



RESEARCH & INNOVATION INVESTMENT SUMMARY

Prepared by: Robert Merson, February 27, 2018

The third budget presented by the federal Liberals, despite the anticipation of many that any big announcements will likely be reserved for next year's election budget, brought some significant commitments to research and innovation spending. According to Finance Minister Bill Morneau, this budget represents the "largest investment in fundamental and discovery research in Canadian history". Overall, Budget 2018 has proposed an investment of nearly \$4 billion in Canada's research system. The government referenced the work of Canada's Fundamental Science Review, led by Dr. David Naylor in leading to these investments.

A few highlights include:

- \$925M over 5 years for Tri-Council Funding
- \$275M over 5 years for a new Tri-Council fund to support international, interdisciplinary and high-risk research
- \$763M over 5 years for the Canada Foundation for Innovation

The National Research Council has been "reimagined" with an additional \$540M over 5 years for the National Research Council and \$108M annually to strengthen its role with industry. This funding along with other announced programs through NRC will bring their annual budget up to \$1.1B per year.

There is also an increased focus on supporting entrepreneurship and high potential businesses. There has been an overall increase in the level of investment for industry innovation support programs, but there has also been a reduction and consolidation of the overall number of programs available. These programs will now all be run through a single entity called "Innovation Canada".

In addition, the investments in research have also proposed significant consolidation of the various agencies that administer the programs.

Direct highlights from the budget are included below.

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CANADIAN FEDERAL BUDGET – 2018



Excerpts on Innovation from the Canadian Federal Budget 2018

Compiled directly from budget (Source: Department of Finance, Budget 2018)

Highlights and section titles by R. Merson

Granting Councils / Organizations / Programs

- **Tri-Councils** – The Government proposes to invest \$925 million over five years, starting in 2018–19, and \$235 million per year ongoing:
 - \$354.7 million over five years (\$90.1 million per year ongoing) to the Natural Sciences and Engineering Research Council (NSERC).
 - \$354.7 million over five years (\$90.1 million per year ongoing) to the Canadian Institutes of Health Research (CIHR).
 - \$215.5 million over five years (\$54.8 million per year ongoing) to the Social Sciences and Humanities Research Council (SSHRC).
- **New Tri-Council Fund** – To accelerate Canada's transition to a more modern approach to research, Budget 2018 also proposes to create a new tri-council fund to support research that is international, interdisciplinary, fast-breaking and higher-risk. The Government proposes to provide \$275 million over five years, starting in 2018–19, and \$65 million per year ongoing, for this innovative approach, which will be administered by SSHRC on behalf of the granting councils.
- **Research Support Fund (Indirect Costs)** – Budget 2018 proposes to provide \$231.3 million over five years, starting in 2018–19, with \$58.8 million per year ongoing, to SSHRC, which administers this program on behalf of the granting councils.
- **Canada Research Chairs** – Budget 2018 proposes a new investment of \$210 million over five years, starting in 2018–19, with \$50 million per year ongoing, for the Canada Research Chairs Program.
- **Canada Foundation for Innovation** – Budget 2018 proposes to provide Canada Foundation for Innovation with \$763 million over five years, starting in 2018–19, to provide the tools researchers need. This includes \$160 million for increased support to Canada's nationally important research facilities through the Foundation's Major Science Initiatives Fund. The Government also proposes to establish permanent funding at an ongoing level of \$462 million per year by 2023–24 for research tools and infrastructure supported through the Canada Foundation for Innovation.
- **Big Data Funding** – The Government proposes to provide \$572.5 million over five years, with \$52 million per year ongoing, to implement a Digital Research Infrastructure Strategy that will deliver more open and equitable access to advanced computing and big data resources to researchers across Canada.



- ***Business / Academic Collaboration Programs*** – To modernize, simplify and improve the programs that bring together postsecondary researchers and businesses, Budget 2018 proposes to consolidate programming within each granting council in the following way:
 - The Natural Sciences and Engineering Research Council will consolidate the Engage Grants, Industrial Research Chairs, Connect Grants, Strategic Partnership Grants for Networks and Projects, and Experience Awards Grants into a single Collaborative Research and Development Grant program.
 - The Canadian Institutes of Health Research will consolidate the eHealth Innovations Partnership Program and Proof of Principle Program into a single Industry Partnered Collaborative Research program.
 - The Government proposes to provide \$140 million over five years, starting in 2018–19, to increase support for collaborative innovation projects involving businesses, colleges and polytechnics through the College and Community Innovation Program.
- ***Additional Funding for Research Institutes and Organizations*** – Budget 2018 proposed funding for the following organizations:
 - Institute for Quantum Computing – Renewed funding of \$15 million over three years, starting in 2019–20, to continue to undertake high-calibre quantum research.
 - Centre for Drug Research and Development – \$48 million over three years, starting in 2019–20, in renewed support for the Centre’s efforts to translate promising drug discoveries into commercialized health innovations and therapeutic products.
 - Rick Hansen Institute – Renewed funding of \$23.6 million over four years, starting in 2018–19, through Western Economic Diversification, to support the Institute’s efforts to achieve breakthroughs in spinal cord injury research and care.
 - Centre of Excellence on the Canadian Federation – \$10 million in 2018–19 to the Institute for Research on Public Policy to endow a Centre of Excellence on the Canadian Federation, a permanent research body to promote shared understanding of the Canadian federal community.

Stronger Federal Science

- ***National Research Council*** – Budget 2018 announces a “re-imagined” National Research Council and proposes to provide \$540 million over five years, starting in 2018–19, and \$108 million annually for measures that will reinforce its research strengths and role as a trusted collaboration partner of industry.
 - To catalyze transformative, high-risk, high-reward research with the potential for game-changing scientific discoveries and technological breakthroughs, the Government proposes to provide \$150 million over five years with \$30 million per year ongoing, to the National Research Council to fund its scientists to work with innovators from post-secondary institutions and businesses on multi-party research and development programs. This research will be modelled on the highly successful Defense Advanced Research Projects Agency in the United States.
 - To encourage, test and validate transformative research ideas generated by the National Research Council’s world-class scientists, the Government proposes to provide \$30 million over five years with \$6 million per year ongoing, to the National



- Research Council to establish an ideation fund to target breakthrough research ideas through a competitive peer-reviewed process.
- To enhance collaboration with businesses and improve access to the National Research Council's specialized facilities and equipment, scientists and technical services, the Government proposes to provide \$62 million over five years with \$12.4 million per year ongoing, to lower access fees charged to small and medium-sized enterprises and universities and colleges.
 - To allow for better long-term research planning and delivery, the Government will convert the National Research Council's longstanding temporary funding into ongoing permanent funding by providing \$298 million over five years and \$59.6 million per year ongoing.
 - Total funding proposed under Budget 2018 will raise the National Research Council's total annual budget to \$1.1 billion.
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- An ambitious plan to ***renew federal laboratories*** was announced, including:
 - Public Services and Procurement Canada will begin the process for the construction of multi-purpose, collaborative, federal science and technology facilities. Rather than work in silos, this new approach to federal science and discovery will look to bring together federal scientists and science facilities across government including Agriculture and Agri-Food Canada, Natural Resources Canada, Fisheries and Oceans Canada, Environment and Climate Change Canada, the National Research Council and others in order to advance interdisciplinary research on, among other things, climate change, ocean protection, and human health. The Government proposes to provide \$2.8 billion on a cash basis (\$58 million on an accrual basis) over five years, starting in 2018–19, with \$4.5 million per year ongoing.
 - Canada's National Microbiology Laboratory, located in Winnipeg, is a world-leading facility that has helped advance critical work on infectious diseases, including helping to develop one of the world's first vaccines to combat Ebola. To build on this expertise and deepen the cluster of expertise in infectious disease in Winnipeg, the Government proposes to provide \$9.4 million over five years, starting in 2018–19, to establish a Centre for Innovation in Infectious Disease Diagnostics, funded from the Public Health Agency of Canada's existing resource levels.

Entrepreneurship and Business

- ***Innovation Canada*** – This new agency, launched in January 2018 will have 4 flagship programs, consolidated for previous programs.
 - ***Industrial Research Assistance Program*** – To enable IRAP to support business research and development for projects up to a new threshold of \$10 million, the Government proposes to invest \$700 million over five years, starting in 2018–19, and \$150 million per year ongoing. This funding will support hard-working Canadian entrepreneurs to create jobs as they grow and expand their companies.
 - ***Strategic Innovation Fund*** - To allow for more focused support for business research and development projects over \$10 million, the Strategic Innovation Fund will move



away from supporting smaller projects to support larger projects that can lead to significant job creation and shared prosperity for Canadians. In order to modernize these programs and make them more accessible for businesses, the Government will consolidate the Centres of Excellence for Commercialization and Research and the Business-led Networks of Centres of Excellence programs and transfer responsibility for these programs and associated funding to the Strategic Innovation Fund.

- **Trade Commissioner Services** – In addition to the services offered by the 1,300 trade commissioners around the world, Budget 2018 proposes to provide \$10 million over five years, starting in 2018–19, with \$2 million per year thereafter, to renew the successful Canadian Technology Accelerators program, which helps high-growth Canadian technology businesses take their leading products and services to key markets in the United States.
- **Regional Development Agencies** – To foster economic growth in communities across Canada, the Government proposes to provide an additional \$400 million over five years on an accrual basis, \$511 million over five years on a cash basis, starting in 2018–19, to the regional development agencies to support the Innovation and Skills Plan across all regions of Canada. Of this amount, \$105 million will support nationally coordinated, regionally tailored support for women entrepreneurs as part of the new Women Entrepreneurship Strategy. The Government also proposes to extend core funding to the regional development agencies that is currently time limited including: \$920 million over six years, on a cash basis, starting in 2018–19, to renew the funding for the Federal Economic Development Agency for Southern Ontario to support economic growth in southern Ontario through the delivery of federal programs and services.

Additional Highlights

- A new entrepreneurship strategy for women was announced including: \$105M over 5 years for women-led businesses; and \$1.4B over three years through BDC for women entrepreneurs.
- A new intellectual property strategy with \$85.3M over 5 years to implement the strategy and help businesses to leverage their IP. This includes investment to create an intellectual property marketplace for improving access to publicly owned IP.
- Improved procurement including the consolidation of the existing Built in Canada Innovation Program into Innovative Solutions Canada.

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Summary Innovation Program Table (Chapter 2 from Budget)

Streamlining the Innovation Program Suite

Department	Count	Programs Streams Reviewed under Horizontal Innovation Review ¹	Consolidated Program Suite under Budget 2018	Count
Global Affairs Canada	5	Canadian Trade Commissioner Service	Canadian Trade Commissioner Service	1
		CanExport		
		Canadian Technology Accelerators		
		Going Global Innovation		
		Canadian International Innovation Program		
Natural Resources Canada	9	GeoConnections Program	Cleantech for Natural Resources	1
		Impact Canada Clean Technology Program Stream		
		Green Jobs: Science and Technology Internship Program	Innovation for Forestry	1
		Forest Innovation Program		
		Forest Research Institutes Initiative		
		Investments in Forest Industry Transformation Program	Innovation for Energy and Mineral Development	1
		Energy Innovation Program (ecoENERGY Innovation Initiative)		
		Oil Spill Response Science		
Atlantic Canada Opportunities Agency	2	Business Development Program	Upcoming proposals on program consolidation. See section entitled "Regional Development Agencies"	
		Atlantic Innovation Fund		
Canadian Northern Economic Development Agency	1	Strategic Investments in Northern Economic Development		
Canada Economic Development for Quebec Regions	5	Productivity and Expansion		
		Innovation and Technology Transfer		
		Commercialization and Exports		
		Network Structuring		
Western Economic Diversification Canada	2	New Business Development and Start-ups		
		Western Diversification Program		
Federal Economic Development Agency for Southern Ontario	9	Western Innovation Initiative		
		Advanced Manufacturing Fund		
		Investing in Business Growth and Productivity		
		Achieving Innovation and Manufacturing Excellence Global Initiative		
		SMART Advanced Technologies for Global Growth		
		Investing in Business Innovation		
		AC Jumpstart		
		SmartStart Seed Fund		
Innovation, Science and Economic Development—Northern Ontario	3	Investing in Commercialization Partnerships		
		Eastern Ontario Development Program		
		Northern Ontario Development Program: Targeted Manufacturing Initiative for Northern Ontario		
		Northern Ontario Development Program: Youth Internships		
Natural Sciences and Engineering Research Council of Canada	6	Northern Ontario Development Program: Business Growth and Competitiveness Priority	Natural Sciences and Engineering Research Council of Canada Collaborative Research and Development Program	1
		Collaborative Research and Development		
		Engage Grant		
		Industrial Research Chairs		
		Connect Grants		
		Strategic partnership grants for networks and projects		
Canadian Institutes of Health Research	3	Experience awards (previously Industrial Undergraduate Student Research Awards)	Canadian Institutes of Health Research—Collaborative Research and Development Program	1
		Industry Partnered Collaborative Research		
		Proof of Principle Programs		
		eHealth Innovations Partnership Program		

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Department	Count	Programs Streams Reviewed under Horizontal Innovation Review ¹	Consolidated Program Suite under Budget 2018	Count
Tri-Council	3	College and Community Innovation Program		1
		Centres of Excellence for Commercialization and Research	Consolidate programs and transfer responsibility to Innovation, Science and Economic Development under the Strategic Innovation Fund	-
		Business-led Centres of Excellence		
Public Services and Procurement Canada	1	Build in Canada Innovation Program	Consolidated within Innovative Solutions Canada	-
Innovation, Science and Economic Development Canada	8	Innovative Solutions Canada	Innovative Solutions Canada	1
		Strategic Innovation Fund		1
		Venture Capital Catalyst Initiative		1
		Canada Small Business Financing Program		1
		Innovation Superclusters Initiative		1
		Sustainable Development Technology Canada		1
		Innovation Canada	Innovation Canada	1
		Canada Business Network		
National Research Council Canada	17	Concierge	Consolidated within Innovation Canada	-
		Aerospace	National Research Council—Technology Development and Advancement Program	1
		Aquatic and Crop Resource Development		
		Automotive and Surface Transportation		
		Construction		
		Energy, Mining and Environment		
		Human Health Therapeutics		
		Canadian HIV Technology Development Program		
		Information and Communication Technologies		
		Medical Devices		
		Ocean, Coastal, and River Engineering		
		Industrial Research Assistance Program: Contributions to Firms	Industrial Research Assistance Program	1
		Industrial Research Assistance Program: Contributions to Organizations		
		Industrial Research Assistance Program: Youth Employment Program		
		Industrial Research Assistance Program: Youth Employment Program Green		
		Industrial Research Assistance Program: EUREKA		
		Canadian Accelerator and Incubator Program	Regional development agencies could increasingly take on responsibilities for accelerator and incubator support	1
Third Party Organizations receiving funding from Innovation, Science and Economic Development Canada	6	CANARIE		6
		Mitacs Canada		
		Stem Cell Network		
		Genome Canada		
		Centre for Drug Research and Development		
		Futurpreneur Canada		
Agriculture and Agri-Food Canada	3	Canadian Agricultural Adaptation Program		3
		Enabling Commercialization and Adoption		
		Industry-led Research and Development		
Canadian Space Agency	3	Earth Observation Applications & Utilizations		3
		Space Technology Development Program		
		David Florida Laboratory		
National Defence	1	Defence Innovation Research Program		1
Environment and Climate Change Canada	1	Science Horizons Youth Internship Program		1
Crown-Indigenous Relations and Northern Affairs Canada	1	Aboriginal Entrepreneurship Program: Business Capital and Support		1
Canadian Heritage	2	Canada Media Fund		2
		Canada Periodical Fund		
POLAR Knowledge Canada	1	Northern Science and Technology Program		1
Total of program streams		92		35 +

Note: 1. Program streams largely reflect the inventory of federal business innovation and clean technology programs reviewed by the Treasury Board Secretariat in undertaking the Horizontal Innovation and Clean Technology Review. Programs listed may not align with the Treasury Board Secretariat's inventory as the scope of the relevant programs included in the Review was refined. More recent measures, such as the Innovation Superclusters Initiative, that were not within the scope of the Review have also been included to better represent the current suite of innovation and clean technology programming available to businesses. Program streams not listed above were not examined in the Review and are unchanged.

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Summary Investment Table (Chapter 2 from Budget)

Chapter 2—Progress

millions of dollars

	2017– 2018	2018– 2019	2019– 2020	2020– 2021	2021– 2022	2022– 2023	Total
2.1 Investing in Canadian Scientists and Researchers							
Granting Councils	0	115	155	185	235	235	925
Granting Councils: New Tri-Council Fund	0	35	45	65	65	65	275
Granting Councils: Increasing Diversity in Science	0	5	6	4	4	4	21
Granting Councils: Canada Research Chairs	0	25	35	50	50	50	210
Research Support Fund	0	29	39	46	59	59	231
Investing in the Equipment Researchers Need—Canada Foundation for Innovation	0	32	62	120	183	366	763
Harnessing Big Data	0	64	64	166	145	133	572
College and Community Innovation Program	0	20	30	30	30	30	140
Institute for Quantum Computing	0	0	5	5	5	0	15
Centre for Drug Research and Development	0	0	16	16	16	0	48
Rick Hansen Institute	0	6	6	6	6	0	24
Centre of Excellence on the Canadian Federation	0	10	0	0	0	0	10
2.1 Investing in Canadian Scientists and Researchers Total	0	340	463	692	798	942	3,234
2.2 Stronger and More Collaborative Federal Science							
National Research Council	0	108	108	108	108	108	540
Renewing Federal Laboratories	0	18	17	17	18	18	87
<i>Less: Funds Sourced from Existing Departmental Resources</i>	0	-2	-2	-2	-2	-2	-9
Council of Canadian Academies	0	0	0	3	3	3	9
2.2 Stronger and More Collaborative Federal Science Total	0	124	124	126	127	127	627
2.3 Innovation and Skills Plan—A More Client-Focused Federal Partner for Business							
Innovation Canada – Accelerated Growth Service	0	2	3	3	3	3	14
Industrial Research Assistance Program	0	100	150	150	150	150	700
Canadian Technology Accelerators Program	0	2	2	2	2	2	10
Regional Development Agencies	0	80	80	80	80	80	400
Renewal of Base Funding for the Canadian Northern Economic Development Agency	0	20	20	20	20	20	100
Renewal of Base Funding for the Federal Economic Development Agency for Southern Ontario	0	25	159	184	184	184	736
Placing Evidence at the Centre of Program Evaluation and Design	0	3	3	3	3	3	15

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Chapter 2—Progress

millions of dollars

	2017– 2018	2018– 2019	2019– 2020	2020– 2021	2021– 2022	2022– 2023	Total
A New Women Entrepreneurship Strategy	0	23	23	23	23	23	115
<i>Less: Funds existing in the Fiscal Framework</i>	0	-21	-21	-21	-21	-21	-105
Advancing Women Business Leaders	0	0.3	0.2	0.2	0.2	0.2	1
Expanding the Diversity of Entrepreneurs	0	1	1	1	1	1	5
A New Intellectual Property Strategy	0	13	41	11	11	10	85
Modernizing Canada's Regulatory Framework	0	4	4	3	0	0	12
<i>Less: Funds Sourced from Existing Departmental Resources</i>	0	-0.2	-0.3	-0.2	0	0	-0.7
Simpler and Better Procurement	0	52	64	36	23	22	197
Supporting the Next Generation of Rural Broadband	0	10	20	20	25	25	100
Supporting Early-Stage Mineral Exploration by Junior Companies	0	65	-20	0	0	0	45
Protecting Jobs in Eastern Canada's Forestry Sector	0	11	17	22	25	1	75
<i>Less: Funds Sourced from Existing Departmental Resources</i>	0	-2	-4	-7	-7	0	-20
Renewing Canada's Network of Small Craft Harbours	0	47	33	3	3	3	90
2.3 Innovation and Skills Plan—A More Client-Focused Federal Partner for Business Total	0	434	575	533	525	506	2,574
Chapter 2—Net Fiscal Impact	0	898	1,162	1,351	1,450	1,575	6,435