. These areas were identified on the basis of either a lack of information in criteria documents and strategic research plans or confusion regarding how research impact and quality could be reported and assessed in particular areas. This report summarizes the subcommittee's findings based on the two objectives above.

Before presenting its findings, the subcommittee emphasizes the following important caveats when considering research and research impact.

1. There are different types of impact. Valuable impact may occur in a variety of spheres, including, academic, social, cultural, political, and economic as is explained later in this report.
2. The dominant modes of assessing research impact, such as peer-reviewed publications, journal rankings, and Tri-council funding, are important and should be valued, but they do not capture the full and diverse complement of research and research impact.
3. While it may be possible to 'measure' discrete pieces or components of research impact, many dimensions of research and research impact are quite difficult (perhaps even impossible) to measure; for example, how might one determine all the important dimensions of the impact of George Orwell's novel *1984*, the impact of Judy Chicago's art installation "The Dinner Party", changes to health services delivery in a northern community following a policy report, or the full impact of Albert Einstein's publication of *The General Theory of Relativity*?
4. When assessing research impact, it is necessary to take into account the timeframe. Some forms of research have more immediate impact whereas other forms of research require longer time to show any significant impact.

Thus, the CRC Subcommittee on Research Impact suggests that there cannot be a good one-size-fits-all approach to assessing research performance and measuring research impact. Uniform measures or metrics are more likely to be misleading or distorting than helpful because of diversity of research activities and many different forms of research impact across disciplines. It is important to recognize and value different types of research and research impact.

CURRENT RESEARCH IMPACT MEASUREMENT PRACTICES

The University of Regina faculty performance criteria documents and strategic research plans provide a rich assortment of important impact measurements. Research impact is measured at three different levels within the university environment: 1) individual faculty members; 2) departments and faculties; and 3) university as a whole. Moreover, measurement of research

impact is not limited solely to an end product; it also includes assessments and narrative-based reflections of the effects of research that may not always represent a quantifiable output. Research output, as well as the effects of research, including the process of knowledge creation itself, has the potential to impact academia, government, community, and society; and this situation is reflected in the diverse array of campus criteria documents.

Scholarly Output and Dissemination

The documents the subcommittee reviewed describe output, engagement, and dissemination as vital components of research impact. The use of peer-evaluated mediums to assess research impact is stated in all documents; these mediums include: refereed journal articles, monographs, edited books, book chapters, working papers in established series, maps, refereed conference presentations, papers published in conference proceedings, bibliographic studies; translations, invited research presentations, peer-evaluated art installations, public performances, exhibitions, videos, films, published and performed plays, music compositions, sound recordings, concerts, recitals, curatorial work and dramaturgy which integrate scholarly and creative work, creative writing and drama scripts, and software programs. It should be noted that when peer evaluation is not feasible or common in a particular area of creative or performance- or community-based scholarship, the relevant professional community's reception or public acknowledgement of the scholarly work is considered an indication of research impact. In the case of some forms of "non-traditional" scholarship, definition of who counts as a peer is often expanded to include community participants in the research process, community organizations, professional associations, government agencies, and international organizations. The types of scholarship or research output that do not go through the conventional academic peer-review process but usually receive or elicit response from individuals, groups, or organizations which possess relevant expertise or knowledge include: technical, or policy reports to government agencies, professional associations, community organizations, international organizations and other relevant constituencies; publications in practitioner journals, magazines, newspaper articles; op-eds; and media interviews.

Assessment of Research Impact

Faculty performance criteria documents recognize several major areas or constituencies for research impact: one's academic discipline and research community; academia, a particular professional area of expertise; public community or society; and government and public policy. As expected, different faculties put varying degrees of emphasis on these areas/constituencies and the different types of research impact associated with them. It is important to note that there are no clear boundaries separating these constituencies; they overlap and are interwoven to a significant extent; as a result, research impact in one area can often produce effects in other areas, if not immediately, then over a longer period of time.

Research impact on disciplinary knowledge and academia

A range of indicators can be used to assess research impact with respect to one's academic discipline and the more broadly defined academia. Indicators include but not necessarily limited to:

- Bibliometric indices
- Peer reviews of publications and scholarly creative activities (e.g., art installations, public performances, exhibitions, etc.)
- Count of downloads from peer-review online publications
- Research grants, either as an individual or as a member of a group of researchers (prestige of the grant, amount of the grant, and rigor of the competition, and success rates to be taken into account)
- External grants / funds for research centers / institutes
- Editorship of a journal
- Editorial board membership
- Refereeing journal and conference papers
- Refereeing research grant applications
- Membership on a grant selection committee
- External examiner for graduate theses at other institutions
- Supervising graduate students' research
- Training highly qualified personnel
- Induction into academic societies and similar other recognitions
- Organizing and hosting research events such as conferences, workshops, and seminars (individual and institutional research impact)
- Count of copies of publications sold by the University press; public reception of the University press's publications; reviews of these publications etc. (institutional impact)

Research Impact in a professional area of expertise

- Providing consultation, guidance, or knowledge to a professional association
- Technical reports
- Contributions to invention and innovation in professional practice
- Membership on a professional association's governing board or similar other professional bodies
- Professional prizes and awards

Research Impact on the broader community and society

- Contributions to the social and economic well-being of society
- Providing consultation, guidance, knowledge to organizations, associations and communities outside the University
- Impact in terms of framing public issues and influencing public discourse
- Community-engaged research activities; research on issues critical to the community (local, national, international, global)

- Workshops and training seminars for groups and institutions outside the University,
- Contribution to invention and innovation in product and process and technology development (economic as well as societal impact)
- Industry applications of research outputs (techniques and technologies) as evidenced by, e.g., registered patents and copy rights (economic as well as societal impact)
- Accessibility of research results to broader audiences than a small group of specialists

Research Impact in the area of public policy (governments and official international organizations [intergovernmental organizations])

- Policy reports to public-policy makers (governments and intergovernmental organizations)
- Advising public-policy makers
- Influencing the objectives, content and instruments of public policy through production and dissemination of knowledge

EMERGING FORMS OF RESEARCH AND RESEARCH IMPACT

The second goal of the Subcommittee on Research Impact was to identify the emerging forms of research and research impact that require closer attention as the UR Strategic Plan continues to be implemented during the next five years. In its strategic plan 2015-2020, the University has adopted *Indigenization* as an area of emphasis that is to be integrated into each of the three strategic priorities, namely "student success, research impact, and commitment to our communities". The subcommittee urges greater awareness and recognition of Indigenous research as part of the University's avowed commitment to Indigenization. The Strategic Plan adopts the following definition of Indigenization as formulated by the Aboriginal Advisory Circle to the President.

> Indigenization is "the transformation of the existing academy by including Indigenous knowledges, voices, critiques, scholars, students and materials as well as the establishment of physical and epistemic spaces that facilitate the ethical stewardship of a plurality of Indigenous knowledges and practices so thoroughly as to constitute an essential element of the university. It is not limited to Indigenous people, but encompasses all students and faculty, for the benefit of our academic integrity and our social viability" (URSP 2015-2020, ft 3, p. 9).

To meet the objective of Indigenization, we need to ask how research and research impact can be assessed from Indigenous perspectives. First, it is important to recognize that Indigenous peoples (First Nations, Inuit, and Metis peoples) are a highly diverse segment of the Canadian population. Every Indigenous ethnicity has its own history, priorities and protocols that must be considered relevant to how researchers should conduct themselves and seek to partner with community members. Second, Indigenous peoples have a long history of being the subjects of

research, much of which has supported the social programs of non-Indigenous societies, marginalized the voices of Indigenous peoples and minimized their right to determine their own priorities based on their values and needs. Therefore, it should be a priority for the University researchers to seek partnerships with Indigenous researchers and communities that will lead to their empowerment to define, fund research, and resolve issues facing Indigenous communities.

Research partnerships should be founded on principles of respectful, accountable relationships, reciprocity, and shared benefit for the creation of relevant research results. Indigenous community members and personnel must have the opportunity of meaningful involvement in the research process from the outset. In other words, such involvement must be meaningful to Indigenous participants themselves as opposed to an act of tokenism on the part of researchers or researchers' objectives taking priority. Research whose end result is not clearly understood or which is not valued by Indigenous peoples themselves is likely to be seen as exploitive. Indigenous participants should contribute to determining their degree of involvement in research objectives, design, data collection, analysis, interpretation, reporting, and implementation. Periodic assessments of research processes and relationships should be undertaken.

Indicators of research impact from Indigenous perspectives include the following:

- Number of funded Indigenous graduate students; number of community projects with First Nations, Inuit, Metis organizations or communities
- Evidence of Indigenous project leadership (e.g., co-principal investigators from Aboriginal organizations, council members from First Nations)
- Portion of funding budget that directly supports Indigenous organizations, researchers, communities and participants
- Appropriate acknowledgement of Indigenous contributions to research publications through co-authorship with Indigenous research collaborators (community knowledge holders, researchers and community leaders)
- Publications for community use that include descriptions of research purpose, processes, results and implications using an accessible language. Community resources can include newsletters, short videos and other recordings. It may be appropriate to support Indigenous language revitalization by making recordings and text of research findings available in Indigenous languages.

Another emerging form of research and research impact that needs closer attention is community-engaged research. As noted earlier, "commitment to our communities" is one of the three strategic priorities in the U of R Strategic Plan 2015-2020. The URSP also refers to "professional recognition of community engaged research" as one of the success indicators in delivering its research impact objective (p. 13). It is important to recognize that the impact of community-engaged research is generated not only through the end product of research activity but also in the very process of research. That is because community-engaged research usually allows community members to participate in the research process as active agents not merely

subjects of research; thus, community participants' experiences and perspectives as well as the researcher's may transform as a result of participating in the research process itself.

15 June 2016

CCR Subcommittee on Research Impact
Darren Candow
Sally Gray
Justin Longo
Nilgün Önder, Chair
Christopher Somers
Marc Spooner
Joan Wagner

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We owe the section on Indigenous research to Dr. Andrew Miller from FNUniv and his collaborators Dr. Carrie Bourassa and Dr. Blair Stonechild. We greatly appreciate their contribution.

Proposal for CFI John Evans Leadership Fund (JELF) Allocation

Background

The University has an allocation of $627,500 for 2017-2020, after $250,000 was reserved for Canada Research Chairs renewing in 2016 (Huang, Leavitt, Zilles). $400,000 is available to and managed by First Nations University for 2017-2020 as a separate allocation.

JELF is intended to help institutions attract and retain the very best researchers by offering institutions the opportunity to acquire infrastructure for their leading research faculty to undertake cutting-edge research. It supports infrastructure, and an accompanying Infrastructure Operating Fund grant funds a portion of the O&M costs.

A CFI Sub-Committee of CCR reviews internal proposals and makes strategic decisions regarding usage of CFI envelope. However, in the past, guiding priorities were not explicit and the Sub-Committee made decisions on a competition-by-competition basis. Given the size of the allocation and the potential demands for CFI funding, consideration should be given to providing strategic guidelines for the use of the CFI allocation.

Considerations

Applicants for CFI grants generally fall into 3 categories:

- Canada Research Chairs
- Senior faculty, not holding a CRC
- Junior faculty (pre-tenure, tenure-track)

In the past, it has been difficult for junior faculty to receive an allocation from the Sub-Committee because their records are generally not as strong as those of CRCs or other senior researchers.

Over the next 3 years, the University expects to submit eight CRC proposals, not counting the three renewals being submitted in October, 2016. Of these, four are in NSERC or CIHR disciplines and could reasonably be expected to have equipment needs. It is also quite possible that some or all of the SSHRC-eligible CRCs could need infrastructure.

The University has identified five strategic clusters in the University of Regina's Strategic Plan 2015-2020: "*peyak aski kikawinaw* Together We Are Stronger". Supporting actions within the research impact strategic priority indicate that the university will prioritize research resources and develop new funding partnerships that align with the five strategic research clusters.

Recommendations

1. The remaining CFI JELF allocation should be divided into two equal amounts ($313,750 in each). One would be used for incoming or renewing CRC holders. The other would be available on a competitive basis for existing UofR faculty and incoming recruits. While a

case could be made for setting aside an allocation specifically for junior faculty, the remaining allocation is too small for this to be practicable.

2. Applications to the CRC allocation (i.e. associated with a simultaneous CRC renewal/new application) will not go to the CFI Sub-Committee of CCR but will be managed through the CRC nomination process.

3. Applications to the general allocation (i.e. not associated with a simultaneous CRC renewal/new application) must involve more than one principal user, and priority will be given to applications that include partnership with junior faculty.

4. Priority will be given to applications that fit within the five research clusters or a recognized emerging cluster.

5. Applications that meet the priorities of points 3 and 4 must also standards of excellence expressed by the CFI evaluation criteria:
    - innovative research
    - strength of researcher(s)
    - need for infrastructure
    - training of HQP
    - benefits to Canadians

6. Given the limited funds for the general allocation, the University should hold one competition only. To include new faculty recruits, the internal call for proposals would be issued in July, 2017 for applications to be submitted in February 2018. Results would be known in time to have a call for any unclaimed funds for the February 2019 competition. Unclaimed funds are possible if, for example, an application is submitted but not approved at CFI.

7. Researchers at First Nations University would not be eligible for an allocation from the UofR allocation.

FACULTY OF ENGINEERING AND APPLIED SCIENCE
SASKPOWER CLEAN ENERGY CHAIR
NSERC AREA: CLEAN ENERGY

Candidate Profile

Qualifications: PhD in Chemical Engineering, or Mechanical Engineering, or Process Systems Engineering, or Industrial Systems Engineering, or equivalent.
Rank: Tenured at the rank of Full Professor.
Others: Demonstrated track record of leadership in research related to clean energy, and in particular Carbon Capture, Utilization and Storage (CCUS), in terms of innovation, funding support and scholarly publications.

a) Rationale for the Research Chair allocation

The SaskPower Chair in Clean Energy is intended to provide a comprehensive portfolio of solutions that will address global warming, climate change and sustainability – one of the most challenging issues of our times. This Chair position is also intended to cement the position of the University of Regina as the global leader in carbon capture, utilization and storage (CCUS) clean energy research.

Saskatchewan is one of the economies and/or geographies where the sudden introduction of traditional renewables or low-carbon technologies like wind, solar, hydroelectric, and nuclear energy is economically, socially, and/or practically challenging and may impose economic hardship. This is due to Saskatchewan's heavy reliance on fossil fuels, and having a small population spread over large geographical area. The same challenge is faced by developing nations requiring transition technologies to enable them to grow their economies and develop industries and resources without placing undue hardship on their economic and social growth and development.

One of the most effective ways to address global warming, climate change and sustainability is CCUS. SaskPower has taken an international lead on this front by its pioneering work at the Boundary Dam 3 (BD3) Carbon Capture project. The SaskPower Chair in Clean Energy is intended to lead a team of researchers in support of CCUS technologies. CCUS through the SaskPower Chair will therefore be the backbone on which **sustainability**, an over-arching theme in the University of Regina's 2015-2020 Strategic Plan will rest. Through this Chair position, operational data from SaskPower's Boundary Dam 3 Carbon Capture project, along with appropriate models, will be used to demonstrate the economic sustainability of the current state of Carbon Capture and Utilization (CCU) in comparison to other current alternative energy generation technologies. The results will be used as the benchmark for future technological advances in CCU and other energy alternatives viable. Through this Chair position, potential breakthrough technologies in post- and pre-combustion carbon capture, as well as innovative ways of utilizing and / or storing captured CO_2, will aim at generating improved technical, economic, and environmental sustainability options. The Chair will also develop means to introduce and test new CCU technologies into BD3 to determine their effectiveness and technical and economic viability.

Research strengths in the proposed field

The Clean Energy research envelope at U of R is world-leading, particularly in matters related to carbon capture and utilization. This Chair position will be situated in the Faculty of Engineering & Applied Science under the auspices of the Clean Energy Technologies Research Institute (CETRI). CETRI's Clean Energy research ranks about top 5% globally[1] in this area of research. The existing research environment in Clean Energy has up to nine (9) experienced Faculty members[2] and about twenty (20) graduate students. The research environment is supported by a superb infrastructure, consisting of two pilot plants, a top of the line laboratory, and excellent computer/analytical support.

CETRI's unique comparative advantages over other global leaders are: (i) access through key partnerships to the most comprehensive dataset on commercial-scale CCU projects, including SaskPower's BD3, and the CETRI's long-running CCU R&D program; (ii) critical mass in the CETRI for CCU research, (iii) demonstration of past and current leadership and pioneering in CCU, (iii) the unique array of infrastructure for CCU at the U of R, (iv) experience leading a global consortium on CCU R&D, (v) established intellectual property on game-changing technologies in CCU, and (vi) the availability of globally-recognized complementary skills in environmental and risk assessment and social and public policy.

Expected ability to leverage additional resources

The SaskPower Chair in Clean Energy will work with top notch researchers at CETRI, who are recognized globally, and who have attracted national and international support with an excellent publication record. CETRI also attracts high quality graduate students, and has advanced equipment, analytical and computer support and the critical mass in this area of research. CETRI is also closely linked with the relevant industry stakeholders, particularly SaskPower, PTT (Thailand), City of Regina, Qatar University (Qatar), and the Petroleum Technology Research Centre (PTRC). This will facilitate the integration of the Chair with top notch researchers and very supportive industrial partners. The contemplated international consortium led by SaskPower on carbon capture, storage and utilization will also give the Chair an additional boost. These connections will facilitate leveraging of additional resources nationally and internationally.

CETRI has, currently and in the past, successfully acquired funding from external sponsors, and is focused on providing research impact from this funding. CETRI has the ability and potential to leverage additional resources from partners including Evraz North America, New World Orange Biofuels Inc., Prairie BioGas Ltd., Shaanxi Yanchang Petroleum (Group) Co., China, and PTT Public Company Limited. An additional seven-ton per day pilot field demonstration facility at Shand, Estevan for scaling up carbon capture technologies is planned for a CFI funding application. CETRI will use other federal funding programs as appropriate such as leveraging the MITACS funding program as needed as well as NSERC CRD, WED and CFI to

[1] Expert Panel Review Report, Canada First Research Excellence Fund-Round 1, Ottawa, 2015.

[2] R. Idem, P. Tontiwachwuthikul, G. Huang, A. Veawab, C. Chan, A. Henni, H. Ibrahim, A. Aroonwilas and D. deMontigny.

support the research activity of students and for research infrastructure. Finally, CETRI will leverage the CFREF funding, if successful, to support the Chair's research agenda by hiring a Senior Scientist and a Manager/Business Developer.

Contribution to the creation and mobilization of knowledge through training of graduate students and highly qualified personnel, outreach activities and interdisciplinary collaboration, and potential of attracting a high-caliber candidate

The Chair will be able to create and mobilize knowledge through training of additional graduate students and HQPs, within a collaborative research team and supportive research partners. We expected the recruitment of additional graduate students and other researchers. So far, CETRI has taken advantage of new knowledge and experience generated from CCU R&D to enrich and expand its academic curriculum with new degree programs and course offerings including: Master's Degree Program in Process Systems Engineering (2009); PhD Program in Process Systems Engineering (2015); New Courses: (i) Advanced Topics in CO_2 capture, (ii) Catalyst and Adsorbent Technology, (iii) Applied Artificial Intelligence, (iv) Carbon Management, (v), A Systems Engineering Approach to Project Management, (vi) Acid Gas Capture and Storage, (vii) GHG Regulatory Review, and (vii) Organizational GHG Accounting; Joint Graduate International Program in PSEng with Hunan University, China; Training provided to end users (consortium members) during the UofR international consortium (2000-2009); Training of Senior Process Engineers and scientists in CCU; Joint Supervision of students by UofR faculty with faculty from: (i) Chulalongkorn University (Thailand), (ii) Petroleum and Petrochemical College, Chulalongkorn University (Thailand), and (iii) Hunan University, Changsha (China); Joint Research Collaboration with: (i) Norwegian University of Science and Technology (NTNU, Norway), (ii) University of Kaiserslautern (Germany), (iii) Hunan University, Changsha (China), and (iv) Esbjerg CASTOR CO_2 capture plant (Denmark).

HQP graduated per year in CCU research areas

Year	2010	2011	2012	2013	2014
Masters	9	7	10	13	13
PhD	5	2	8	1	5
PDF$^+$	3	3	5	4	4

$^+$PDFs are in terms of "available per year" and not "graduated per year".

Some of students have benefited from the Saskatchewan Entrance Scholarship, NSERC Master's and PhD scholarships, and AUTO21 and H2CAN scholarships. About 80% of the Master's graduates are working in industry as process engineers, project engineers, and plant engineers mostly in the CCU and process industries. About 18% went on to enroll in PhD programs, some at UofR. The PhD graduates went to work in industry (R&D), academia, or as PDFs. Specifically, one of the 2010 PhD graduates is the Department Head of Chemical Engineering and Executive Director of iCCU (Hunan University, China), one of the top CCU

centres in China. Also, one of the top iCCU students with a China Scholarship Council (CSC) scholarship has enrolled in our PhD program. During the SaskPower Chair tenure, the Chair will mobilize knowledge through the creation of the following new programs: (1) Collaborative MSc degree with International Universities in CCUS (e.g. such as University of Edinburg, UK), (2) post graduate diploma in CCUS, (3) Master of Engineering (both Coop and Project based) in CCUS, (4) An undergraduate option in CCUS as part of the Process stream in Industrial Systems Engineering. Above all, the SaskPower Chair program will train the workforce required for the new and emerging CCUS industry. Moreover, the Chair will revitalize existing facilities to function as an independent centre for independent testing of new and innovative carbon-capture technologies.

b) Description of the research environment

Existing critical mass of research or, if an emerging area, the potential for building critical mass

The existing research environment has up to nine (9) experienced Faculty members and about twenty (20) graduate students doing research in Clean Energy. The research environment can boast of two pilot plants, top of the line laboratory infrastructure, and analytical support.

Since 2000, six research faculty members[3] were recruited based on access to our post-combustion carbon capture PCCC facilities, including the most recent in 2010. Also, postdoctoral fellows, most students in PSEng, Mitacs students, international summer students, international graduate students, and Brazilian undergraduate students came for training because of centre facilities. Researchers from Chulalongkorn University (Thailand), Petroleum and Petrochemical College (Thailand), Prince of Songkla University (Thailand), Hunan University (China), University of Melbourne (Australia), Imperial College (UK), Universidad de Zaragoza (Spain), University of Saskatchewan (SK), University of Northern British Columbia (BC), Doosan Heavy Industries (UK and Korea for Researchers, Scientists and Engineers), Suncor-Statoil (Canada and Norway for Research Engineer), Shell International (US for Research Engineer), Exxon Mobil, and Mosaic Potash (Canada) have been granted access to the equipment and labs in the GHGTC.

The Chair position sponsored by SaskPower will facilitate partnerships with SaskPower regarding researchers' access to field demonstration sites. Field demonstration is expected to include integrated PCCC and power plant sites and geosequestration sites.

Research environment within the academic/research unit

This position will be situated in the Faculty of Engineering & Applied Science under the auspices of the Clean Energy Technologies Research Centre (CETRI). There will be no challenges in terms of research space, thanks to the existing superb research facilities. The Chair will lead a strong team of researchers and graduate students. The Faculty's emphasis on research practicability and the systems approach to engineering problems, which the Faculty is well known for, will enable the Chair to have a significant impact in this area of great importance. The existing strong industrial collaboration will help in transferring technology developed by the Chair and his/her team to the field.

[3] A. Veawab, A. Aroonwilas, A. Henni, H. Ibrahim (recruited in 2010), D. deMontigny and N. Mahinpey (moved to U of Calgary).

The U of R has dedicated the $13M Greenhouse Gas Technology Centre (GHGTC) building (1261.9 m^2) solely for CETRI's CCU research. Its high ceiling area houses the CO_2 capture technology development pilot plant ($3.5M), the CO_2 utilization (i.e. feed flexible and process flexible hydrogen and synthesis gas production) pilot plant ($2.7M), as well as a catalyst manufacturing pilot plant. The other areas house world-class fundamental- and bench-scale laboratory research facilities and analytical, library, and computer facilities. The U of R has excellent modeling and simulation software for CCU research. It is the only institution in the world with a full array of infrastructure from needle size to pilot plants complete with analytical/computer support for CCU research.

c) Strategic Research Plan

Expected impact on the research profile of the academic/research unit and the University

The SaskPower Chair in Clean Energy will lead the Clean Energy Research in CETRI, and will thus help to enhance the very strong national and international reputation of CETRI in Clean Energy. Through developing breakthrough and game-changing technologies in Clean Energy, the overall goal will be to make the U of R to become the global leader in Clean Energy research, in general, and CCU research, in particular. The Chair will ensure that the U of R is the go-to centre for research in Clean Energy.

Demonstration of fit with the University's Strategic Research Plan, including recognition of or alignment with signature research clusters of the University

This Chair fits directly within one of the priorities of the University of Regina's strategic plan: research impact. The mandate of the Chair is to make an impact on climate change by developing means to generate clean energy. Clean energy also fits well with this University's emphasis on sustainability, in particular environmental sustainability. The development of aboriginal communities and the improvement of their quality of life will require a clean source of energy. The Chair will work with First Nations communities to assess the use of renewable energy technologies; another indirect fit for the Chair's mandate with the indigenization thread of the University's strategic plan, as well as its commitment to our communities. A SaskPower Chair in Clean Energy will send a strong message to our students that we are committed to their success in a future clean-energy world. The proposed SaskPower Chair position in Clean Energy will therefore fulfill many of the University strategic goals. This SaskPower Chair will align with the "Water, Environment and Clean Energy" research cluster as well as Johnson Shoyama School of Public Policy (JSSPP).

Positioning of the University with respect to the Research Chair in the Saskatchewan/Canada context

U of R will be able to comprehensively tackle and provide many possible solutions for Saskatchewan and Canada to address Climate Change challenges and fulfill commitments in sustainability and greenhouse gas mitigation. The Prime Minister announced plans to invest $300M a year in clean energy technology to support innovation to address environmental challenges and use of clean technologies in the natural resources sector. In addition, the training of HQPs by the Chair will add to the resourcefulness of the Province and the Country by training

capable engineers who can assist many other jurisdictions in developing their own clean energy solutions.

d) Potential impact of a new Chair to the Faculty of Engineering and Applied Science:
Expanding, growing and increasing research activity and impact

This position expands, grows and increases the research impact in all areas of Clean Energy.

Substantially improving national and international reputation

The Chair will add to maintaining the national and international reputation U of R enjoys in clean energy, and has the potential of making U of R the global leader in Clean Energy research.

Increasing ability to recruit highly qualified student researchers

It will substantially increase our ability to recruit top notch students in all areas of clean energy.

Enhancing and leveraging government and private industry funding opportunities

It will increase our ability to leverage government and private industry funding opportunities in all areas of clean energy. In particular, the SaskPower Chair in Clean Energy will enable us to tap into the Federal Government $2 billion low carbon fund in support of the federal government's climate change agenda. This has the potential to enhance the CETRI's research and expertise in the area of carbon capture technologies." It will also allow CETRI to tap into any Saskatchewan Provincial funding for Clean Energy Technologies. Overall, it will lead to increasing the rate of external funding success. Given that this is a rich Province in coal, oil and biomass, developing clean combustion technology should attract the attention, and hence funding from local sources.

(e) Reporting Mechanism

Progress on the activities in the SaskPower Chair program will be done as follows: (1) six-month Progress Reports to the Dean of the Faculty Engineering and Applied Science, Vice-President Research and SaskPower. The report will include contributions to knowledge, achievements, impact, training, and budget; (2) quarterly meeting with SaskPower technical group in CCUS, followed by a brief report to the Dean of the Faculty Engineering and Applied Science and the Vice-President Research.

(f) Budget and Funding

The Chair is to be funded by SaskPower through its $3.5M gift to U of R for clean-energy research. The total five-year budget is estimate to be $1,073,854, budget as shown below.

Budget Details

Year	2016-17	2017-18	2018-19	2019-20	2120-20	Note
Basic Salary	$161,627	$164,051	$166,512	$169,009	$171,546	Assuming annual 1.5% increase
Fringe Benefits	25,860	26,248	26,642	27,042	27,447	16% of Basic Salary
Market Supplement	6,574	6,574	6,574	6,574	6,574	
Research Chair Stipend	15,000	15,000	15,000	15,000	15,000	Article 14.6.7 of the Collective Agreement
Total	$209,061	$211,873	$214,728	$217,625	$220,567	

TOTAL (5 years) $1,073,854.