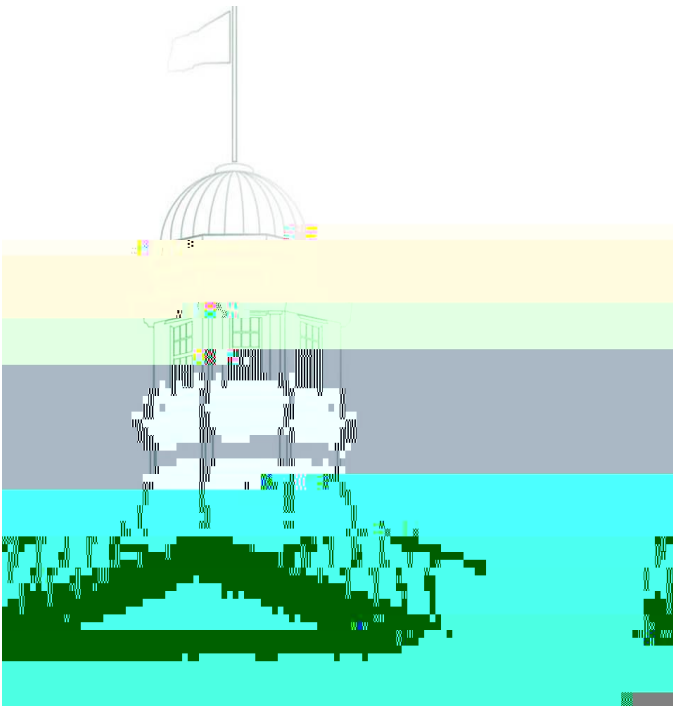




Summary of Strategic Research  
Plan 2013-17

February 2013

Office of the Vice-Principal  
(Research and International Relations)



For more than two centuries, McGill University has attracted some of the world's brightest researchers and young minds, all of whom contribute immeasurably to the advancement of knowledge. Today, McGill continues to be dedicated to the transformative power of ideas and excellence in a rapidly changing research environment.

The Strategic Research Plan (SRP) expresses McGill's core commitments to ideas, innovation, sustainability, collaboration and partnership, and social engagement in research. Furthermore, under the banner of primary inquiry and as a result of our dedication to addressing major societal challenges, seven broad Areas of Research Excellence have been identified:

The renewed SRP will lay the groundwork for McGill to enhance its research capacity; build and strengthen its strategic alliances and relationships; and emphasize knowledge exchange and translation.

McGill is a world-class research-intensive, student-centred university with an enduring sense of public purpose. Our researchers ask important questions and contribute across disciplines to address the most pressing and complex challenges facing humanity and the natural environment in the 21st century. This Strategic Research Plan (SRP) expresses McGill's core commitments to research, identifies Areas of Research Excellence, and outlines our implementation strategy, which will be carried out over the next five years. Fundamental to realizing this vision is the expansion of a climate that nurtures and facilitates research excellence, allowing faculty and student researchers to explore the full richness of their intellectual pursuits and co-create solutions with partners that will have an impact on a global scale.

McGill has a strong history of achievement, consistently ranking as one of the top universities in the world. We are renowned for attracting some of the brightest researchers and young thinkers, all of whom contribute immeasurably to the advancement of knowledge.

This Strategic Research Plan reaffirms our dedication to the transformative power of ideas and excellence in a rapidly changing research environment, as articulated by five "core commitments." The document goes on to describe the scope and reach of McGill's research enterprise through seven Areas of Research Excellence. The last section then identifies strategic objectives designed to enhance McGill's ability to provide distinctive contributions to research, teaching and training, and community engagement, both locally and beyond. These objectives build on the University's continued efforts to streamline administrative procedures, increase opportunities for interdisciplinary collaboration, and explore new organizational models for research teams.

Overall, the SRP aims to extend the global impact of our research activities, encourage new and stronger partnerships, deliver quality research experience for trainees, and help McGill tap into the worldwide pool of knowledge while contributing to its advancement.

Founded in 1821, McGill is a vibrant research-intensive university with a history of producing important contributions to art, science, and the humanities. The University both belongs to the world and is firmly rooted in Montreal – a city where different languages, cultures, and perspectives not only co-exist, but come together to create a unique community that is stronger because of its diverse parts.

McGill benefits immensely from its place at the centre of a vibrant hub of intellectual, cultural, and scientific activity. Montreal is home to four major universities and has the highest concentration of postsecondary students in North America. In addition to its academic institutions, major government laboratories, and research-intensive industry are situated in the city. These organizations anchor research clusters in life sciences, aeronautics, gaming, and information and communication technologies.



government, industry, and other imperatives. By asking questions – fundamental and applied – McGill researchers are part of a community that seeks to better understand the universe and take steps, sometimes in the most unexpected and exciting ways, into the future.

– Increasing the emphasis on innovation in all its forms – social, pedagogical, and organizational, as well as through the development of new technologies – allows us to play a leading role in a knowledge-based society. We invent and implement best practices in teaching and training and increase the impact of research by translating the results into social and commercial applications. This can take the form of advocating for appropriate spaces for the free exchange of ideas, where researchers and their partners incubate and jointly develop ideas and products, communicating research discoveries to decision-makers, transferring knowledge and know-how, protecting ideas and inventions, licensing discoveries, or creating new spin-off companies or non-profit organizations.

– Sustainability is a central component of research at McGill: researchers and students study all aspects of sustainability; it is a comprehensive approach to how they carry out their work; and it is an essential element of what the University does to ensure the long-term viability of its research enterprise through maintaining and renewing its infrastructure and core facilities. McGill faculty, staff, students, and administrators are citizens who consider the environmental, social, and economic contexts and consequences of their work.

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The seven thematic areas, the Areas of Research Excellence (AREs), describe traditional disciplinary strengths and group McGill faculty expertise into strategic clusters. Key areas identify examples of McGill research strengths at a higher resolution. Together they will be used as a roadmap for setting institutional-level objectives and supporting both disciplinary and interdisciplinary research. Our goal in doing so is to help generate and reinforce novel linkages that address issues of local, regional, and global importance.

McGill researchers deepen understanding of what it means to be a person living in the 21st century. They explore bold and challenging questions – such as “Who are we?”, “Where have we come from?”, and “How do we express ourselves?” – that form the basis of critical thinking and self-awareness in an interconnected world. Close attention to history and cultural difference reflects the need to understand the complex relationships between the temporality of the past and the spatiality of the present. At the same time, it is crucial to understand diverse societies – to speak their languages, to know their histories – in order to learn them as well as to learn them. We, as humans, aspire to understand the human condition through observation and introspection, through cultural and religious narratives, through the creative arts, and through the analysis of artistic creations. Humanistic inquiry is the search for, and the creation a



environment on human health, sustainable agricultural and food systems, bioresource engineering, the generation of products for a bio-based economy, and innovative ways of reducing harmful chemical by-products.

Key areas:

Advanced Materials

Nanoscience and Bio-nanotechnology

Advanced and Alternative Energy

Green Chemistry and Green Chemicals

Chemical Biology

Cellular and Molecular Mechanisms

Systems Theories and Environment



Global Health

Health Management

Health Services, Outcomes, and Translational Research

Infection, Immunity, and Inflammation

Personalized Medicine

Preventative, Primary, and Community Care

One of the distinguishing features of humans is our ability to build upon technologies in the hope of improving our collective condition. Pure science provides a foundation which enables new discoveries and applications ranging from large-scale transportation systems to small-scale digital communication systems. Over the past 10 years alone, profound changes have occurred in the way we communicate using technology and in our expectations of what technology will

of life, the place of the Earth in the universe, and the evolution of our own species. Our knowledge continues to expand, with major discoveries being made every year in fields such as molecular biology, cosmology and nuclear physics. Observing the Earth, atmosphere, and oceans, as well as exploring the capacity and sustainable exploitation of natural resources, are fields with long and productive traditions at McGill. Furthermore, our world-class researchers emphasize the importance of translating theoretical work into concrete results, which can often be applied to current local, regional, and global challenges. Research in these fields is already influencing how we approach issues related to the

Implicit in this Strategic Research Plan are a number of overarching mechanisms, which can be summarized by the phrase “Enabling, Facilitating, Connecting.” In other words, McGill’s administration hopes to “enable” researchers by providing them with the best planning, policies, and infrastructure possible; “facilitate” the development and reinforcement of research excellence through our programs; and “connect” people and organizations by proactively engaging in pairing, matchmaking, and relationship building.

To that end, this Strategic Research Plan has articulated McGill’s core commitments and Areas of Research Excellence for the coming years. The final section of the document outlines our strategic objectives as well as a series of high-level “drivers” that will be developed into specific action plans as this vision is realized.

Three strategic objectives will guide the implementation process:

1. Enhance McGill’s research capacity
2. Build and strengthen strategic alliances and relationships
3. Emphasize knowledge exchange and translation

The drivers associated with each objective do not appear in order of priority or in a chronological sequence of implementation. Instead, this SRP should be considered a “living document.” It will be revised and adjusted as new challenges and opportunities arise on the research landscape or as the social, cultural, economic, and educational realities of our world evolve. In order to maintain our ability

Provide seed funding to initiate research activities and enable the organization of strategic initiatives

Establish a special opportunity fund for research activities that have strong potential for unique advancement and cannot be funded through existing sources

Maintain and enhance infrastructure and operations that support leading-edge research, with an emphasis on shared and core facilities

#### Driver 1.2 – Comprehensive research administration

Build an Office of Research and International Relations that supports research excellence at all stages, from the



### Driver 3.3 – Commercialization

Support pre commercialization and pre-application proof of concept studies, prototyping, and the further development of early-stage technologies with strong potential for commercial or social impact

Assume an international leadership role in the development and implementation of best practices in risk and value-added assessment as well as intellectual property management

McGill's renewed Strategic Research Plan supports and furthers research excellence. It reinforces the aspirations of individual researchers and as well as teams by providing broad direction, especially within areas that bridge traditional disciplinary boundaries. Continual reflection, appraisal, and strategic reinvestment will help us nurture a dynamic research environment that explores new ideas, contributes to the advancement of education, and mobilizes knowledge with our partners for the benefit of society. Individual action plans for the research sector will be developed in consultation with other McGill academic units, as well as with external partners. Together, we will implement the ambitious goals of this Strategic Research Plan.

Canada Research Chairs (CRC) and the Canada Foundation for Innovation (CFI) continue to make invaluable contributions to McGill's success in building and strengthening research capacity in areas of strategic importance that underpin our international reputation as a leading research-intensive university. McGill's SRP plays a key role in shaping University and Faculty academic hiring strategy, including CRC deployment. Since 2000, McGill has implemented an ambitious academic renewal strategy, hiring almost 100 new faculty members each year and growing the overall faculty total by 25 per cent.

Since the start of the CRC program in 1999, McGill has used its CRC allocation primarily for external recruitment. Nearly 75 per cent of McGill's CRC recruits come from universities and institutes outside Canada, and over 40 per cent of these are repatriated Canadian researchers. McGill's Tier 1 awards enhance our ability to consolidate clusters of researchers around a leading senior researcher, while Tier 2 awards help strengthen research clusters. McGill created two internal awards, the James McGill Professor and William Dawson Scholar, to complement CRC programming as well as recognize and retain outstanding scholars already at McGill. Recent fundraising initiatives have also helped sponsor a number of endowed chairs for distinguished faculty members. Together these award holders comprise nearly 30 per cent of tenured and tenure-track faculty. They play a significant leadership role in building research capacity, training highly qualified personnel, and developing productive research and translational partnerships through their own activities and on behalf of research centres and institutes. Table 1 provides McGill's CRC allocation and internal award allocations for 2012.

The distribution of CRCs among the disciplines is expected to remain relatively stable between 2012 and 2017, including the reservation of some CRCs for major strategic initiatives, such as Canada Excellence Research Chairs program. It is anticipated that McGill will have about 16 vacant CRCs to fill each year over the 2013-2017 period.

For the period covered by the new SRP, the deployment of CRCs to Faculties by the Provost will continue to reflect the academic recruitment plans of the Faculties in the context of the SRP's seven Areas of Research Excellence (Table 2). Some CRCs are reserved to support applications for major competitions as determined by the Provost in consultation with the Vice-Principal (Research and International Relations).

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