McGILL UNIVERSITY **BOARD OF GOVERNORS**

Memorandum

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TO:	Board of Governors
FROM:	Jim Nicell, Dean, Faculty of Engineering
SUBJECT:	Overview of the Faculty of Engineering
DATE:	May 24, 2018
DOCUMENT #:	GD17-68
ACTION REQUIRED:	☒ INFORMATION ☐ APPROVAL/DECISION

ISSUE & EXPECTED OUTCOME

An overview of activities, initiatives and developments of the Faculty of Engineering is provided to the Board of Governors for information.

BACKGROUND & RATIONALE

Presentations feature regularly on Board agendas in order to keep Board members apprised of the University's academic and campus activities.

The following presentation has been prepared by the Faculty of Engineering and provides an overview of the following elements:

- Academic Units
- Faculty
- Enrolment
- Funding
- Equity and Diversity
- University Advancement
- Comparative Statistics
- Innovation by Design

ALIGNMENT WITH MISSION AND STRATEGIC PRIORITIES

Presentations of University Faculties apprise the Board of the University's academic priorities.

COMPLIANCE WITH UNIVERSITY POLICY

Faculty presentations are a regular feature on Board agendas.

COMPLIANCE WITH LEGISLATION/ EXTERNAL REGULATIONS	There are no external legislation requirements applicable.
RISK FACTORS	There are no risk factors applicable.
SUSTAINABILITY CONSIDERATIONS	The Faculty of Engineering has enabled a sustainable framework for the success of undergraduate and graduate students at the University.
IMPACT OF DECISION AND NEXT STEPS	N/A
MOTION OR RESOLUTION FOR APPROVAL	N/A
APPENDICES	Appendix A: Presentation

McGill

Faculty of Engineering

Faculty of Engineering Profile

Presentation to the Board of Governors

Jim A. Nicell, PhD, PEng

Dean, Faculty of Engineering

May 24, 2018

Background

McGill's Mission:

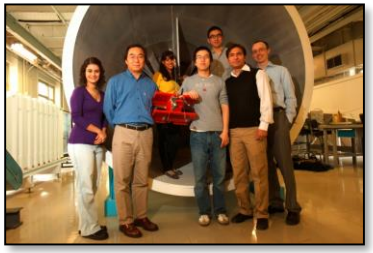
"The mission of McGill University is the advancement of learning and the creation and dissemination of knowledge, by offering the best possible education, by carrying out research and scholarly activities judged to be excellent by the highest international standards, and by providing service to society."

Principles:

"In fulfilling its mission, McGill University embraces the principles of academic freedom, integrity, responsibility, equity, and inclusiveness."







Who are we?

Academic Units

Departments

- Bioengineering
- Chemical Engineering
- Civil Engineering & Applied Mechanics
- Electrical & Computer Engineering
- Mechanical Engineering
- Mining & Materials Engineering

Schools

- Architecture
- Urban Planning

Professor Wagdi Habashi with researchers in aerospace computational fluid dynamics

Institutes, Centres and Networks

Institutes

- McGill Institute for Advanced Materials (MIAM)
- McGill Institute for Aerospace Engineering (MIAE)
- Trottier Institute for Sustainability in Engineering and Design (TISED)

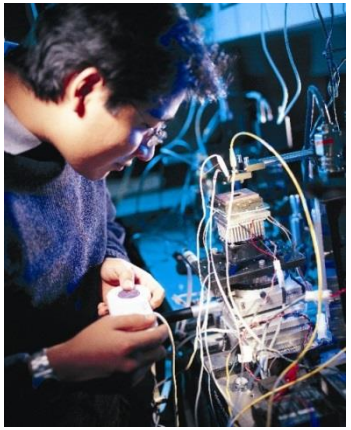
Research Centres

- Centre for Intelligent Machines (CIM)
- Brace Centre for Water Resource Management
- Systèmes, technologies et applications en radiofréquence et communications (STARaCom)
- McGill Metals Processing Centre
- Plasma Quebec (Plasma Processing Laboratory)
- Centre for Orebody Modeling and Strategic Mine Planning (COSMO)
- McGill Aerospace Materials and Alloy Development Centre
- Yan P. Lin Centre for the Study of Freedom and Global Orders in the Ancient & Modern Worlds

Networks

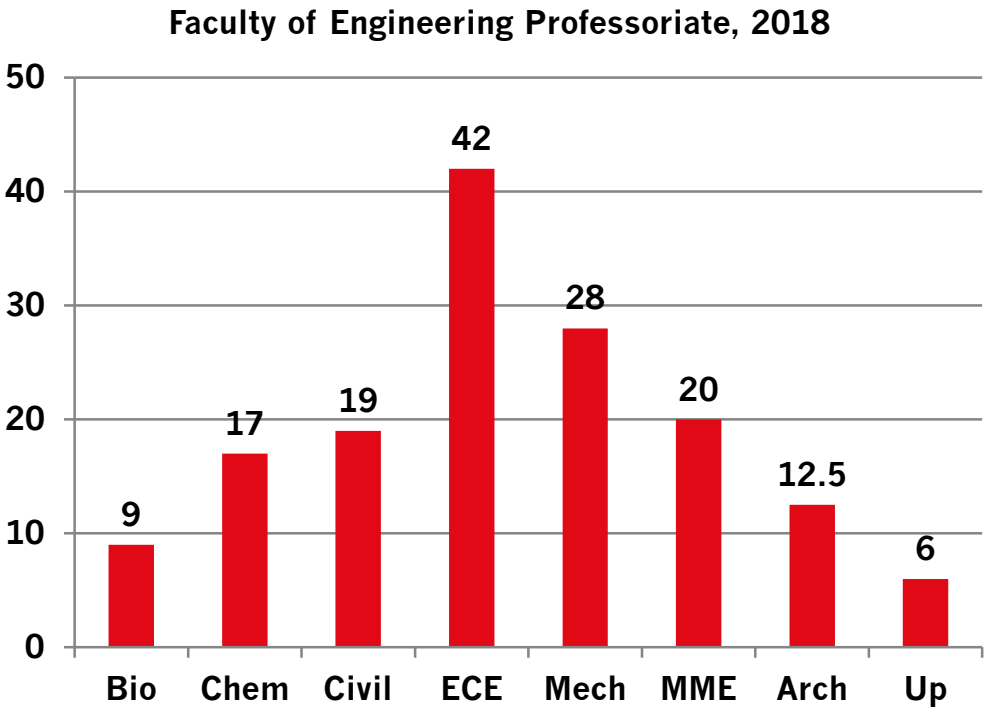
- Healthcare Support Through Information Technology Enhancements (hSITE)
- Canadian Seismic Research Network

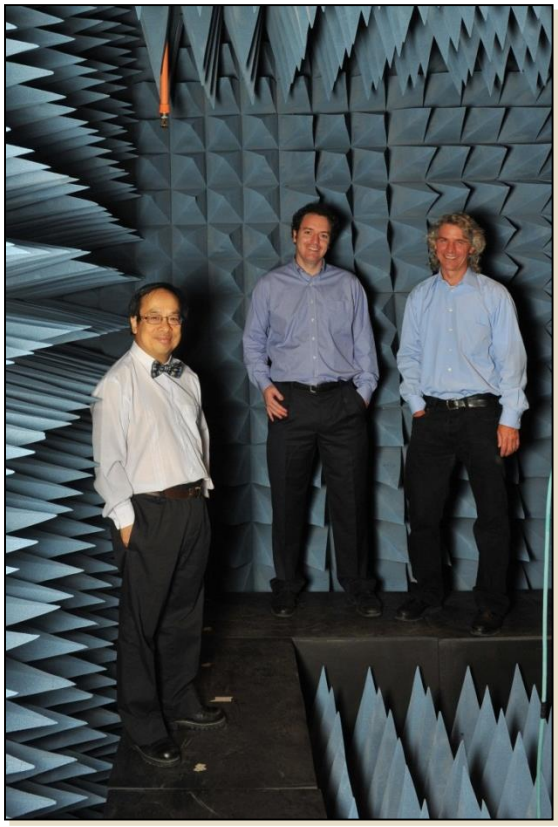
STARaCom labs



Academic Staff

- 153.5 Professors
- 17 Canada Research Chairs
- 12 William Dawson Scholars & James McGill Professors
- 4 NSERC Industrial Research Chairs
- 13 Endowed Chairs





Professors Le-Ngoc, Coates and Plant in the Anechoic Chamber

Undergraduate Students

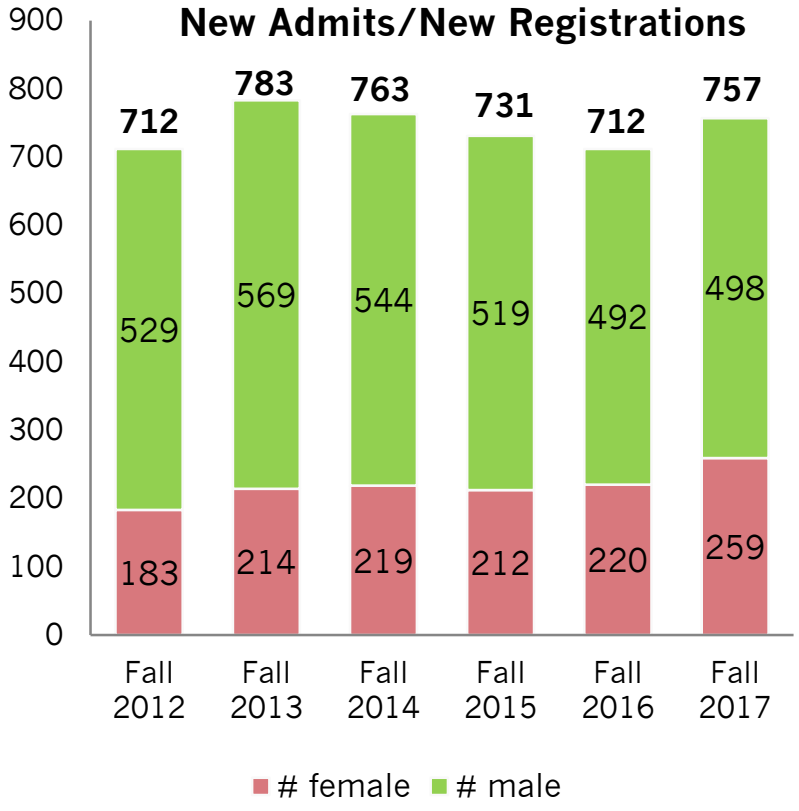
- **Enrolment**
  - 3403 undergraduate students
  - 30% female / 34% international
  - 18% French mother tongue /16% French language used
- **Admissions**
  - 757 admitted
  - 34% female / 33% international
  - Average CEGEP cote R score 31.1 / Canadian High School admission average 95%

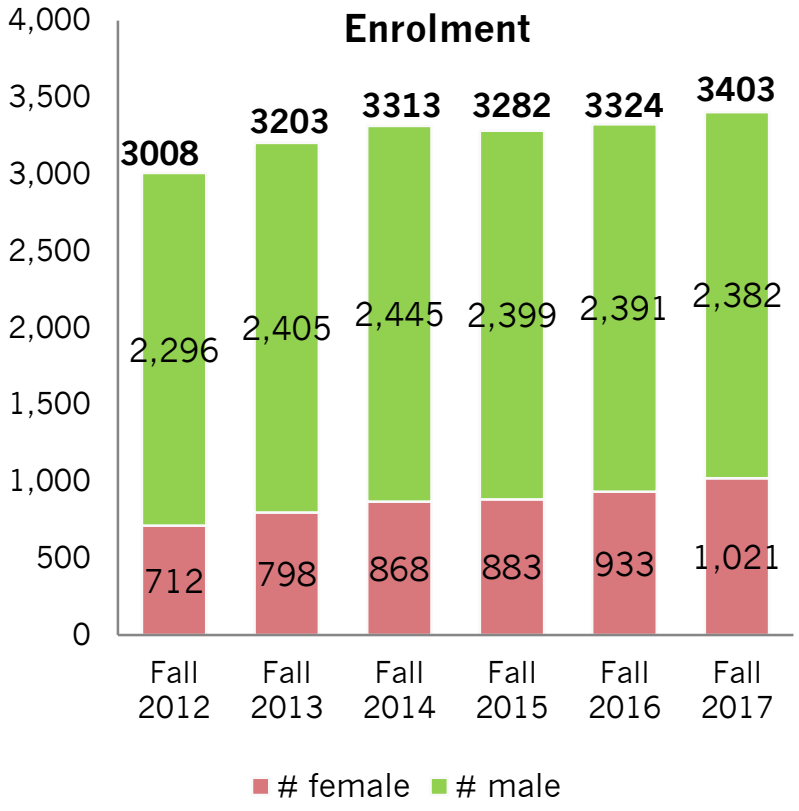
Graduate Students

- **Enrolment**
  - 1209 students – 576 PhD / 633 Masters students
  - Almost 4 PhD and 4 Masters per professor
  - 30% female / 55% international
- **Admissions**
  - 387 admitted - 275 Masters / 112 PhD students
  - 39% female / 54% international

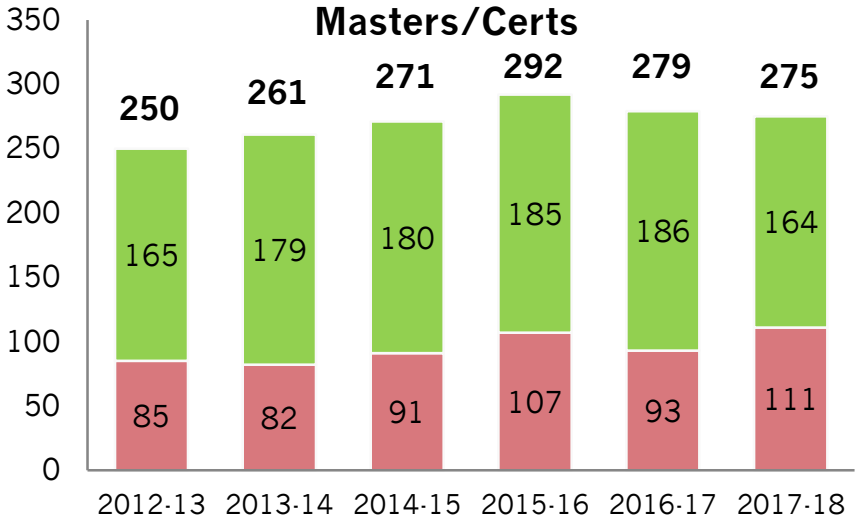
How are we doing?

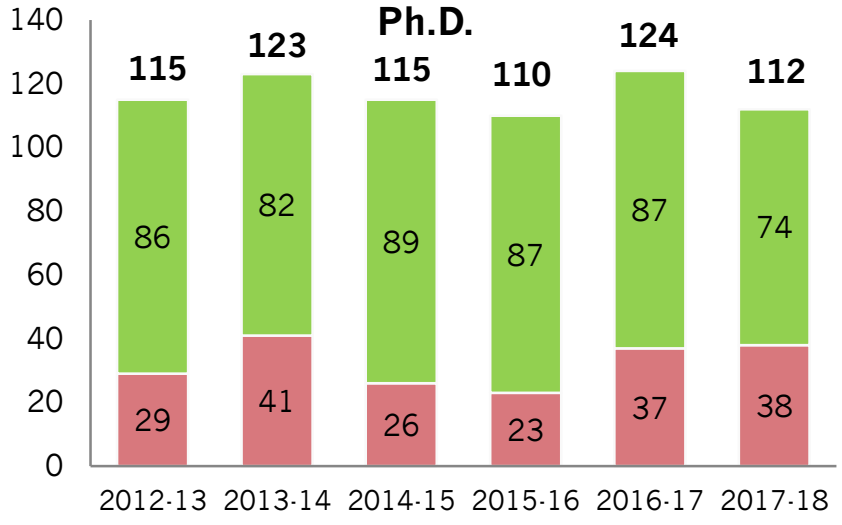
Undergraduate Students – Admissions & Enrolment

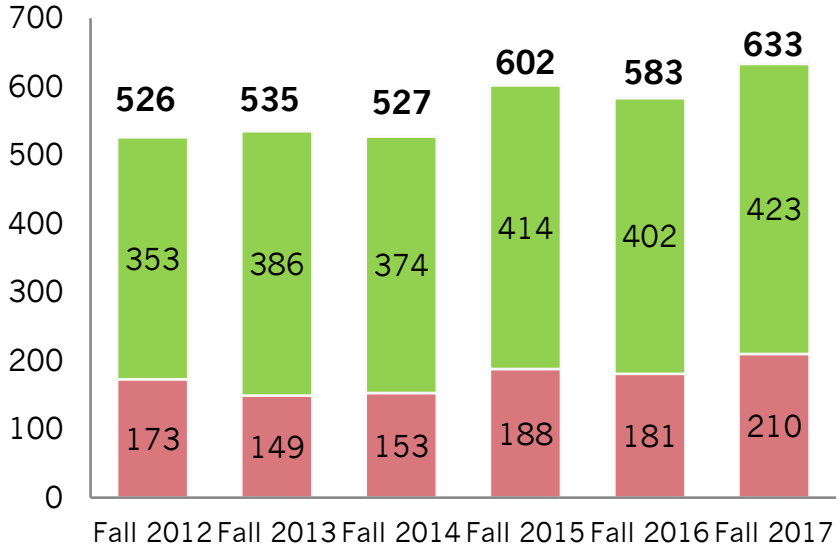


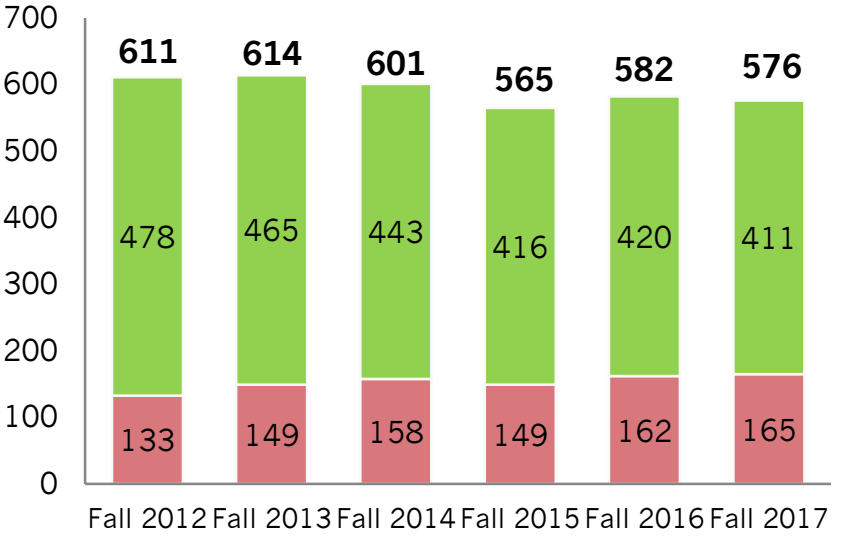


Graduate Students – Admissions (top) & Enrolment (bottom)

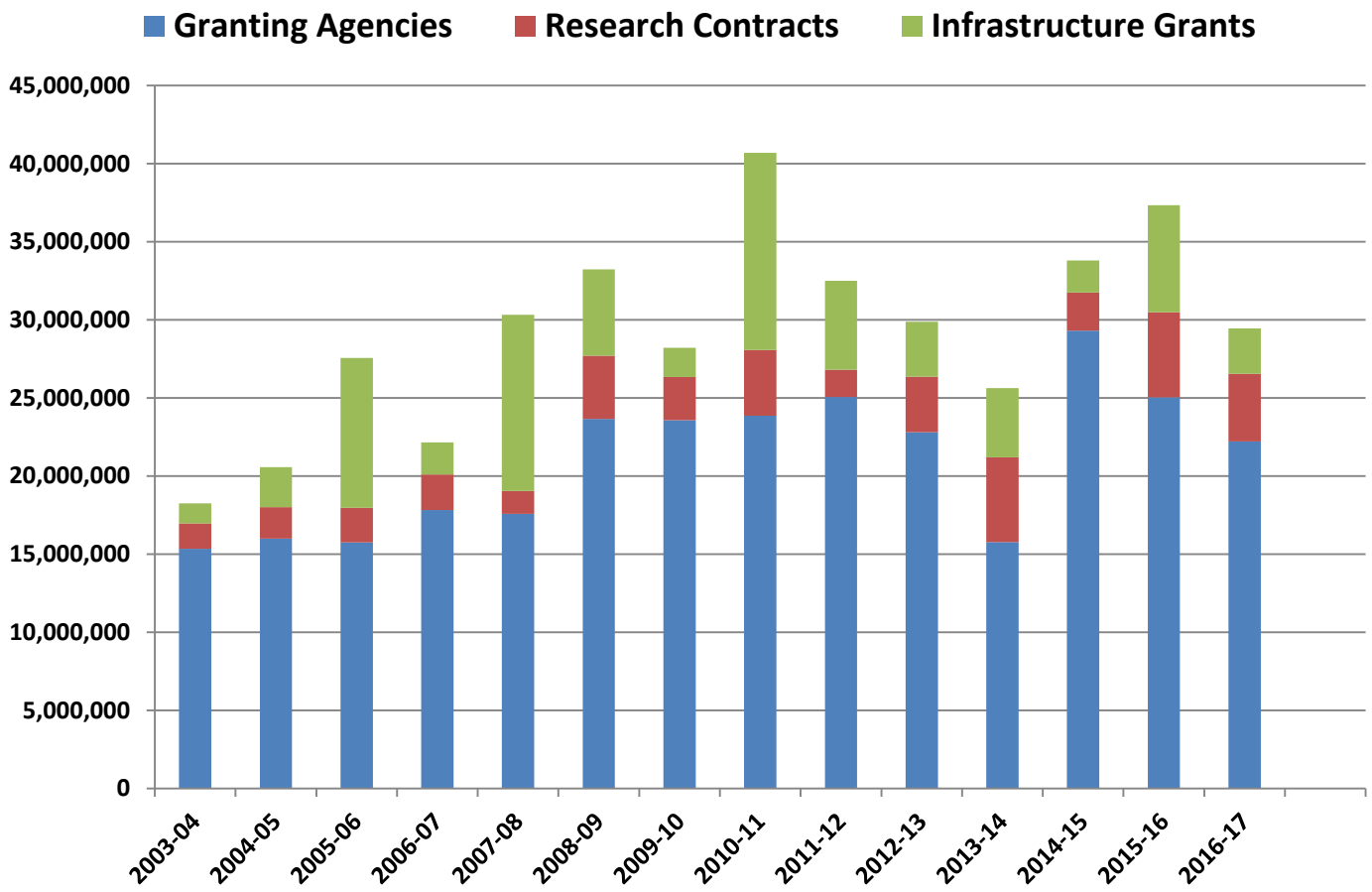




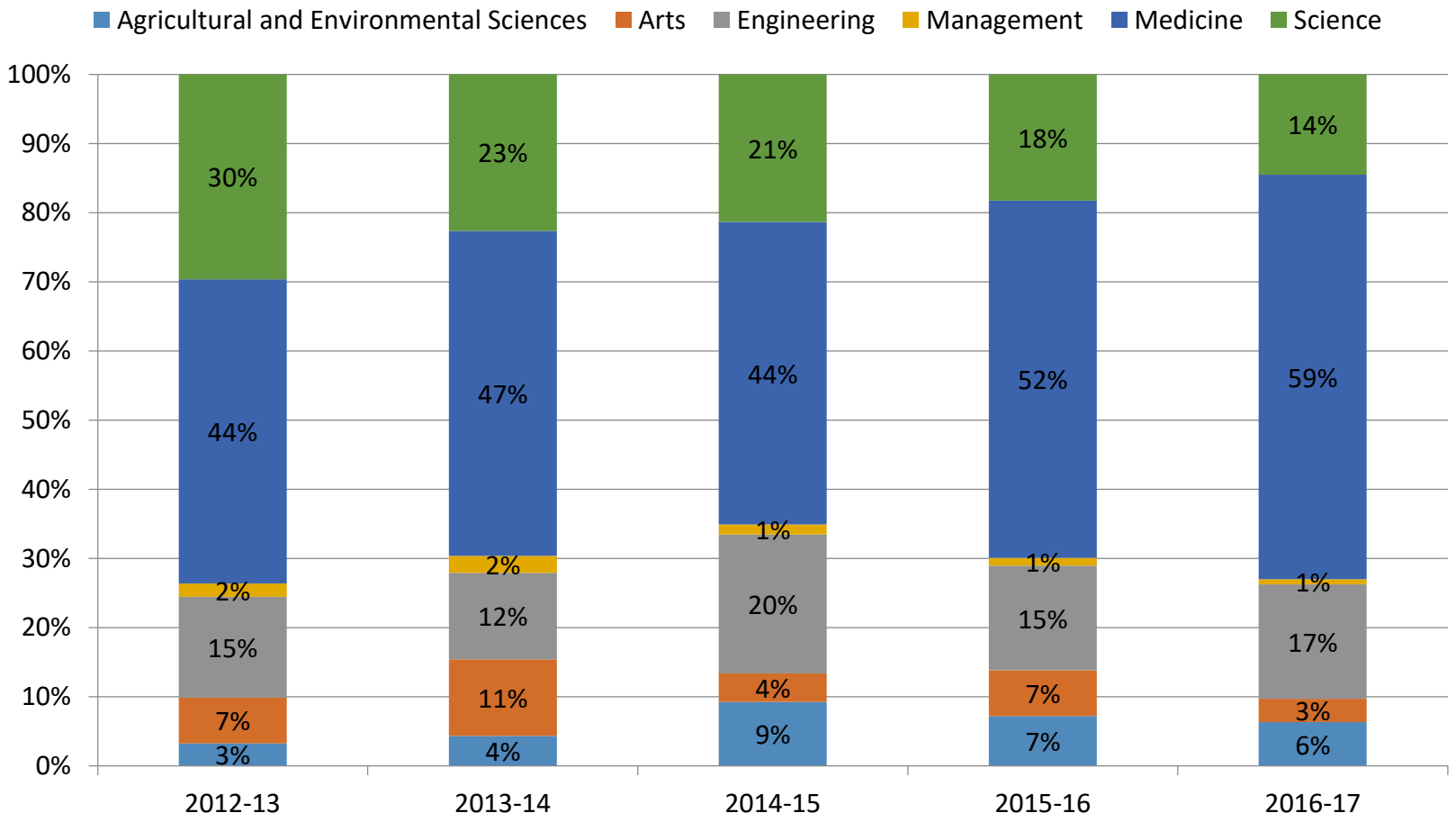




Growing the Research Enterprise

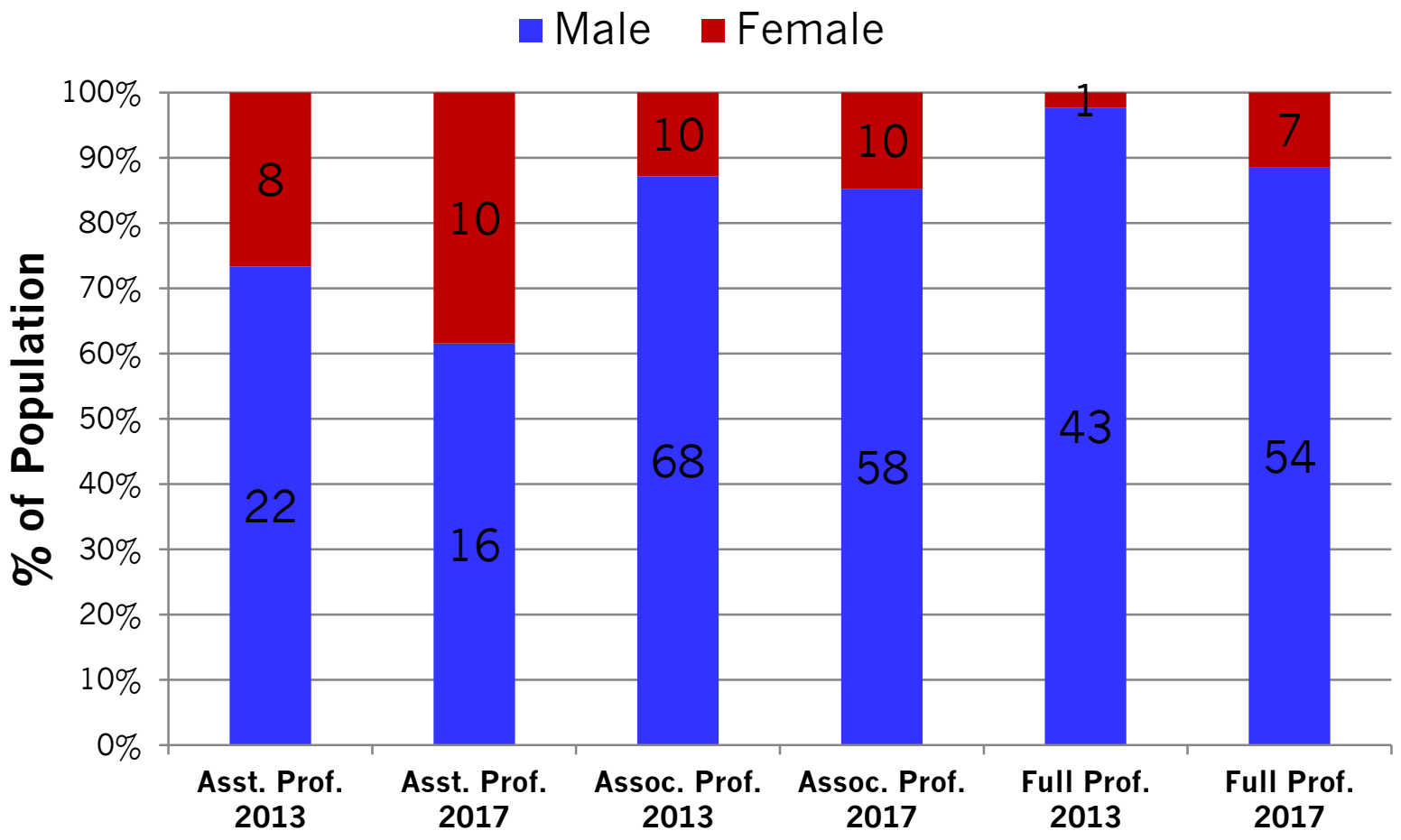


Tri-Council Funding by Faculty across the University*



* Note: Values indicate funding awarded in given year

Demographic changes in Academic Staff 2013-2017*



* Reflects changes due to 19 departures (2 women), 12 retirements (0 women) and 34 hires (8 women)

University Advancement: Key Areas Supported

- McGill Engineering Doctoral Awards (MEDA)
- Undergraduate Scholarships and Bursaries
- Summer Undergraduate Research Experience (SURE) Awards
- Endowed Chairs (e.g., Marika Roy Chair, Sheff Chair, Trottier Chair)
- Faculty Scholars (Panda Scholar, Bishop Scholar, Ho Scholar)
- Program support (e.g., TISED Master's Program, Department of Bioengineering, Global Studio, Peter Guo-hua Fu School of Architecture)
- Institutes & Centres (e.g., TISED, Yan P. Lin Centre)
- Strategic initiatives: Student Initiative Fund (**Empower**); Enhanced learning and teaching in Engineering (**eLATE**); Engineering Innovation and Entrepreneurship hub (**EngInE**, Innovation Fund); Engineering Inclusivity, Diversity and Equity Advancement (**eIDEA**)
- Dean's Discretionary Fund (Engineering Annual Fund)

Comparative Statistics (Engineering professors & students only)*

	McGill University	McMaster University	Queens University	University of Toronto	University of British Columbia	University of Waterloo
Faculty members	145	153 (1.1)	146 (1.0)	256 (1.8)	188 (1.3)	263 (1.8)
Undergraduates	2938	3601 (1.2)	3066 (1.0)	4681 (1.6)	3821 (1.3)	6967 (2.4)
Staff members	153	147 (0.9)	149 (1.0)	327 (2.1)	200 (1.3)	206 (1.3)
PhD students	522	369 (0.7)	204 (0.4)	852 (1.6)	495 (0.95)	691 (1.3)
Masters (thesis) students	289	257 (0.9)	198 (0.7)	542 (1.9)	289 (1.0)	509 (1.8)
Masters (non-thesis) students	88	136 (1.5)	65 (0.7)	627 (7.1)	196 (2.2)	342 (3.9)
CRC Tier 1	8	5 (0.6)	6 (0.8)	8 (1.0)	3 (0.4)	10 (1.3)
CRC Tier 2	9	4 (0.4)	5 (0.6)	19 (2.1)	3 (0.3)	12 (1.3)
Industrial Research Chairs	4	3 (0.8)	2 (0.5)	8 (2.0)	1 (0.3)	7 (1.8)

* Engineering data only - Student and staff numbers retrieved from shared NCDEAS data for engineering programs; Research chair data were retrieved from public databases

Key Challenges

- Space - Research and teaching
- Staff - Technical support (e.g., workshops)
- Equipment - Research and teaching & access & safety
- Onerous accreditation process - Constrains pedagogical innovation, restricts student mobility, and creates excessive workload for students
- Retention of professors
- Support of international students
- Recruitment of domestic graduate students
- Mental health
- Rapid evolution of the engineering profession

Where are we going?

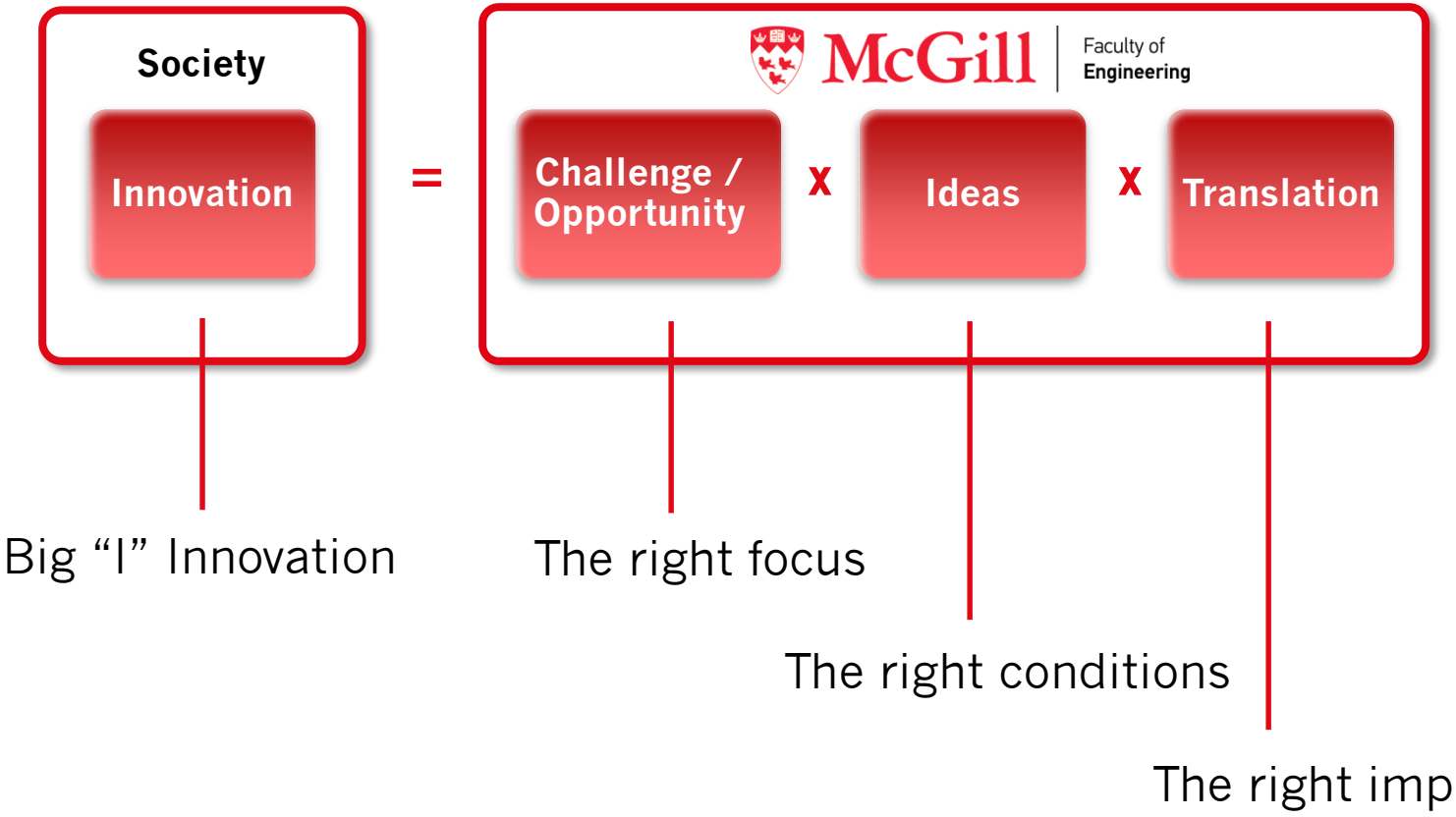
McGill

Faculty of Engineering

Innovation by Design

An enhanced and comprehensive approach to creating and sustaining a culture of innovation in the Faculty of Engineering

Through its education, research and service mission, the Faculty must strive to be a source of both **innovations** and **innovators**



McGill

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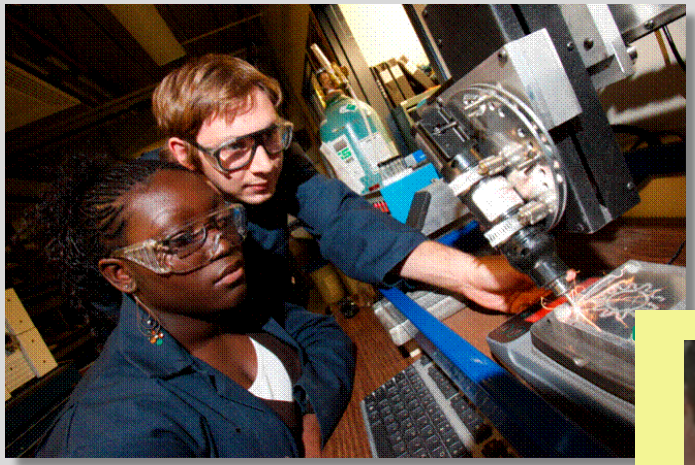

Advanced Materials and Nanotechnology

Aerospace Engineering

Bioengineering

Information & Communications Technologies

Engineering and Design for Sustainability

"Innovation by Design" and the Four 'E's