

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Strategic Research Intensity Plan 2014-2020

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Office of the Vice-President (Research)

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Executive Summary and Recommendations

The process of arriving at the Strategic Research Intensity Plan 2014-2020 was initiated by Dr. Richard Marceau, Vice-President (Research) on December 5, 2013, at the request of the Board of Regents and the President of Memorial University. As a partnership between Memorial University's administration, academic units, faculty members and staff, the Strategic Research Intensity Plan 2014-2020 builds on the University's Research Strategy Framework to support the university's vision to "... be one of the most distinguished public universities in Canada and beyond ...". This Plan reflects a synergistic and integrated approach for strengthening all aspects of research at Memorial University, including scholarship and creative activities, as well as the translation of knowledge into products, practices, and policies, and other forms of community engagement. In particular, the following recommendations aim to initiate a historic generational transformation of Memorial University's ability to achieve this vision:

1. **Faculty Member Career Support:** Memorial University will provide a comprehensive environment for nurturing and supporting faculty members in building the most successful university career of any university in Canada, with particular emphasis on faculty member career life-cycle, including recruitment, start-up funding, orientation (including appropriate introduction to institutional support, such as the CREAT Network, available for research programs), mentorship, workload allocation and recognition processes.
2. **Research-based Graduate Student Support:** Memorial University will provide the most student-friendly environment in Canada, and as part of its Strategic Enrolment Plan, implement a comprehensive life-cycle approach for serving its graduate students and enhancing their research learning and training experience.
3. **Research Space and Infrastructure:** Memorial University will prepare the most comprehensive Strategic Infrastructure Plan since the creation of the university in support of all of its academic priorities, including enhanced research intensity. This plan will provide clarity on priorities and timelines of individual projects, facilitate planning in individual Schools, Faculties and Campuses, and emphasize quality project management in all facets of its construction, major renovation, maintenance and equipment fabrication projects. Additionally, future allocations from the Canada Foundation for Innovation (CFI) will be aligned with the priority research themes of the Research Strategy Framework, and a list of priority projects will be identified as major infrastructure funding opportunities from CFI and other federal or provincial sources arise.
4. **Research Seed, Bridge and Multidisciplinary Funding:** Memorial University will establish an institutional research fund of small-scale initiatives for seeding new, "early days" innovative research projects, for providing valuable bridge funding for researchers between grants, and for encouraging the development of multidisciplinary research activities which align with the priority research themes of the Research Strategy Framework.
5. **Undergraduate Research Incentive Funding:** Memorial University will create a fund in support of undergraduate summer research internship opportunities. This fund aims to stimulate heightened interest of graduate studies and research careers among undergraduate students, create a bridge between faculty members wishing to nurture such interests and students willing to engage in research, promote a culture of research intensity among undergraduate students,

and provide research-based supervisory opportunities for faculty members in areas with low graduate enrolments, or currently having little or no access to research-based graduate programs. In parallel with the fund, the opportunity of offering credits for such undergraduate research activities will also be investigated.

6. **Research Grant and Contract Facilitation:** Memorial University will continue to implement the recommendations of the review of the grants and contracts portfolio of the Office of the Vice-President (Research) approved by the Board of Regents on December 5, 2013, and institute fully integrated and streamlined grant facilitation processes to assist faculty members in obtaining research grants and contracts. There will be grants facilitators available to every School, Faculty and Campus, fully integrated within a cohesive and coordinated formal network, providing full life-cycle support of grants and contract activities. A network-based approach, fully integrated within the Research Grants and Contracts Services office processes, achieving a respectful balance between local needs, institutional priorities and clear accountabilities, will create a stronger team-oriented culture at the institutional level, reduce redundancies, speed up response times, facilitate greater peer mentoring and coordination, and emphasize a culture of high standards and best practices. The roles, responsibilities and functions will also be clarified between Genesis and the Office of the Vice-President (Research).
7. **Advocacy in Favor of a Provincial Health Research Fund:** Memorial University will undertake an active advocacy campaign with the provincial government and other potential funding organizations to promote the need for and benefits of creating a provincial research fund in the area of health sciences.
8. **Advocacy in Favor of a Provincial Arts, Humanities and Social Science Research Fund:** Memorial University will undertake an active advocacy campaign with the provincial government and other potential funding organizations in order to promote the need for a provincial research fund in the arts, humanities and social sciences.
9. **Research-based Graduate Program Creation:** Memorial University will establish research-based Master and Doctoral programs at every School, Faculty and Campus so that graduate student supervision of research-based graduate students is available to all faculty members.
10. **Research Chair Allocation and/or Creation:** Memorial University will establish or maintain at least one research chair (using existing chair programs such as Canada Research Chairs, or NSERC Industrial Research Chairs, but also through the development of new chair opportunities with a variety of funding partners) in every School, Faculty, and Campus, in areas identified as priority research themes within the Research Strategy Framework. In order to enhance the attractiveness of Memorial University Canada Research Chair offerings, and strengthen chair holder retention, the portion of funding attributed to the research activities of new Canada Research Chairs will be adjusted to ensure that Memorial's CRC Chairs are among the most desirable in Canada.
11. **Scholarly Dissemination:** Memorial University will increase its yearly output of scholarly dissemination by its faculty members in forms appropriate to the discipline by 100%, by December 31, 2020. Memorial University will institute a university-wide process for creating an annual inventory of the scholarly dissemination of its faculty members, to chart its progress in achieving this goal.

12. **Metrics and Tracking:** Memorial University will identify suitable metrics, and implement formal metric-tracking processes, in order to ensure that the recommendations of the Strategic Research Intensity Plan 2014-2020 are implemented, and that progress towards its goals is achieved and reported in a timely manner.

Introduction

Over the past decade, the Province of Newfoundland and Labrador has witnessed a period of economic prosperity unparalleled in its history, far exceeding national economic indicators. As one of the key underpinnings of the province's capacity to shape its future, Memorial University has both a responsibility and a unique opportunity to assist the province in its aspiration to strengthen every aspect of its society, in particular its ability to ensure the long-term sustainability of its culture, its economy and its people.

In this quest for sustainability, Memorial University's capacity to perform research is a critical ingredient. For over ninety years, Memorial University has provided the human capital so essential to the province's ability to compete and to thrive in a complex, knowledge-based, value-added economic system. In this regard, from the perspective of the student, research is unique in that it is a learning strategy employed with increasing intensity, from bachelor, through master, to doctoral study programs. Where research is employed in the university curriculum, students are exposed to problems with increasingly fewer constraints, until they deal essentially with real-world problems. As evidenced many times in history, great research amounts to solving great problems, and Memorial University's students, under the supervision of – and in partnership with – their excellent faculty member supervisors, aim to achieve just that, with a particular focus on the province's priorities. When the time comes to disseminate the results of their research, faculty members and students either publish them in the many publications open to researchers – scholarly and otherwise – or make them more broadly available through the many venues characteristic of artistic creation or innovative professional practice. Either way, this enhances the university's reputation, in turn attracting partnerships with industry, government and community players, and increasing its ability to recruit new students. As faculty members intensify their research activities and disseminate their findings, their ability to attract new operating and equipment funding is increased, which has significant, positive impacts on the university's attractiveness to graduate students: equipment grants enable faculty members to purchase research infrastructure which attracts graduate students, and operating grants enable faculty members to offer financial aid which retains graduate students.

As Memorial University approaches the anniversary of its first century of existence, the province has time and again demonstrated its unwavering commitment to Memorial, and has steadily increased its financial support. This has translated into significant successes – plans set in motion to modernize the university's capital infrastructure, unprecedented growth of its graduate student body, rapidly increasing contributions to world scholarship and to the health and industry of the people of Newfoundland and Labrador, and significant success in obtaining competitive funding in support of its students and research activities. Memorial University can now afford to give itself goals and objectives which, only a few years ago, might have appeared outrageous rather than ambitious.

Memorial University's Research Strategy Framework's goals of excellence, growth and impact on the Province provide a significant foundation for achieving its vision to "... be one of the most distinguished public universities in Canada and beyond ..."

Building on the Research Strategy Framework, by December 31, 2020, the purpose of Memorial University's Strategic Research Intensity Plan 2014-2020 is to initiate a historic generational transformation of Memorial University's ability to:

- Accelerate the production and dissemination of scholarly outcomes, and strengthen its capacity to compete successfully for grants from Canada and abroad;
- Intensify its ability to supervise and graduate master and doctoral candidates, and grow the pool of highly qualified human capital so important for building Newfoundland and Labrador, and Canada;
- Continue to build its reputation, facilitating the recruitment of high quality students, faculty members and staff to the university, and the province, and
- Enhance its capability to address the research priorities of government, industry, and society at large in Newfoundland and Labrador.

Methodology

The methodology for preparing the Strategic Research Intensity Plan 2014-2020 was shaped by the Board of Regents' requirement on December 5, 2013, that a draft document be presented within four months. As a result, the process was structured in terms of three phases, heavily focused on consultations within all Schools, Faculties and Campuses of the university community:

- The first phase included meetings held with all of the university's senior academic heads (i.e., School / Faculty Deans, Campus Vice-Presidents) senior administrators, and student representatives.
- The second phase included meetings with the university's formal advisory bodies in the research area (i.e., Research Council, Senate Committee on Research), the formal advisory bodies on planning (i.e., Deans Council, Senate Committee on Planning and Budget), and formal decision-making bodies (Vice Presidents Council, Senate). These meetings aimed at obtaining advice and comment either on the process of constructing the Plan, or on its substance.
- The third and final phase consisted of a 6-week consultation period aimed at the entire university community, beginning March 3. This period included a presentation to the Board of Regents on March 13, 2014, of the draft submitted for wide consultation to the university community.

The first phase included 29 separate interviews involving 40 different administrators and student representatives. To set the stage for each discussion, the participants were provided with a background on the objectives of the Plan, as outlined in the Introduction. The participants were then invited to share their views extensively on the following question:

"If the university gave itself the goal of doubling its yearly scholarly activity and artistic creation over the next seven years (that is, by the end of 2020), what are the key barriers that would need to be addressed, and what would be the ideal solutions to those barriers?"

In all of these interviews, participants were highly receptive to purpose and intent of the consultation, and supported the value of a planned and measured approach to increasing research intensity. Their willingness to participate and share their knowledge and insights was essential to this process and is deeply appreciated.

Key Findings and Recommendations

Throughout the interview process, a clear consensus emerged that the proposed target of doubling Memorial University’s scholarly output by the end of the year 2020 was achievable provided that significant progress was made in establishing the conditions for success identified in the exchanges. An important corollary to this conclusion was that an institutional process needed to be implemented for tracking scholarly outcomes (e.g., scholarly publications, the many forms of artistic creation, etc.) which was both rigorous and simple. The findings of the report are contained in 12 recommendations for increasing the intensity of Memorial University’s research activities, the themes of which are identified in Table 1. As can also be seen in Table 1, each recommendation is clearly aligned with one of the four goals of the Research Strategy Framework. The recommendations are now addressed in greater detail.

TABLE 1
Alignment of Strategic Research Intensity Plan 2014-2020 Themes
and the Research Strategy Framework Goals

Research Strategy Framework Goal	SRIP 2014-2020 Themes
1. Attract, retain, support and celebrate people engaged in and supporting research	1. Faculty Member Career Support 2. Research-based Graduate student Support
2. Support an environment of research collaboration	3. Research Space and Infrastructure 4. Research Seed, Bridge and Multidisciplinary Funding 5. Undergraduate Research Incentive Funding 6. Research Grant and Contract Facilitation
3. Engage with community partners and collaborators locally, nationally and internationally	7. Advocacy in Favor of a Provincial Health Research Fund 8. Advocacy in Favor of a Provincial Arts , Humanities and Social Sciences Research Fund
4. Support fundamental and applied research excellence in areas of strategic opportunity	9. Research-based Graduate Program Creation 10. Research Chair Allocation and/or Creation 11. Scholarly Dissemination 12. Metrics and Tracking

1. Faculty Member Career Support

Context

At the heart of successful research-intensive universities are successful research-intensive faculty members. However, a successful research-intensive career relies on the careful nurturing of faculty members through a number of hurdles. Efficient recruitment processes, rapid access to start-up funding, formal orientation (including appropriate introduction to institutionally supported research infrastructure, training and technical support, such as that found in the CREAT Network) and mentoring programs, calibrating teaching and graduate student supervision workload (i.e., finding a balance between the number of courses taught and the number of graduate students supervised), the promotion and celebration of contributions to graduate student education and research successes, the opportunity to benefit from “publication and artistic creation” support to complete books, lengthy articles and many forms of artistic creation are, among others, the hallmarks of successful research universities and are exemplars of best practices. Such best practices favor not only successful career start-ups but also the recruitment and long-term retention of faculty members.

Recommendation 1

Memorial University will provide a comprehensive environment for nurturing and supporting faculty members in building the most successful university career of any university in Canada, with particular emphasis on faculty member career life-cycle, including recruitment, start-up funding, orientation (including appropriate introduction to institutional support, such as the CREAT Network, available for research programs), mentorship, workload allocation and recognition processes.

Goals

- Start-up funding: implement a simple, rapid start-up funding procedure for all of Memorial University’s faculty members, effective July 1, 2014.
- Workload: achieve a more appropriate workload balance reflecting the accomplishments and aspirations of individual faculty members with respect to their teaching and research activities, including graduate student supervision, effective July 1, 2015.
- Recognition: actively publicize the outcomes of research activities, intensify efforts to find candidates for internal and external awards, and implement 10 competitive “publication and artistic creation” investments per year for deserving candidates, effective July 1, 2015.
- Recruitment: accelerate current hiring procedures for faculty members and research chair candidates, effective July 1, 2015.
- Orientation: implement a formal orientation process when hired for the first time at the university, effective July 1, 2015.
- Mentoring: implement a formal mentoring program for all new faculty members in teaching and learning, research, grantsmanship and community engagement, effective July 1, 2015.

- Support: ensure adequate introduction to existing infrastructure and support (such as that available through CREAT); enable growth of institutional infrastructure and support through enhanced engagement with faculty, effective January 1, 2015.

Champions

Provost and Vice-President (Academic); Vice-President (Research)

Partners

Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute; University Librarian

2. Research-based Graduate Student Support

Context

The core business of universities is to offer university education at the bachelor, master and doctoral levels. From the student's perspective, research is a learning strategy employed with increasing intensity from bachelor, through master, to doctoral studies. Research funding obtained by faculty members in the form of research grants and contracts are key to providing an appropriate environment for stimulating creativity, discovery and character-building while learning to deal with the uncertainty of a successful research outcome. At Memorial, the CREAT Network is available as a further resource for faculty and students to enrich student research training.

However, a successful experience as a graduate student entails a great deal more. This includes recruiting graduate students from around the world which adds cultural richness and diverse perspectives to our university community, having access to a suitable place to live and to relax (possibly in company of a young family), finding friends to relieve the pressure of constant work and high ambition, having access to appropriate counselling services when needed, and many others. Upon graduation, not only does one wish for Memorial University alumni to have successfully completed their program of study, but to have fond memories of their experience here, and perhaps stay to continue building Newfoundland and Labrador, and Canada. Though the demographics of Newfoundland and Labrador do not currently favor local bachelor-level recruitment, Memorial University has a unique opportunity to attract and retain graduate students from all over the world who might someday wish to make the province their home.

Recommendation 2

Memorial University will provide the most student-friendly environment in Canada, and as part of its Strategic Enrolment Plan, implement a comprehensive life-cycle approach for serving its graduate students and enhancing their research learning and training experience.

Goals

- Increase Memorial University's yearly research-based Master and Doctoral graduates by 100% by the end of 2020, and be recognized as the most student-friendly research-intensive university in Canada.
- Ensure adequate introduction to existing infrastructure and support (such as that available through CREAT), effective January 1, 2015

Champions

Provost and Vice-President (Academic); Dean, School of Graduate Studies (SGS), Vice-President (Research)

Partners

Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute; University Librarian

3. Research Space and Infrastructure

Context

Access to appropriate quality teaching, laboratories and office space is presently a substantial barrier to the expansion of research activities driven by graduate enrolment growth, the addition of new research-based master and doctoral programs, increased external funding, and the expansion of faculty complements. Memorial University's present physical infrastructure is unfortunately largely deficient in terms of quality and quantity for a university which aspires to be world-class. In the short term, planning for new facilities must urgently address needs in the Faculty of Science, the Faculty of Engineering and Applied Science, and the Animal Resource Centre, though many other priorities exist.

Today, with rapidly growing mineral resource and offshore petroleum industries, the province's economy is undergoing a historic transformation. In turn, the province's commitment to Memorial University has never been stronger. As a result, with the province's continuing strong support, the university stands on the threshold of the single largest investment in its infrastructure since its creation. Appendix A identifies the university's high-priority research space infrastructure and equipment priorities by School, Faculty and Campus which will figure in Memorial University's 2014 Strategic Infrastructure Plan.

An important corollary to the establishment of new infrastructure is to increase existing project management capability to support a highly-sophisticated research environment, characterized by some of the most advanced research equipment available, with unique and complex infrastructure and support requirements. While such needs tend to be addressed effectively during the construction phase of new projects, the university must now aspire to a new level of sophistication in its maintenance,

renovation and research equipment fabrication processes in order to support a sophisticated research environment rivaling the world's best universities.

Recommendation 3

Memorial University will prepare the most comprehensive Strategic Infrastructure Plan since the creation of the university in support of all of its academic priorities, including enhanced research intensity. This plan will provide clarity on priorities and timelines of individual projects, facilitate planning in individual Schools, Faculties and Campuses, and emphasize quality project management in all facets of its construction, major renovation, maintenance and equipment fabrication projects. Additionally, future allocations from the Canada Foundation for Innovation (CFI) will be aligned with the priority research themes of the Research Strategy Framework, and a list of priority projects will be identified as major infrastructure funding opportunities from CFI and other federal or provincial sources arise.

Goals

- Complete and implement a comprehensive space and infrastructure plan for supporting research intensity at Memorial University, including milestones, financing and deadlines for individual projects, effective June 1, 2014.
- Develop a plan for the deployment of funding allocation opportunities aligned with the research priorities of the Research Strategy Framework, the goals of attracting and retaining research chairs, and high-priority institutional initiatives, effective January 1, 2015.

Champion

Vice-President (Finance and Administration); Vice-President (Research)

Partners

Provost and Vice-President (Academic); Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Animal Resources Centre; Director, Labrador Institute

4. Research Seed, Bridge and Multidisciplinary Funding

Context

Access to small-scale research funding is a significant incentive for achieving greater faculty engagement and participation in research-based graduate programs. Such funding must be viewed as an essential institutional investment in its research enterprise, providing much-needed assistance to faculty members so that they can eventually access major grants in support of research-based graduate programs from either the Social Sciences and Humanities Council (SSHRC), the Canadian Institutes of Health Research (CIHR) or the Natural Sciences and Engineering Research Council (NSERC), typically referred to as the "Tri-Agency". Though other sources of funding exist, these three agencies of the Canadian government represent the single most important funders of university research activities and graduate students in Canada.

Three types of investments can assist Memorial University's faculty members (and their students), and nurture significantly enhanced research intensity. The first is called "seed" funding: this type of funding offers important foundational assistance in obtaining first-time Tri-Agency grant support, an essential milestone of a productive research career. Such funding can also serve to support faculty members and their students in new exploratory research. The second is called "bridge" funding: such funding helps faculty members maintain research activities, primarily through the funding of graduate students, in between Tri-Agency grants. The third is "multidisciplinary" funding: such funding encourages faculty members and students from different disciplines to create innovative new teams for exploring non-traditional research collaborations. Though such funding is necessarily small-scale, the university being a recipient of public funding for the purpose of dispensing university education, such investments have elsewhere demonstrated their impact and effectiveness over time.

Recommendation 4

Memorial University will establish an institutional research fund of small-scale initiatives for seeding new, "early days" innovative research projects, for providing valuable bridge funding for researchers between grants, and for encouraging the development of multidisciplinary research activities which align with the priority research themes of the Research Strategy Framework.

Goal

- Establish an institutional research fund suitable for 50 small-scale seed, bridge and multidisciplinary research activities per year. Implement the fund effective April 1, 2015.

Champion

Vice-President (Research)

Partners

Provost and Vice-President (Academic); Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses

5. Undergraduate Research Incentive Funding

Context

Undergraduate research placements offer students the opportunity to explore and experience, often for the first time, the excitement and creativity of research activities. Such placements also contribute to the university's scholarly activities while fostering greater interaction between undergraduate students and faculty members.

A pilot program that offers enhanced and expanded internship opportunities with appropriate research supervision will encourage undergraduate involvement in research activities, and contribute to a culture

of enhanced research intensity within the university. In parallel, it may be worthwhile to explore the opportunity to provide credit for such undergraduate research internships.

Recommendation 5

Memorial University will create a fund in support of undergraduate summer research internship opportunities. This fund aims to stimulate heightened interest of graduate studies and research careers among undergraduate students, create a bridge between faculty members wishing to nurture such interests and students willing to engage in research, promote a culture of research intensity among undergraduate students, and provide research-based supervisory opportunities for faculty members in areas with low graduate enrolments, or currently having little or no access to research-based graduate programs. In parallel with the fund, the opportunity of offering credits for such undergraduate research activities will also be investigated.

Goals

- Establish an undergraduate research incentive fund suitable for 40 undergraduate summer research internships per year and implement an undergraduate summer internship competition effective April 1, 2015.
- Investigate the opportunity of offering credited undergraduate research activities or other forms of recognition based on such internships, effective April 1, 2015.

Champions

Vice-President (Research), Provost and Vice-President (Academic); Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute

6. Research Grant and Contract Facilitation

Context

On December 5, 2013, Memorial University's Board of Regents approved a review of grant and contract support services within the Vice-President (Research) portfolio. While the review's recommendations continue to be implemented at the present time, a key recommendation involved carrying out a significant internal reorganization of the Vice-President (Research) portfolio, aimed at creating an efficient research grants and contracts organization to support research growth, suitably adapted to supporting the university's vision to "... be one of the most distinguished public universities in Canada and beyond ...". Following approval, the reorganization officially took effect on December 16, 2013.

Immediately following implementation, a large number of initiatives have been initiated to optimize processes, and strengthening the customer service and satisfaction focus within the Vice-President (Research) portfolio. The review also highlighted an opportunity to gain process efficiencies by implementing technology-based, information management tools and a number of projects are currently under consideration.

However, a number of grants facilitators exist within Schools, Faculties and Campuses, with no accountability to the Vice-President (Research). Their documented roles and responsibilities differ across the university, and in many cases, have evolved, with no formally redefined documentation. Within the context of an increasingly complex and sophisticated granting environment, there is an increasing lack of clarity between School, Faculty and Campus grant facilitator roles and responsibilities, and those of the direct representatives of the Vice-President (Research) portfolio, resulting in uncertainty in terms of accountability, inefficient grant and contract approval processes, and risk to the university.

Additionally, there is some overlap of roles and responsibilities in the areas of industrial liaison, contracts and technology transfer between Genesis and the Office of the Vice-President (Research) which regularly lead to confusion among stakeholder communities, and would benefit from greater clarity.

Within the context of the Vice-President (Research)'s present efforts aimed at streamlining and improving all of its processes across the entire grants and contracts life-cycle, and shaping a far more efficient institutional grants and contracts organization across the university, it is now time to formalize structures, processes, roles and responsibilities across the university and its separately incorporated entity, Genesis, within a coherent whole, and to identify and fill the gaps that need to be addressed in the grant and contract life-cycle. In this regard, Marketing and Communications (MARCOMM) at Memorial University is an example of a model achieving a respectful balance between local needs, institutional priorities and clear accountabilities.

Recommendation 6

Memorial University will continue to implement the recommendations of the review of the grants and contracts portfolio of the Office of the Vice-President (Research) approved by the Board of Regents on December 5, 2013, and institute fully integrated and streamlined grant facilitation processes to assist faculty members in obtaining research grants and contracts. There will be grants facilitators available to every School, Faculty and Campus, fully integrated within a cohesive and coordinated formal network, providing full life-cycle support of grants and contract activities. A network-based approach, fully integrated within the Research Grants and Contracts Services office processes, achieving a respectful balance between local needs, institutional priorities and clear accountabilities, will create a stronger team-oriented culture at the institutional level, reduce redundancies, speed up response times, facilitate greater peer mentoring and coordination, and emphasize a culture of high standards and best practices. The roles, responsibilities and functions will also be clarified between Genesis and the Office of the Vice-President (Research).

Goals

- Plan and implement a formal research grants and contracts facilitation network, effective July 1, 2014.
- Clarify roles and responsibilities between Genesis and the Office of the Vice-President (Research), effective July 1, 2014.

Champion

Vice-President (Research)

Partners

Provost and Vice-President (Research); Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute; CEO, Genesis

7. Advocacy in Favor of a Provincial Health Research Fund

Context

Newfoundland and Labrador, unlike other provinces, does not have a provincial health research fund, providing researchers either with base funding opportunities, or matching fund opportunities for systematically leveraging federal granting opportunities. The province's sole research funding agency, Research and Development Corporation (RDC), funds primarily applied science and engineering project requests focused on RDC priority areas. The creation of a fund dedicated to health research will enable faculty members at Memorial University to compete on equal terms with those of other provinces having the advantage of such a fund.

Recommendation 7

Memorial University will undertake an active advocacy campaign with the provincial government and other potential funding organizations to promote the need for and benefits of creating a provincial research fund in the area of health sciences.

Goal

- Establish a provincial health research fund, effective July 1, 2016.

Champion

Vice-President (Research)

Partners

Dean, Faculty of Medicine; Dean, Faculty of Science; Dean, School of Human Kinetics and Recreation; Dean, School of Nursing; Dean, School of Pharmacy; Vice President, Grenfell Campus

8. Advocacy in Favor of a Provincial Arts, Humanities and Social Science Research Fund

Context

Memorial University's faculty members specializing in the arts, social sciences and humanities have limited access to provincial research funding in their areas of expertise. As mentioned before, the province's sole research funding agency, Research and Development Corporation (RDC), funds primarily applied science and engineering project requests focused on RDC priority areas. Here again, the creation of such a fund will enable faculty members in the arts, humanities and social sciences at Memorial University to compete on equal terms with those of other provinces having the advantage of such a fund.

Recommendation 8

Memorial University will undertake an active advocacy campaign with the provincial government and other potential funding organizations in order to promote the need for a provincial research fund in the arts, humanities and social sciences.

Goal

- Establish a provincial arts, humanities and social science research fund, effective July 1, 2016.

Champion

Vice-President (Research)

Partners

Vice-President, Grenfell Campus; Dean, Faculty of Arts; Dean, Faculty of Business Administration; Dean, Faculty of Education; Dean, School of Music; Dean, School of Social Work

9. Research-based Graduate Program Creation

Context

In parallel with Memorial University's objective to significantly grow its graduate student body by 2020, there is the opportunity to explore the creation and delivery of new graduate research (i.e., Master, Doctoral) programs in the priority themes of the Research Strategy Framework. Currently, Master and Doctoral programs in many Schools and Faculties do not offer a broad enough scope for all faculty members to supervise research students. There is also an opportunity to explore the creation and delivery of new graduate programs at its Grenfell and Marine Institute Campuses. Finally, the opportunity of offering appropriate graduate (i.e., Master, Doctoral) research programs based at the Labrador Institute's North West River Research Station should also be explored.

Recommendation 9

Memorial University will establish research-based Master and Doctoral programs at every School, Faculty and Campus so that graduate student supervision of research-based graduate students is available to all faculty members.

Goal

- Establish research-based Master and Doctoral programs at every School, Faculty and Campus, so that graduate student supervision of research students is available to all faculty members, effective July 1, 2016.

Champions

Provost and Vice-President (Academic); Dean, School of Graduate Studies; Deans, Schools and Faculties; Vice-President, Grenfell Campus; Vice-President, Marine Institute; Director, Labrador Institute

10. Research Chair Allocation and/or Creation

Context

The establishment of research chairs is widely regarded as a sound and proven approach for building a critical mass of research activities within a School, Faculty or Campus. In many universities, experience has shown that research chairs have a transformational impact on the quality and quantity of graduate students, the breadth and depth of research activities and innovative discoveries, the volume of scholarly publications and/or artistic creation, and the university's reputation overall. The establishment of chair positions can therefore be a "game changer", particularly for Schools, Faculties and Campuses presently without chair positions. The strategic internal allocation of Canada Research Chairs (as may be enabled in accordance with program guidelines and restrictions), a renewed emphasis on the creation of NSERC Industrial Research Chairs, and continued efforts to develop other research chairs in partnership with other federal, provincial and industry stakeholders represent a high priority for accelerating progress towards increased research intensity across the university.

A corollary to this is that research chair holders must have access to significant chair research funding in order to rapidly impact their environment. In nearly all Canadian universities, the funding of Canada Research Chairs is allocated primarily to the chair holder's salary, thus requiring the chair holder to focus on obtaining additional research funding in the initial years of the chair. Such an approach is "penny wise and pound foolish", having the consequence of attracting high quality faculty members, but denying them the means to initiate their research program in a timely manner. At Memorial University, for Canada Research Chairs to contribute more rapidly to the university's research intensity, it will be best to adopt a strategy of providing chair holders with the chair's research funding at a significant level, rather than allocating it to salary. The few universities which have adopted this approach have done so with "game-changing" impact.

Recommendation 10

Memorial University will establish or maintain at least one research chair (using existing chair programs such as Canada Research Chairs, or NSERC Industrial Research Chairs, but also through the development of new chair opportunities with a variety of funding partners) in every School, Faculty, and Campus, in areas identified as priority research themes within the Research Strategy Framework. In order to enhance the attractiveness of Memorial University Canada Research Chair offerings, and strengthen chair holder retention, the portion of funding attributed to the research activities of new Canada Research Chairs will be adjusted to ensure that Memorial's CRC Chairs are among the most desirable in Canada.

Goals

- Establish at least one research chair in every School, Faculty and Campus, effective July 1, 2017.
- Modify Memorial University's Canada Research Chair funding model to guarantee significant chair holder research funding, effective July 1, 2015

Champions

Vice-President (Research); Provost and Vice-President (Academic)

Partners

Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute

11. Scholarly Dissemination

Context

The Strategic Research Intensity Plan's initial consultation phases provided a clear indication that Memorial University aspires to a transformational change in its research capacity, the scholarly achievements of its faculty members and students, and reputation. This accounts for the wide consensus on Memorial University's ability to double its scholarly outputs over the next seven years, by December 2020, provided that the barriers to research intensity are addressed as recommended in this Plan.

In order to track its progress along this journey, and as a fundamental requirement of this Plan, a formal process needs to be implemented for creating an annual inventory of the scholarly dissemination of its faculty members and students.

Recommendation 11

Memorial University will increase its yearly output of scholarly dissemination by its faculty members in forms appropriate to the discipline by 100%, by December 31, 2020. Memorial University will institute a

university-wide process for creating an annual inventory of the scholarly dissemination of its faculty members, to chart its progress in achieving this goal.

Goals

- Establish a formal process for developing a yearly inventory of scholarly outcomes, and publish results, effective January 1, 2015.
- Increase the yearly output of scholarly dissemination in forms appropriate to the discipline by 100%, by December 31, 2020.

Champion

Vice-President (Research); Provost and Vice-President (Academic)

Partners

Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute; University Librarian

12. Metrics and Tracking

Context

As the above recommendations are implemented, three different tracking processes will need to be implemented in order to measure Memorial University's progress in achieving its high ambitions. The first process involves tracking the implementation of the actions identified by the above recommendations. The second involves tracking the impact of these actions on Memorial University's research intensity. The third involves tracking the performance of other, comparable universities, to provide insight on system-wide progress. All of these will require the use of standardized objective collection processes, current and predictive data to assess progress, evaluate key opportunities, and make strategic decisions over the allocation of resources.

Recommendation 12

Memorial University will identify suitable metrics, and implement formal metric-tracking processes, in order to ensure that the recommendations of the Strategic Research Intensity Plan 2014-2020 are implemented, and that progress towards its goals is achieved and reported in a timely manner.

Goal

- Establish a comprehensive system of tracking the implementation of individual recommendations, and key performance metrics of the Strategic Research Intensity Plan 2014-2020, effective January 1, 2015.

Champion

Vice-President (Research)

Partners

Provost and Vice-President (Academic); Deans, Schools and Faculties; Vice-Presidents, Grenfell and Marine Institute Campuses; Director, Labrador Institute; University Librarian

Conclusion

Memorial University stands at the threshold of opportunity as it has never been in its nearly 100 years of existence. The Strategic Research Intensity Plan 2014-2020 presents an unparalleled, historic opportunity to initiate a generational transformation of the university's capacity to impact the province, its country, and its own future.

The Strategic Research Intensity Plan 2014-2020 reflects a synergistic and integrated approach for strengthening all aspects of research at Memorial University, including scholarship and creative activities, as well as the translation of knowledge into products, practices, and policies, and other forms of community engagement. More importantly, this Plan represents an historic opportunity for Memorial University to chart a course towards achieving the university's vision to "... be one of the most distinguished public universities in Canada and beyond ...".

Building on Memorial University's remarkable people, their long-standing tradition of resourcefulness, innovation, entrepreneurship, and the recommendations of this Plan, the university will:

- Accelerate the production and dissemination of scholarly outcomes, and strengthen its capacity to compete successfully for grants from Canada and abroad;
- Intensify its ability to supervise and graduate master and doctoral candidates, and grow the pool of highly qualified human capital so important for building Newfoundland and Labrador, and Canada;
- Continue to build its reputation, facilitating the recruitment of high quality students, faculty members and staff to the university, and the province; and
- Enhance its capability to address the research priorities of government, industry, and society at large in Newfoundland and Labrador.

More than ever, it is time to launch forth into the deep ... *provehito in altum* ... and fulfill our destiny.

TABLE 2
Strategic Research Intensity Plan 2014-2020
Summary of Themes, Goals, Champions and Deadlines

	Theme	Goal(s)	Champion(s)	Deadline(s)
1.	Faculty Member Career Support	Start-up funding: implement a simple, rapid start-up funding procedure for all of Memorial University's faculty members Workload: achieve a more appropriate workload balance reflecting the accomplishments and aspirations of individual faculty members with respect to their teaching and research activities, including graduate student supervision Recognition: actively publicize the outcomes of research activities, intensify efforts to find candidates for internal and external awards, and implement 10 competitive "publication and artistic creation" investments per year for deserving candidates Recruitment: accelerate current hiring procedures for faculty members and research chair candidates Orientation: implement a formal orientation process when hired for the first time at the university Mentoring: implement a formal mentoring program for all new faculty members in teaching and learning, research, grantsmanship and community engagement Support: ensure adequate introduction to existing infrastructure and support (such as that available through CREAT); enable growth of institutional infrastructure and support through enhanced engagement with faculty	Provost, VPR	July 1, 2014 July 1, 2015 July 1, 2015 July 1, 2015 July 1, 2015 July 1, 2015 July 1, 2015
2.	Research-based Graduate Student Support	Increase Memorial University's yearly research-based Master and Doctoral graduates by 100% by the end of 2020, and be recognized as the most student-friendly research-intensive university in Canada. Ensure adequate introduction to existing infrastructure and support (such as that available through CREAT)	Provost, Dean SGS VPR	December 31, 2020 January 1, 2015
3.	Research Space and Infrastructure	Complete and implement a comprehensive space and infrastructure plan for supporting research intensity at Memorial University, including milestones, financing and deadlines for individual projects Develop a plan for the deployment of funding allocation opportunities aligned with the research priorities of the Research Strategy Framework, the goals of attracting and retaining research chairs, and high-priority institutional initiatives	VPFA, VPR	June 1, 2014 January 1, 2015
4.	Research Seed, Bridge and Multidisciplinary Funding	Establish an institutional research fund suitable for 50 small-scale seed, bridge and multidisciplinary research activities per year	VPR	April 1, 2015
5.	Undergraduate Research Incentive Funding	Establish an undergraduate research incentive fund suitable for 40 undergraduate summer research internships per year and implement an undergraduate summer internship competition Investigate the opportunity of offering credited undergraduate research activities or other forms of recognition based on such internships	VPR, Provost, Deans, Campus VPs, Director, LI	April 1, 2015 April 1, 2015
6.	Research Grant and Contract Facilitation	Plan and implement a formal research grants and contracts facilitation network Clarify roles and responsibilities between Genesis and the Office of the Vice-President (Research)	VPR	July 1, 2014
7.	Advocacy in Favor of a Provincial Health Research Fund	Establish a provincial health research fund	VPR	July 1, 2016
8.	Advocacy in Favor of a Provincial Arts, Humanities and Social Sciences Research Fund	Establish a provincial arts, humanities and social science research fund	VPR	July 1, 2016
9.	Research-based Graduate Program Creation	Establish research-based Master and Doctoral programs at every School, Faculty and Campus, so that graduate student supervision of research students is available to all faculty members	Provost, Deans, Campus VPs, Director LI	July 1, 2016
10.	Research Chair Allocation and/or Creation	Establish at least one research chair in every School, Faculty and Campus Modify the university's Canada Research Chair funding model to guarantee significant chair holder research funding	VPR, Provost	July 1, 2017 July 1, 2015
11.	Scholarly Dissemination	Establish a formal process for developing a yearly inventory of scholarly outcomes, and publish results Increase the yearly output of scholarly dissemination in forms appropriate to the discipline by 100%	VPR, Provost	January 1, 2015 December 31, 2020
12.	Metrics and Tracking	Establish a comprehensive system of tracking the implementation of recommendations, and key performance metrics of the Strategic Research Intensity Plan 2014-2020	VPR	January 1, 2015

Appendix: Priority Research Space, Infrastructure and Equipment Needs

School / Faculty / Campus	Priority Space, Infrastructure & Equipment Needs
ACENET	Equipment to ensure power back up & continuity of service
	Equipment for additional storage and retention of data
Animal Care Facility	New, low-cost facility, built to suit, required to maintain accreditation; upgrades to the other animal care facilities
CREAIT Network	As Memorial grows in research intensity, the need for shared lab space and resources will increase, and effective use and development of CREAIT Network space will enable efficiencies in the face of growing demands. Equipment and space needs for this shared facility will need to be adjusted.
Faculty of Arts	Modern building space to re-integrate faculty and research dispersed across campus
Faculty of Business	Space and equipment for students working areas, new faculty offices, and research facilities for faculty and students
Faculty of Engineering and Applied Sciences	Space restrictions for doubled faculty complement
	Additional engineering space in the Core Science Facility, Bruneau Centre, and SJ Carew Building expansion
Faculty of Medicine	Shortage of laboratory and office space available for research personnel Lack of large equipment infrastructure for research
Faculty of Science	New building with significantly enhanced research capability, including research laboratory and office space
	Significant deferred maintenance at the Ocean Science Centre, with critical needs relating to secure surface seawater supply and inadequate classroom capacity
Labrador Institute	Equipment to complete functionality of existing laboratories (high priority on a new fume hood)
Marine Institute Campus	Arctic-capable research ship
	Aging and inadequate infrastructure for growth of research activities
School of Human Kinetics & Recreation	New, low-cost space for expansion of research laboratories and offices
	No control of space shared with The Works
School of Music	Space required for teaching and research activities. Faculty scattered in different buildings: 4 offices in Science; Ethnomusicology graduate program and MMaP in leased space at Arts and Culture Centre (MMaP space lease ends June 30, 2016)
	Inventory and replacement plan for aging equipment
School of Nursing	Space required for teaching and research activities.
Technical Services	New, low-cost facility, built to suit, to provide needed space for expansion for the Faculty of Engineering and Applied Science (in SJ Carew Building), and consolidate operations dispersed across campus for enhanced efficiency