

Memorandum

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TO: Board of Governors

FROM: Dr. Rosie Goldstein, Vice-Principal (Research and International Relations)

SUBJECT: Report on Research and Innovation 2015

DATE: February 11, 2016

DOCUMENT #: GD15-41

ACTION REQUIRED: INFORMATION APPROVAL/DECISION

ISSUE & EXPECTED OUTCOME The annual Report on Research and Innovation of the Vice-Principal (Research and International Relations) to the Board of Governors presents key indicators of McGill's recent research funding performance as well as an update on areas of innovation related to both the commercialization of research and moving knowledge from the University into society.

BACKGROUND & RATIONALE

The Report on Research and Innovation is an annual review of McGill's success in major funding programs, its progress in areas related to all forms of innovation, and the major achievements of University researchers.

The objective of the report is to provide the Board of Governors with a high-level portrait of McGill's competitiveness in major funding programs, as well as the University's effectiveness in moving discoveries and inventions from its campuses to the community and/or commercial market. The report identifies current trends in research funding and shares the VP-RIR's vision for how McGill can build on its strengths in order to excel in today's highly competitive research funding environment. Finally, the report highlights major grants won by McGill, significant new partnerships and collaborations, and the accomplishments of researchers who received major prizes and awards over the past year.

ALIGNMENT WITH MISSION AND STRATEGIC PRIORITIES

This year, as in the past, the report focuses on McGill's performance in Tri-Agency and Trois Fonds programs, including how we compare to G5 and U15 peers in terms of market share and research intensity over the last five years. In addition, the 2015 report indicates significant gains in areas related to innovation and entrepreneurship. Through new approaches introduced by RIR's Invention Development and Entrepreneurship Assistance (IDEA), Innovation in Practice (formerly the Quartier de l'innovation), and McGill University Business Engagement Centre (MUBEC) teams, the University is increasing its collaborations with community and industry groups as well as the revenue generated from these interactions.

The report therefore aims to inform Governors of McGill's progress in its mission to remain one of Canada and the world's best research-intensive universities as well as toward its strategic priority of enhancing and strengthening its engagement with the full range of community partners.

The report has been reviewed by numerous internal stakeholders, and it was formally presented to Senate on January 13, 2016.

**COMPLIANCE
WITH
UNIVERSITY
POLICY**

The Report on Research and Innovation is an important means for the Vice-Principal (RIR) to update the Board of Governors on McGill's research successes, opportunities, and challenges. The presentation aligns with best practices to promote transparency and accountability across a major sector of the University's mandate.

**COMPLIANCE
WITH
LEGISLATION/
EXTERNAL
REGULATIONS**

There are no legislative requirements associated with the report.

RISK FACTORS

The University's performance in areas related to research and innovation affects its ability to carry out its missions in research, teaching, and learning and has reputational effects.

**SUSTAINABILITY
CONSIDERATIONS**

As outlined in the Strategic Research Plan 2013-17, sustainability is a core commitment of McGill's research plans and activities.

**IMPACT OF
DECISION AND
NEXT STEPS**

N/A

**MOTION OR
RESOLUTION
FOR APPROVAL**

N/A

APPENDICES

Appendix A: Report on Research and Innovation 2015



Report on Research and
Innovation

2015

Dr. Rosie Goldstein, Vice-Principal
(Research and International Relations)



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Executive Summary

Some of the key findings that emerge in the 2015 Report on Research and Innovation are:

- McGill continues its strong performance in federal and provincial funding programs. Over the past five years, we have maintained our market share overall – albeit while also experiencing decreases and flat results in some areas – in the highly competitive arena of Canadian and Quebec funding programs.
 - In 2013-14, McGill's \$478 million in total sponsored research funding ranked 4th among the G5 universities, behind the University of Toronto, l'Université de Montréal, and University of British Columbia, and ahead of the University of Alberta.
 - It is a noteworthy accomplishment that McGill moved to second place in Canada for research intensity in FY13 and has retained its position in FY14.
 - Despite some year-to-year fluctuations, McGill's total Fonds de recherche du Québec (FRQ) market share as well as our market share in each of the Trois Fonds have all increased over the previous five years.
- Challenges remain, however, especially in the field of biomedical and health sciences, as the Tri-Agency total funding has seen minimal or no growth over the past five years (\$1.83 billion in FY09 versus \$1.907 billion in FY14 for a 4.3% increase). During that same period, CIHR funding increased by only 1.3% (\$795 million to \$806 million), NSERC by 6.4% (\$781 million to \$831 million), and SSHRC by 6.8% (\$253 million to \$270 million). McGill's funding has therefore reflected this situation, with a performance that can be summarized as a decrease in CIHR, stability in NSERC, and an increase in SSHRC that has helped boost the University's overall performance. Here are a few key details:
 - The overall Tri-Agency envelope increased by only 0.7% (\$13.7 million) in 2013-14 while McGill saw its own Tri-Agency funding decrease by 3.8% (-\$6.2 million) in the past year.
 - McGill's five-year increase in Tri-Agency funding was slightly below the increase in the total envelope (3.1% for McGill versus 4.3% for Tri-Agency).
 - McGill's CIHR research award dollars decreased by 2.5% in the past year at McGill and McGill's share of CIHR award dollars went down by 0.2 percentage points over the past five years.
 - NSERC research award dollars increased by 3.6% at McGill in the past five years and decreased by 8.2% in the past year. This five-year change is lower than the G5 average

(5.7%) but higher than the rest of the U15 average (-1.0%). McGill's share of NSERC award dollars changed slightly from 5.7% in 2008-09 to 5.6% in 2013-14.

- SSHRC research award dollars increased by 24.7% at McGill over the past five years and by 2.4% in the past year. This five-year change is higher than both the G5 average (8.7%) and the rest of the U15 average (3.1%). In addition, this increase occurred while the SSHRC envelope increased by only 1.1% in the latest year.
- McGill made significant gains in FY14 in areas related to innovation and entrepreneurship.
 - Through the leadership of RIR's Invention Development and Entrepreneurship Assistance (IDEA), Innovation in Practice (formerly the QI), and McGill University Business Engagement Centre (MUBEC) teams, we are increasing both our collaborations with community and industry groups as well as revenue generated from these interactions.
 - Non-traditional sources – industry, non-profits, and international – generated approximately \$114 million in research funding for McGill in FY14, up by \$6 million from \$108 million in FY13.
 - McGill jumped ahead significantly in the nationwide rankings for: patents issued, invention disclosures, active licenses, startups, and royalty income, among other areas.
 - RIR will continue to build on these successes in 2016 by formally creating the Office of Innovation and Partnerships, headed by McGill's first Associate Vice-Principal, Innovation and Partnerships.
- By focusing on two Principal's Priority projects in the coming years, McGill will ensure the continued sustainability and success of its world-class research enterprise. These priority projects are: "Unleashing McGill's Full Research Potential" and "Enhancing McGill's Community Partnerships: Nurturing discovery, innovation and entrepreneurship."
- McGill had a number of noteworthy accomplishments over the past year in terms of funding successes, new partnerships, and major prizes and awards, including:
 - McGill's results for the CFI-8 competition were the University's best outcome in 12 years, ranking first in Canada for total funding in this round of competition.
 - Ubisoft and Amblyotech Inc., a McGill spin-off, announced their collaboration on the development of "Dig Rush," the first videogame based on a patented method exclusively used for the treatment of Amblyopia, also known as "lazy eye."

- Charles Taylor, one of the world's most celebrated living philosophers, was awarded the prestigious \$1.5 million John W. Kluge Prize for Achievement in the Study of Humanity granted by the Library of Congress.
- McGill garnered the most new Royal Society of Canada Fellows and the most new Members of the College of New Scholars, Artists and Scientists in the country.

Introduction

The Report on Research and Innovation is the Vice-Principal (Research and International Relations)'s annual review on McGill's success in major funding programs, our progress in areas related to all forms of innovation, and the significant achievements of University researchers. The objective of the report is to provide Senate and the Board of Governors with a high-level portrait of McGill's competitiveness in major funding programs, as well as the University's effectiveness in moving discoveries and inventions from our campuses to the community and/or commercial market.

McGill's overall performance in research funding and innovation is extremely important. Performance in federal Tri-Agency funding has an impact on McGill's access to Canada Research Chairs, Canada Excellence Research Chairs, Canada Foundation for Innovation awards, Banting and Vanier Fellowships (generally the most prestigious graduate awards), and federal funds for indirect costs of research. The University rankings are another area where research and academic reputation are intertwined. For instance, the Times Higher Education World University Rankings has "Research: Volume, Income, Reputation" as a major component, with the category making up 30% of their assessment criteria. Therefore, it is imperative that McGill reaches its full potential in the research sector – not only because of the revenue it brings in, but also because of the ripple effect it has into other areas of the University's funding and reputation.

The 2015 Report on Research and Innovation therefore reviews McGill's overall performance in attracting research funding from all sources (i.e. federal, provincial, non-profits, industry, international, endowment, and miscellaneous programs). Its focus, however, is on McGill's performance in the two most significant funding areas, Tri-Agency programs for 2013-14 and Trois Fonds programs for 2014-15, looking at how we compare to our G5 and U15 peers in terms of market share and research intensity over the last five years. In addition, the report also reviews data for FY14 from the Association of University Technology Managers (AUTM) as a means of assessing McGill's performance in areas related to the commercialization of research and entrepreneurship. In each of these cases, the data is the most recent available.

In order to present a fuller portrait of McGill's ongoing emphasis on engaging community partners, the 2015 Report on Research and Innovation includes sections on activities led by the Innovation in Practice (formerly Quartier de l'innovation) and McGill University Business Engagement Centre (MUBEC) teams of Research and International Relations (RIR). Finally, the report highlights a small selection of our major research funding achievements from 2015, significant new or strengthened partnerships, and researchers who received major prizes and awards over the past year.

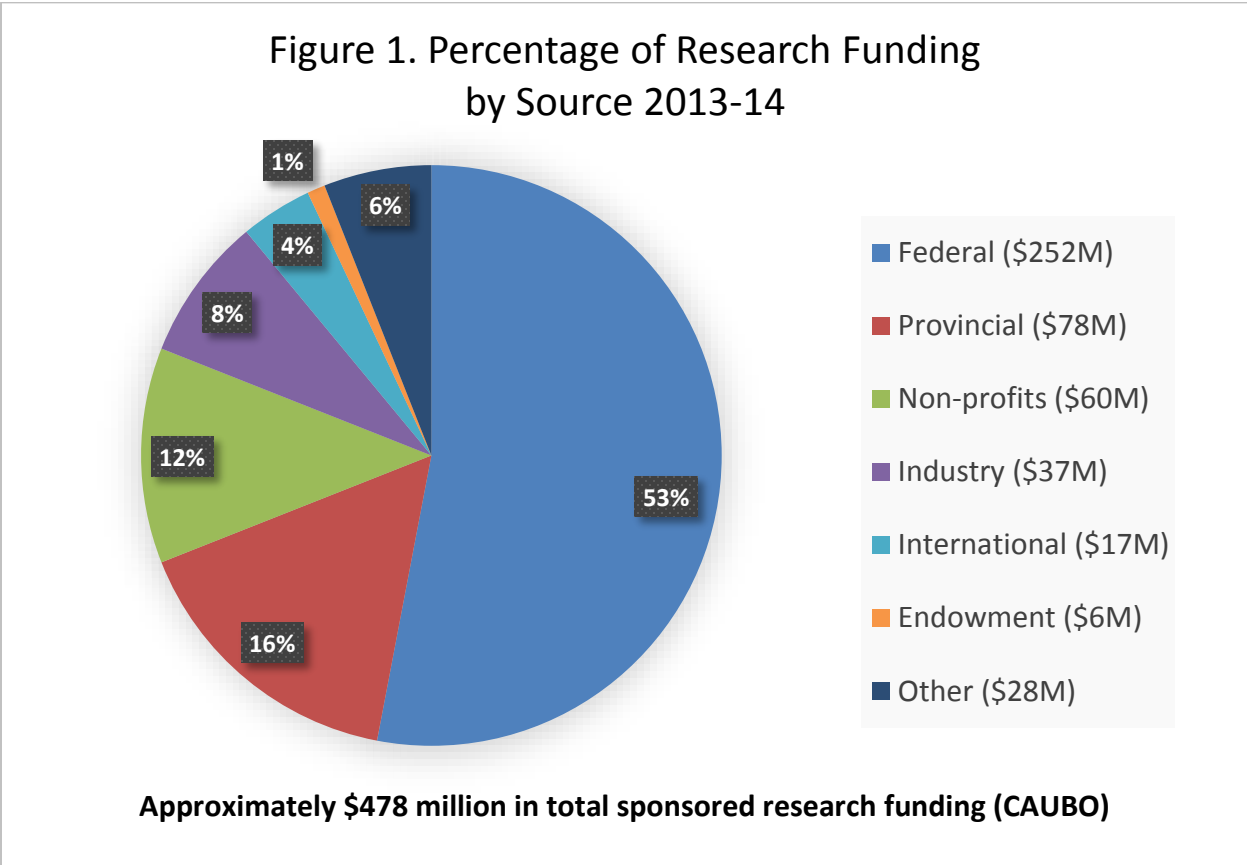
Research Funding Performance

BREAKDOWN OF FUNDING SOURCES (FIGURE 1)

McGill, like all Canadian universities, relies on “traditional” sources for the majority of research funding. At the same time, thanks to new initiatives and new ways of thinking across the University, we are gradually identifying more non-traditional means of supporting our research.

Over the past decade, public funding (federal and provincial) has been the most important sources of research funding for McGill, with federal funding accounting for 50-55% (53% in 2013-14) of research revenue and provincial funding ranging between 10-20% (16% in 2013-14).

Non-governmental or “alternative” sources of research funding – non-profits, industry, and international – have also remained relatively stable over the past decade. Collectively, these non-traditional sources generated approximately \$114 million in research funding for McGill in FY14: \$60 million from non-profits, \$37 million from industry, and \$17 million from international funding sources. Revenues in all three areas were up and the total revenues from these sources rose by \$6 million from \$108 million in FY13.



TOTAL SPONSORED RESEARCH (FIGURE 2 AND FIGURE 3)

- In 2013-14, McGill's \$478 million in total sponsored research funding ranked 4th among the G5 universities, behind the University of Toronto, l'Université de Montréal, and University of British Columbia, and ahead of the University of Alberta. These totals, including McGill's, include each university's affiliated hospitals and research institutes.
- Over the past five years, McGill's sponsored research revenue has grown at a slightly slower pace than the average among Canada's five most research-intensive universities (G5). McGill has experienced an 11% increase versus a 15% average increase among the G5.
- Since FY08, McGill has moved from 5th in total sponsored research among the G5 and U15 to 4th in both groupings.

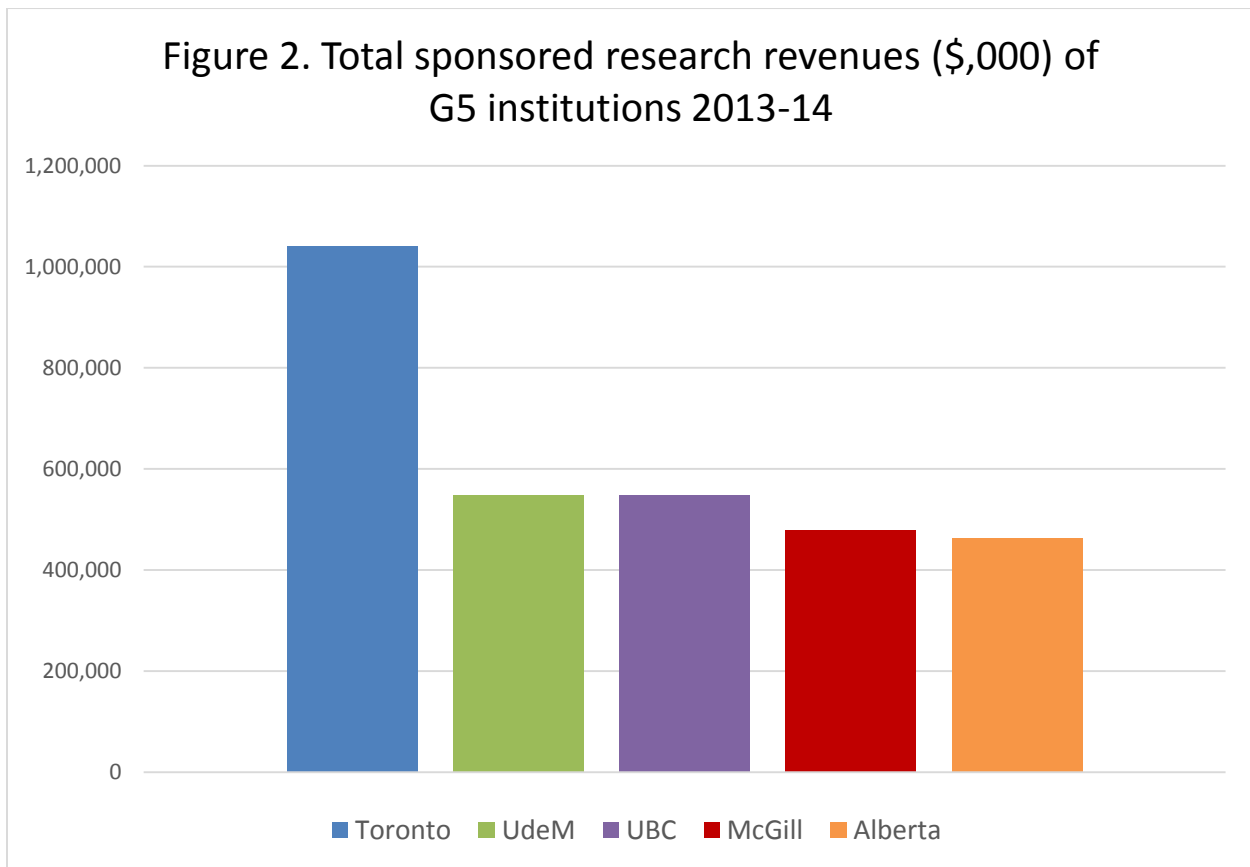
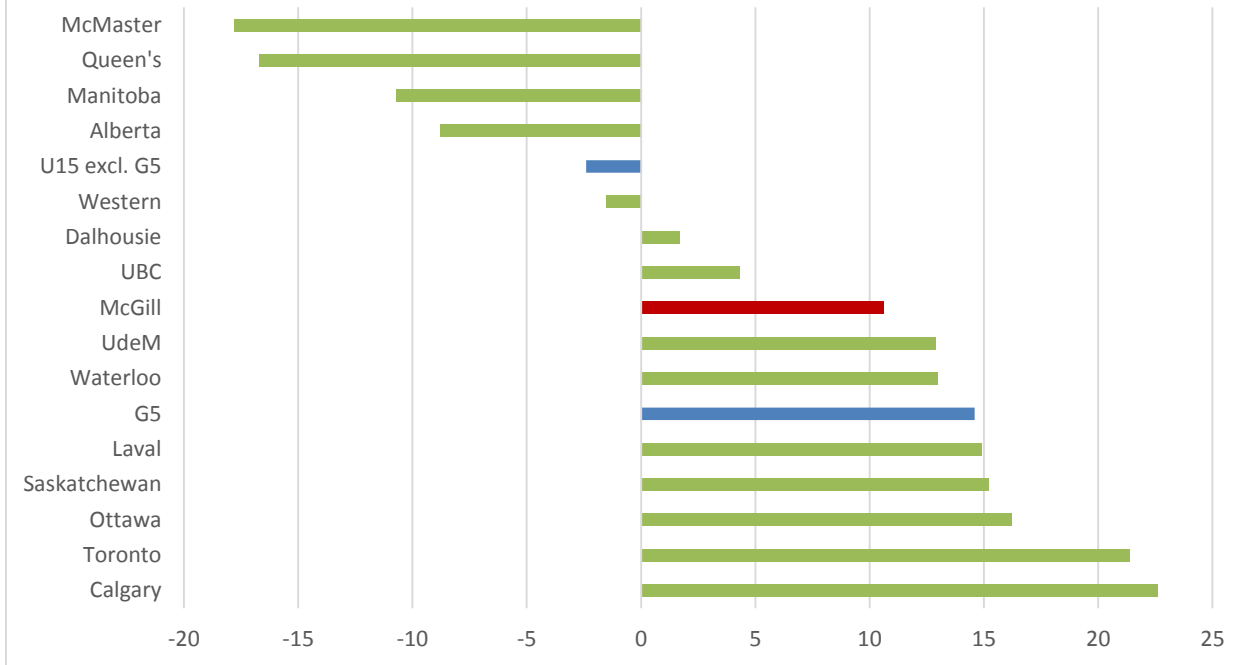


Figure 3. Change (%) in total sponsored 2009-2014



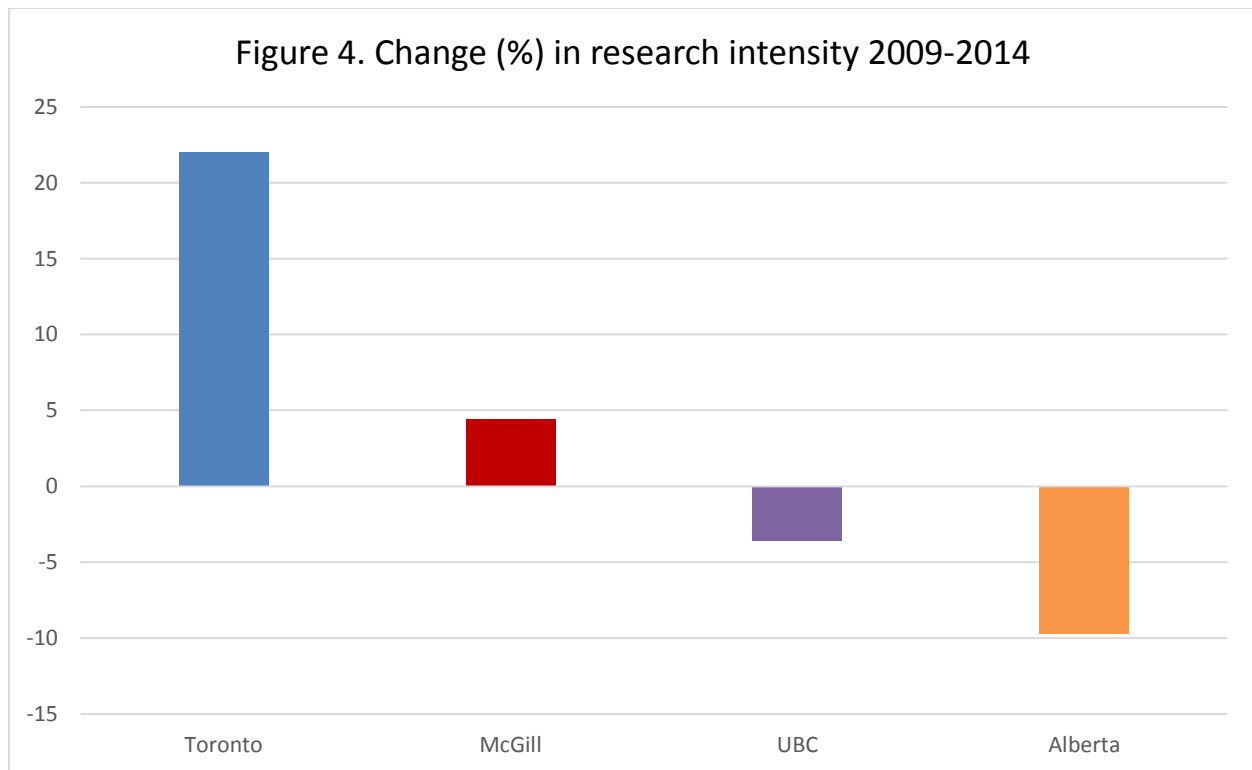
RESEARCH INTENSITY (FIGURE 4)

Research intensity is defined as the research dollars divided by the “full-time professorial” count at an institution. This measurement is intended to evaluate the amount of research funding at an institution, relative to its size. However, due to inconsistent faculty counts, this metric can be problematic. It can nevertheless be a useful point of comparison, if used with caution.

- In terms of research intensity, McGill ranked 2nd in both the G5 and U15 for 2013-14. The University of Toronto¹ ranked first with \$438,735 per full-time professor versus \$281,747 at McGill and \$278,850 at the University of Alberta, which ranked third.
- Five years ago, McGill ranked 3rd in the G5 and 4th in the U15 in terms of research intensity. It is a noteworthy accomplishment that McGill moved to second in FY13 and has retained its position in FY14.

¹ It should be noted that research intensity for the University of Toronto is most likely inflated, especially in the area of health sciences, as portrayed by CAUBO, which uses full-time ranked academics in a university to calculate research intensity. A large number of researchers that obtain federal funds at the University of Toronto do not fit this category. For example, the University of Toronto has a large number of affiliated hospitals and research institutes as the only medical school in a large metropolitan area, versus McGill which is one of two medical schools in a smaller city. The University of Toronto therefore has significant numbers of researchers receiving CIHR funding, but who are not full-time ranked academics at the university. As a result, the University of Toronto’s research dollars are being divided by a much smaller pool of applicants than the number they actually have, thus inflating their overall research intensity.

- Since FY09, McGill’s research intensity has grown at a slower pace than University of Toronto, but faster than both the University of British Columbia and the University of Alberta.
- Université de Montréal, the fifth G5 university, no longer provides a count of its full-time professoriate. Therefore, its research intensity cannot be calculated.



FEDERAL PROGRAMS (FIGURE 5 AND FIGURE 6)

McGill continues to perform well in programs offered by the three major federal granting agencies: Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council of Canada (NSERC), and Social Sciences and Humanities Research Council (SSHRC), known collectively as the Tri-Agency. As Figure 5 demonstrates, McGill ranks among the top research-intensive universities in Canada – both overall and in each of the individual funding agencies.

In 2013-14, McGill was awarded approximately \$158 million from the Tri-Agency, third behind the University of Toronto (\$271 million) and the University of British Columbia (\$177 million). McGill’s position in Canada has not changed in the past five years. In the most recent year, McGill had a market share of 8.3% versus 14.2% for University of Toronto and 9.3% for the University of British Columbia.

Figure 5. McGill Results by Agency 2013-14

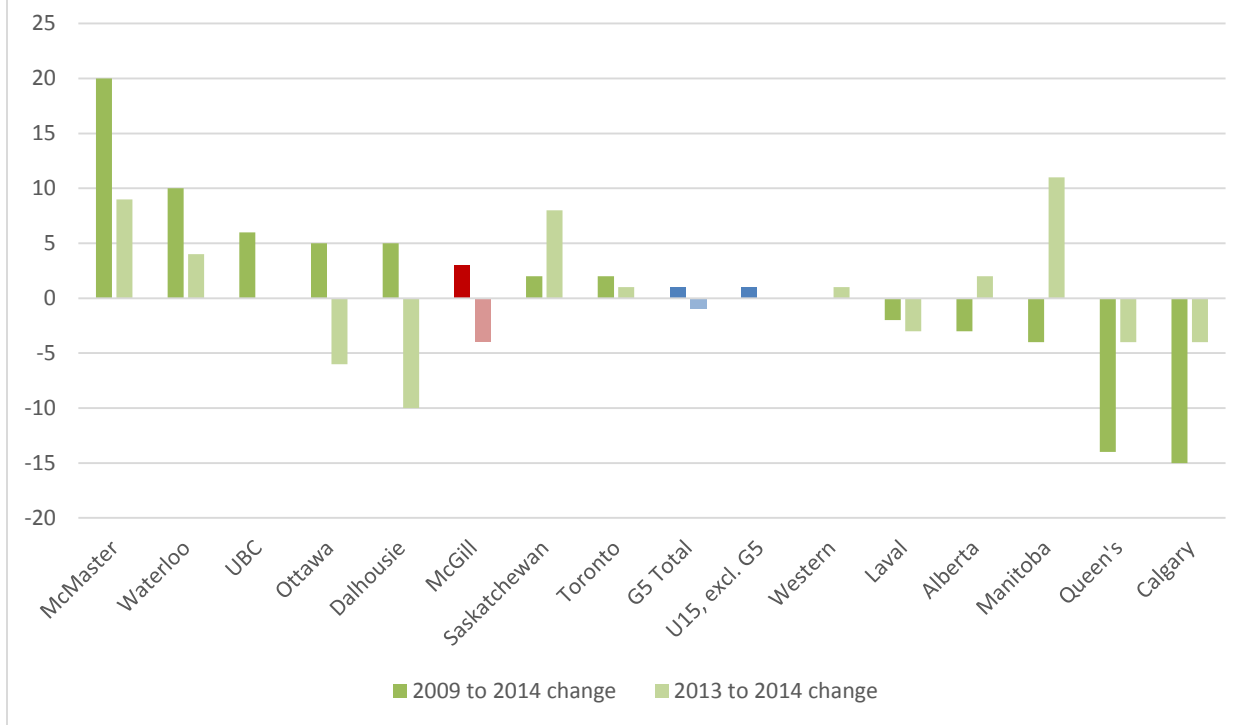
	<i>Overall Funding</i>	<i>Total Dollars Ranking in U15</i>	<i>Market Share</i>	<i>5-year Trend in Market Share</i>	<i>1-year Trend in Market Share</i>	<i>Research Intensity Ranking in U15</i>
Total Tri-Agency	\$158M	3rd	8.3%	-0.1	-0.4	2nd
CIHR	\$96M	2nd	11.9 %	-0.2	-0.3	4th
NSERC	\$46M	3rd	5.6%	-0.1	-0.6	2nd
SSHRC	\$16M	4th	6%	+0.9	+0.1	1st

HIGHLIGHTS FROM TRI-AGENCY RESULTS

Overall funding

- The overall Tri-Agency envelope increased by 0.7% (\$13.7 million) in 2013-14 while McGill saw its Tri-Agency funding decrease by 3.8% (-\$6.2 million) in the past year.
- McGill's five-year increase in Tri-Agency funding was slightly below the increase in the total envelope (3.1% for McGill versus 4.3% for the Tri-Agency).
- As the overall Tri-Agency envelope increased by only 0.7% in the past year, over half of U15 institutions saw their level of funding decrease.
- The University of British Columbia is the G5 university that has grown the most in terms of overall Tri-Agency funding over the past five years (6%).
- Results include Tri-Agency funding from grants, career awards, and scholarships.

Figure 6. 5-year and 1-year change in Tri-Agency award dollars of U15 institutions



Tri-Agency market share and research intensity

- In 2013-14, McGill ranked 3rd among the U15 in terms of Tri-Agency market share (8.3%), behind the University of Toronto (14.2%) and the University of British Columbia (9.3%).
- McGill’s share of Tri-Agency award dollars declined by 0.1 percentage point total over the past five years, meaning that McGill has essentially maintained a steady share.
- Nine U15 universities have lost market share between 2008-09 and 2013-14.
- McGill’s Tri-Agency research intensity (\$93,387) ranked 2nd across the U15, behind only the University of Toronto (\$114,281).

Canadian Institutes of Health Research (CIHR)

- In 2013-14, CIHR awarded McGill and its affiliated hospitals and research institutes approximately \$96 million, 2nd behind the University of Toronto (\$165 million).

- CIHR research award dollars have neither increased nor decreased (0.0%) at McGill in the past five years and decreased by 2.5% in the past year. McGill's five-year performance therefore was better than the G5 average change (-3.1%) but below the rest of the U15 average increase (2.3%).
- McGill ranked 2nd among the U15 in CIHR market share (11.9%), behind the University of Toronto (20.5%). McGill's share of CIHR award dollars went down by 0.2 percentage point over the past five years.
- In 2013-14, McGill's CIHR research intensity (\$160,533) ranked 2nd across the G5, behind the University of Toronto (\$289,552), and 4th in the U15.
- McGill experienced a significant drop in its CIHR research intensity in FY11, decreasing from \$202,943 per FTE in FY10 to \$176,166 per FTE in FY11. Despite maintaining its high rank in the G5, McGill has continued to decline CIHR research intensity over the past three years. Although concerning, the change can be at least partially explained by a significant corresponding drop in the overall CIHR envelop, which dropped from \$833 million in FY11 to \$806 million in FY14.

Natural Sciences and Engineering Research Council of Canada (NSERC)

- In 2013-14, McGill was awarded \$46 million from NSERC, 3rd behind the University of Toronto (\$79 million) and the University of British Columbia (\$65 million).
- NSERC research award dollars increased by 3.6% at McGill in the past five years but declined by 8.2% over the previous year. This five-year change is lower than the G5 average (5.7%) but higher than the rest of the U15 average (-1.0%).
- In 2013-14, McGill ranked 3rd among the U15 in terms of NSERC market share (5.6%), behind the University of Toronto (9.5%) and the University of British Columbia (7.9%). McGill's share of NSERC award dollars went down from 5.7% in 2008-09 to 5.6% in 2013-14.
- In 2013-14, McGill's NSERC research intensity (\$96,588) ranked 2nd across U15 universities for the second straight year, behind the University of Toronto (\$123,660).

Social Sciences and Humanities Research Council (SSHRC)

- In 2013-14, McGill was awarded \$16.25 million from SSHRC, ranking 4th behind the University of Toronto (\$27 million), the University of British Columbia (\$17 million), and Université de Montréal (\$16.5 million).

- SSHRC research award dollars increased by 24.7% at McGill over the past five years and by 2.4% in the past year. This five-year increase is significantly higher than both the G5 average (8.7%) and the rest of the U15 average (3.1%). In addition, this increase occurred while the SSHRC envelope increased by only 1.1% in the latest year.
- In 2013-14, McGill ranked 4th among the U15 in terms of SSHRC market share (6.0%), behind the University of Toronto (9.9%), the University of British Columbia (6.4%), and Université de Montréal (6.1%).
- McGill's share of SSHRC award dollars has gone up steadily in the past five years, from 5.2% in 2008-09 to 6.0% in 2013-14.
- In 2013-14, McGill's SSHRC research intensity (\$26,250) continued to rank 1st among the U15. McGill's SSHRC research intensity has increased by 22% in the past five years.

Source Figures 1-6: CAUBO, Research Infosource and University and College Academic Staff System (UCASS); compiled by Planning and Institutional Analysis (PIA)

PROVINCIAL FUNDING (FIGURE 7 AND FIGURE 8)

The Fonds de recherche du Québec (FRQ) is the province's primary research funding organization. Its three agencies, known collectively as the "Trois Fonds," are the Fonds de recherche du Québec – Santé (FRQ-S), Fonds de recherche du Québec - Nature et technologies (FRQ-NT), and the Fonds de recherche sur la société et la culture (FRQ-SC).

FRQ statistics are available for 2014-15. However, this report does not contain FRQ research intensity, because Université de Montréal and Université Laval have not provided staff data to the U15 since 2011-12.²

Last year, McGill was awarded just under \$30 million from the FRQ, behind only Université de Montréal at \$47 million. McGill also ranked 2nd, again behind Université de Montréal, in FRQ market share (20.2% vs. 31.7%). Université de Montréal, McGill University, and Université Laval together receive about 70% of all FRQ funding.

² The publication Resource Infosource ranked Université de Montréal 2nd in Canada for research intensity. However, this ranking used the outdated faculty count from FY12, meaning the results cannot be directly compared to universities providing their faculty count to CAUBO.

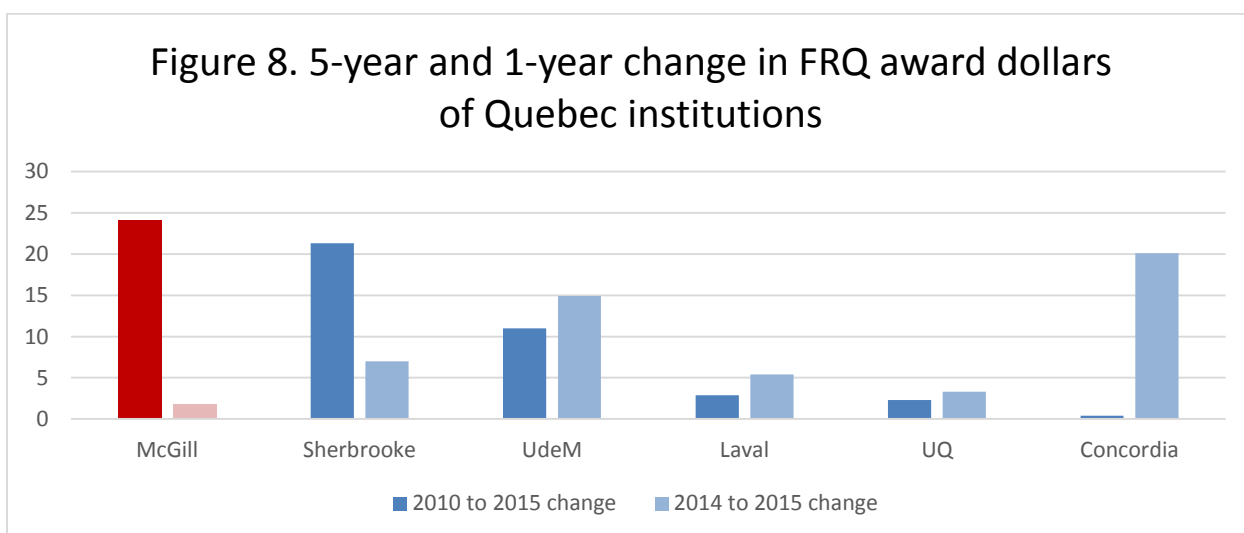
Figure 7. McGill Results by Agency 2014-15

	<i>Overall Funding</i>	<i>Total Dollars Ranking in Quebec</i>	<i>Market Share</i>	<i>5-year Trend in Market Share</i>	<i>1-year Trend in Market Share</i>
FRQ	\$30M	2nd	20.2%	+3.3	+0.3
FRQ-S	\$20.4M	2nd	26.1%	+5.9	+2.4
FRQ-NT	\$6.6M	3rd	18.9%	+0.7	-2.5
FRQ-SC	\$3M	4th	10%	+1.3	-1.4

HIGHLIGHTS FROM TROIS FONDS RESULTS

Overall funding

- FRQ funding increased by only 3.5% over the past five years, rising from \$144 million in FY10 to \$149 million in FY15.
- FRQ award dollars, which exclude scholarships, increased by 24% at McGill in the past five years and by 1.8% in the past year.
- Only FRQ-NT has seen its envelope grow in the past five years (+24.8%). FRQ-SC has not changed significantly (+2.5%) and FRQ-S has decreased slightly (-4.6%). McGill’s total FRQ market share as well as its market share in each of the Trois Fonds have increased during the same period.



Fonds de recherche du Québec – Santé (FRQ-S)

- In 2014-15, FRQ-S awarded McGill and its affiliated hospitals and research institutes \$20.4 million, 2nd behind Université de Montréal (\$29.5 million).
- FRQ-S award dollars increased by 23.2% at McGill in the past five years and by 8.8% in the past year. McGill's achieved this increase despite a 4.6% decrease in FRQ-S dollars (\$82 million to \$78 million) over this same five-year period.
- In 2014-15, McGill ranked 2nd in Quebec in terms of FRQ-S market share (26.1%), behind Université de Montréal (37.7%) – an increase of 2.4 percentage points over the previous year and 5.9 percentage points since FY10.

Fonds de recherche du Québec - Nature et technologies (FRQ-NT)

- In 2014-15, FRQ-NT awarded McGill \$6.6 million, 3rd behind Université de Montréal (\$9.6 million) and Université Laval (\$9 million).
- FRQ-NT award dollars increased by 30.4% at McGill in the past five years but decreased by 7.2% in the past year.
- In 2014-15, McGill ranked 3rd in Quebec in terms of FRQ-NT market share (16.3%), behind Université de Montréal (23.9%) and Université Laval (22.4%) – a decrease of 2.5 percentage points over the previous year, but an increase of 0.7 percentage point since FY10.

Fonds de recherche sur la société et la culture (FRQ-SC)

- In 2014-15, FRQ-SC awarded McGill \$3 million, 4th behind Université de Montréal (\$8 million), Université du Québec à Montréal (\$5.4 million), and Université Laval (\$3.9 million).
- FRQ-SC award dollars increased by 17.3% at McGill in the past five years but fell by 17% in the past year.
- In 2014-15, McGill ranked 4th in Quebec in terms of FRQ-SC market share (10%), behind Université de Montréal (26.4%), UQAM (17.6%), and Université Laval (12.8%). McGill saw a decrease of 1.3 percentage points in its market share in FY15, but an increase of 1.3 percentage points over the previous five years.

Source Figures 7-8: Data obtained from FRQ (PIA, September 2015) [Excludes scholarships; Bishop's not included.]

Innovation Performance

BACKGROUND

In recent years, the annual Report on Research and Innovation has stressed the need for McGill to work differently with its researchers, its community partners (including investors and alumni), and industry to both create new sources of research funding as well as deliver knowledge, ideas, and new technologies that address societal needs. This means more and better collaboration, a more strategic and open approach to our patent portfolio, and a concerted effort to take our research beyond the academy to the market or translate it into new means of engaging and improving our communities.

The following data show that McGill has improved its performance in traditional areas related to the commercialization of research, with continued strength in protecting intellectual property and positive new results in moving research into the community and the market.

Over the course of the FY15, all Technology Transfer Managers in RIR's Invention Development and Entrepreneurship Assistance (IDEA) team were redeployed into McGill Faculties and affiliated hospitals. Moreover, as a means of leading efforts related to community engagement, McGill launched two new units in recent years: the Quartier de l'innovation (QI) – which was integrated into Research and International Relations in 2015, becoming Innovation in Practice – and the McGill University Business Engagement Centre (MUBEC). These tailored, frontline services are now producing promising results, which are summarized in this section.

McGill is also working to expand our zone of interaction with key players in the local, national, and international innovation ecosystem. In 2015, McGill hosted meetings with numerous venture capital firms, accelerators, incubators, serial entrepreneurs, and funding agencies in an effort to build or strengthen partnerships in this area and develop pathways for McGill innovators to take their inventions and ideas to the next stage.

COMMERCIALIZATION OUTCOMES

Protecting intellectual property has traditionally been McGill's strong suit in areas related to innovation, commercialization, knowledge transfer, and entrepreneurship. In the Association of University Technology Managers (AUTM) Canadian Licensing Activity Survey for FY2014, this remained the case. Moreover, McGill saw significant gains in all areas of our commercialization activities – patents, licensing, and income – during the period covered in the most recent AUTM survey.

Of the 36 universities, research institutes, and hospitals participating in the study, McGill had the following rankings in FY14. (FY13 information is also included as a comparison.)

- 1st in New Patent Applications (144), followed by Université de Montréal (134)
 - FY13: 1st with 125
- 2nd in Patents Issued (23), behind only the University of British Columbia (32)
 - FY13: 4th with 19
- 3rd (tie) in Invention Disclosures (128), while the University of Guelph was 1st (192)
 - FY13: 8th with 95
- 7th in Cumulative Invention Disclosures 2012-14 (304), while the University of Guelph was 1st (616)
 - FY13: 8th with 274

Moreover, McGill showed significant progress during the same period in our ability to move those discoveries to market, an area where we have not traditionally performed as well. The FY2014 AUTM Canadian Survey indicates that McGill ranked:

- 3rd (tie) in Cumulative Active Licenses (239), while the University of British Columbia led Canadian universities (328)
 - FY13: 9th with 169
- 3rd (tie) in Startups (6), while the University of Toronto (20), excluding its hospitals, and Waterloo (12) led the country
 - FY13: 13th with 1
- 6th in 2014 Licenses and Options Executed (34), while the McMaster University and its affiliated hospitals led Canadian universities (138)
 - FY13: 10th with 18

McGill's improved performance in the area of commercialization translates into increased funding returns from our innovation portfolio. In the FY2014 AUTM Canadian Survey, McGill ranked:

- 4th in Adjusted Gross Income, which includes running royalties, cashed-in equity, and miscellaneous sources, minus license income paid out to other institutions (\$4.7 million), while

the University of Toronto, excluding its affiliated hospitals, led Canadian universities (\$34.3 million)

- FY13: 15th with \$832,000
- 4th in 2014 License Income Received (\$4.8 million), while Toronto was 1st (\$34.6 million)
 - FY13: 15th with \$891,794
- 10th in 2012-2014 Cumulative Adjusted Gross Income (\$6.4 million), while Toronto was 1st (\$43 million)
 - FY13: 10th with \$2.6-million

Source: AUTM Canadian Licensing Activity Survey: FY2014

IMPACT OF INNOVATION IN PRACTICE AND MUBEC

Research and International Relations (RIR) is home to two key units dedicated to increasing McGill's engagement with community and industry partners. They are Innovation in Practice (formerly the Quartier de l'innovation) and the McGill University Business Engagement Centre (MUBEC), both of which began full operations in FY2012-13. The central office which supports McGill's participation and projects in the Quartier de l'innovation has been integrated into RIR as part of the broader mandate of the Innovation in Practice team.

Below you find significant achievements from the QI and MUBEC for 2015 as they relate to building new and stronger collaborations between McGill and community, university, and industry partners.

HIGHLIGHTS FROM INNOVATION IN PRACTICE

Key successes included:

- 9 new projects were launched in the Montreal community this year, mainly in Quartier de l'innovation or Quartier des spectacles districts, 18 new collaborations with community partners were initiated, and 13 professors became involved for the first time in innovative projects in the Montreal community. More than 50 McGill professors are now actively taking part in projects facilitated by Innovation in Practice.

- 7 events organized and led by the Innovation in Practice team took place, including a 5 à 7 with Andy Nulman, the Montreal Summit on Innovation 2015, and McGill's first event with collaborators in the Quartier des spectacles. In November, the third McGill Innovation Week was a success, reaching over 1,500 individuals through 19 events and activities.
- 5 new projects were launched as part of McGill's agreement with Centre d'entreprises et d'innovation de Montréal (CEIM), signed in 2014, giving McGill students and faculty access to CEIM services for the start-up and development of companies in information technology, new media, clean and industrial technologies as well as life sciences.
- The official launch of Salon 1861 and the signing of a five-year agreement with QuoVadis took place in November, as part of the one-year anniversary of Je fais Montréal, which had more than 500 people in attendance. Salon 1861 is a socially responsible project that protects the architectural heritage of the St. Joseph's Church in Little Burgundy, transforming it into a destination for cultural and social innovation as well as social entrepreneurship.

HIGHLIGHTS FROM MUBEC

In 2015, the McGill University Business Engagement Centre (MUBEC) completed the third year of full operations and had its funding renewed through the end of FY16. Some of its key successes are as follows:

- MUBEC has achieved 127% of its objectives during its first three years. By the end of FY16, MUBEC will have generated approximately \$15.4 million in new funding (sponsored research contracts, technology licensing, fees, and strategic gifts), for McGill since July 2012, while operating with a total budget allocation of \$1.8 million and a team of 2.4 FTEs on average.
- By comparison, in FY12 – the year before MUBEC began functioning – McGill had \$34.6 million in sponsored research revenue from business enterprises. In FY14, the number had grown to \$36.9 million.
- Since its official launch in July 2012, MUBEC has also generated:
 - New research agreements with L'Oréal, Cascades Group, Aspire Food Group, TELUS, Greybox Solutions, Hydro-Québec, and Lamour Industries;
 - 240+ cross-campus referrals to other McGill units, such as University Advancement, School of Continuing Studies, and Career Planning Service;
 - 130+ on-campus visits by industry partners;
 - 300 interactions and engagements with corporations.

- Current transformative files led by MUBEC include projects related to:
 - McGill Agrifood Innovation Network (M.A.I.N.);
 - Centre for Interdisciplinary Research on Montreal (CIRM);
 - Financial services of the Future.
- MUBEC holds memberships in key Quebec industrial cluster organizations, such as TechnoMontreal, EcoTech, and Montreal's Conseil ADN, and MUBEC is McGill's designated QuebecInnove liaison.

Please visit www.mcgill.ca/MUBEC to learn more about the services MUBEC provides to the McGill community and our industry partners.

Research and Innovation Priority Projects

In March 2014, Prof. Suzanne Fortier, Principal and Vice-Chancellor, outlined her strategic vision for McGill during several high-profile talks, both on- and off-campus. In these speeches, Prof. Fortier identified student life and learning, research, and community engagement as the areas where McGill will pursue transformative projects in the coming years. These initiatives have become known around the University as the “Principal’s Priorities.”

Research and International Relations (RIR) is leading the research component, called “Unleashing McGill’s Full Research Potential,” and co-leading with University Advancement and Communications and External Relations several components under the umbrella of “Enhancing McGill’s Community Partnerships.”

RIR-led Principal’s Priorities are a suite of projects being developed over the next several years. The respective goals of these projects will help ensure that McGill sustains and strengthens its research enterprise. More information about the projects and their timelines can be found at www.mcgill.ca/principal/five-priorities.

UNLEASHING MCGILL’S FULL RESEARCH POTENTIAL

Noteworthy accomplishments related to this project in 2015 included the following:

- Completed staffing of the Strategic Initiatives (SI) unit to provide robust, focused support on large-scale grants;
- Completed development of toolkits and processes for applying to major grants programs, such as NCE, Genome Canada, and CFI;
- Implemented the reorganization of the Office of Sponsored Research (OSR)’s Grants and Agreements unit into discipline-specific teams;
- Launched the Invention Development and Entrepreneurship Assistance (IDEA) unit and redeployed IDEA Technology Transfer Managers into Faculties and affiliated hospitals to provide more front-line (proximity) support for researchers;
- Conducted University-wide consultation for Canada First Research Excellence Fund (CFREF) projects and submitted Round 1 application;
- Initiated Future Earth collaboration with other Montreal universities and inaugurated the Institut Nordique du Québec, in partnership with Université Laval and INRS.

COMMUNITY PARTNERSHIP: NURTURING DISCOVERY, INNOVATION AND INDUSTRY PARTNERSHIPS

Noteworthy accomplishments emerging across McGill and specifically in the units mentioned below, in 2015 included the following:

- The Innovation Steering Committee has put forward four sets of recommendations, relating to entrepreneurship education; recognizing and rewarding innovative and entrepreneurial activity in the academic career path; enhancing McGill's capacity for successful industrial partnerships; and, revising/updating McGill's Policy on Intellectual Property. All are being implemented.
- The Dobson Centre for Entrepreneurship has continued to expand its offerings, including new streams within the Dobson Cup competition related to agribusiness entrepreneurship and social innovation, and a new on-campus accelerator program launched this summer.
- A novel model for offering modular minors in entrepreneurship with Faculty-specific elements was developed by the Marcel Desautels Institute for Integrated Management. FAES launched its Minor in Agribusiness Entrepreneurship this September while several other Faculties are developing their own own minors based on this model.
- A proposal is being refined, in cooperation with the Office of the Dean of Graduate and Postdoctoral Studies, to offer a certificate in entrepreneurship for graduate students and postdoctoral fellows.
- Experiential learning opportunities are being expanded for students interested in innovation and entrepreneurship via MITACS and through the Quartier de l'innovation, including Salon 1861 and other initiatives with local partners.
- RIR, together with the Innovation Steering Committee, University Advancement and the Faculties of Management and Engineering, has developed a proposal for "nodes of innovation excellence" at McGill. Proposed nodes include: social innovation, technological innovation; pharmaceutical, biochemical and biomedical innovation and medical devices; and, food, agribusiness, biomaterials and biofuels innovation.
- The Innovation Constellation website (www.mcgill.ca/innovation) has been launched, featuring a Guide for Faculty Inventors and a Guide for Student Entrepreneurs, to bring together information about all services, programs, supports and projects related to innovation at McGill.
- RIR, together with the Dobson Centre, is piloting a platform for enabling mentorship interactions between McGill project teams and qualified innovation mentors as well as a mentor's toolkit.

Selected Major Achievements in 2015

EXAMPLES OF NOTEWORTHY GRANTS AND FUNDING SUCCESSES

- [McGill's results for the CFI-8 competition were the University's best outcome in 12 years, ranking first in Canada for total funding in this round of competition and bringing a grand total of over \\$100 million to McGill.](#)
- [Genome Canada awarded two Genome Innovation Network \(GIN\) grants to the McGill University and Génome Québec Innovation Centre, totaling over \\$3.3-million per year for two years.](#)
- [Two McGill projects received grants valued at \\$500,000 each from the Canadian Queen Elizabeth II Diamond Jubilee Scholarships program.](#)
- Faramarz Hassani of the Department of Mining and Materials Engineering was awarded a three-year, \$300,000 grant jointly administered by the Fonds de Recherche du Québec – Nature et Technologies and the Ministère de l'Énergie et des Ressources naturelles. (No link available)
- [Four new Canada Research Chairs were awarded to McGill researchers and two others were renewed, representing a total of \\$6.6 million in funding over the next five to seven years for research in a range of fields related to health, medicine, and engineering.](#)
- [Andrew Hendry, Department of Biology, was awarded a \\$1,650,000 grant, to be distributed over six years, from NSERC's Collaborative Research and Training Experience \(CREATE\) program.](#)
- The Velux Foundation recently funded two projects on healthy aging under a special call for the Brain@McGill tripartite partnership between McGill, Oxford and the Neuroscience Center of Zurich (ZNZ). (No link available)

EXAMPLES OF SIGNIFICANT NEW OR STRENGTHENED PARTNERSHIPS

- [Ubisoft and Amblyotech Inc. announced their collaboration on the development of "Dig Rush," the first videogame based on a patented method exclusively used for the treatment of Amblyopia, also known as "lazy eye."](#)
- [McGill and the Hebrew University of Jerusalem organized a Canada-Israel workshop on advanced biofuels in November in Israel.](#)

- [Allergan, a global pharmaceutical company, announced that it has entered into a licensing agreement with Mimetogen Pharmaceuticals, a clinical stage biotechnology company, to develop and commercialize a topical formulation for the treatment of dry eye disease. The underlying technology was originally licensed from McGill and the Lady Davis Institute.](#)

EXAMPLES OF MAJOR PRIZES AND AWARDS

- [Vicky Kaspi, Department of Physics, was awarded the Killam Prize, one of the country's most prestigious awards for academic-career achievement. The \\$100,000 prize was granted for outstanding scholarship in the natural sciences.](#)
- [Charles Taylor, Professor Emeritus of Philosophy, was awarded the prestigious \\$1.5 million John W. Kluge Prize for Achievement in the Study of Humanity granted by the Library of Congress.](#)
- [It was a banner year at the Royal Society of Canada, with McGill garnering the most new Fellows and the most new Members of the College of New Scholars, Artists and Scientists in the country. In total, McGill had 14 new Fellows, six members of the College of New Scholars, Artists and Scientists in Canada, and one medal winner.](#)
- [René Provost from the Faculty of Law, was one of five Canadian scholars honoured with a Trudeau Fellowship from the Pierre Elliot Trudeau Foundation.](#)
- [Margaret Lock, Department of Social Studies of Medicine, and Vicky Kaspi, Department of Physics, were inducted into the 235th class of the American Academy of Arts and Sciences.](#)

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