RESEARCH & INNOVATION INVESTMENT SUMMARY

Prepared by: Robert Merson, March 22, 2017

The federal Liberals have presented their second budget since coming to power, and what was originally touted as being the "Innovation Budget" has been downplayed in recent months. Innovation however remained a key theme, but whether or not it has delivered on its innovation mandate is still up for debate. Many of the items presented were already introduced in the 2016 budget, but there was some additional detail provided on the previously announced $800M – now revised to $950M for innovation networks and clusters, and there are a few additional nuggets of interest for the innovation economy.

Surprisingly the investments made in the basic research programs, such as the Tri-Councils, were not specifically mentioned. However, these were highlighted with increased budgets in the 2016 budget, and there have been no changes reported.

The biggest program of interest was the $950M "super clusters" fund, which will be an open competition in 2017 across six innovation industries. The requirement is for business-led initiatives that will have the greatest potential to accelerate economic growth.

Some additional highlights of investments include:

- $221M over 5 years for co-op positions through Mitacs
- $279.8M over 5 years to support the Temporary Foreign Worker Program and the International Mobility Program
- $400M for venture capital support through BDC
- $6M for stem cell research

Several policy initiatives were also highlighted, including: a Chief Science Advisor, a federal science infrastructure strategy, an IP strategy, and a strategic procurement initiative.

Despite the clear commitment to innovative economies, the greatest disappointment however was that although six innovation sectors are highlighted, only three of those sectors (clean tech, digital, and agri-food) were selected for considerable strategic investments this year. The health/biosciences sector, for which I and most of my readers are directly engaged in, was unfortunately not prioritized in this budget.

Highlights from the budget are included below.

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Excerpts on Innovation from the Canadian Federal Budget 2017

Compiled directly from budget (Source: Department of Finance, Budget 2017)
Highlights and section titles by R. Merson

Investments in Innovation Skills

- **Work Integrated Learning:** To create new co-op placements and work-integrated learning opportunities for post-secondary students enrolled in science, technology, engineering and mathematics (STEM) and business programs, Budget 2016 provided $73 million over four years for job-creating partnerships between employers and interested post-secondary institutions. This investment is expected to create up to 8,700 new work-integrated learning placements over the next four years, making more opportunities available to young women and men interested in STEM.

  To create even more work-integrated learning opportunities for Canadian students, the Government intends to renew and expand federal funding for Mitacs, a not-for-profit organization that builds partnerships between industry and educational institutions.

  Mitacs has set an ambitious goal of ***providing 10,000 work-integrated learning placements*** for Canadian post-secondary students and graduates each year— up from the current level of around 3,750 placements. ***Budget 2017 proposes to provide $221 million over five years, starting in 2017–18, to achieve this goal*** and provide relevant work experience to Canadian students.

- **Global Skills Strategy:** Building on funding announced in the 2016 Fall Economic Statement, Budget 2017 proposes to provide ***an additional $7.8 million over two years, starting in 2017–18***, to implement a new Global Talent Stream under the Temporary Foreign Worker Program, as part of the Global Skills Strategy.

  Budget 2017 proposes to ***invest $279.8 million over five years, starting in 2017–18, and $49.8 million per year thereafter, to support the continued delivery of the Temporary Foreign Worker Program and the International Mobility Program.*** This investment will build on Canada's new Global Skills Strategy, which will help to facilitate the temporary entry of high-skilled global talent.

- **Academic Research Chairs:** In recognition of the importance of research excellence and in celebration of Canada's 150th anniversary, approximately 25 Canada 150 Research Chairs will be created to attract top-tier international scholars and researchers to Canada and enhance Canada's reputation as a global centre for innovation, science and research excellence. Budget 2017 proposes to ***invest $117.6 million over eight years for these new chairs***, funded with resources within the existing Canada Excellence Research Chairs program.

Supporting Canadian Innovators

- **Accelerating Innovation through Superclusters:** Clusters—dense areas of business activity that contain large and small companies, post-secondary institutions and specialized talent and infrastructure—energize economies and act as engines of growth. They create jobs, encourage knowledge sharing, drive business specialization and help to attract "anchor" companies from around the world. Successful clusters like the ones in Silicon Valley, Berlin, Tel Aviv and the Toronto-Waterloo corridor contribute significantly to both regional and national economies.

  Budget 2017 proposes to ***invest up to $950 million over five years, starting in 2017–18,*** to be ***provided on a competitive basis in support of a small number of business-led innovation "superclusters"*** that have the greatest potential to accelerate economic growth.

  The competition will launch in 2017 and focus on superclusters that enhance Canada's global competitiveness by focusing on highly innovative industries such as advanced manufacturing, agri-

food, clean technology, digital technology, health/bio-sciences and clean resources, as well as infrastructure and transportation.

These are industries that traditionally attract more skilled workers who are men, compared to women. Budget 2017 proposes to work with partners from all aspects of Canadian society to shift this trend, help more women succeed and help grow Canada's middle class.

Of the $950 million, $800 million will be drawn from the Budget 2016 provision for innovation networks and clusters and $150 million will be drawn from the public transit and green infrastructure allocations provisioned in the 2016 Fall Economic Statement.

- **The Strategic Innovation Fund:** Budget 2017 proposes to create a new $1.26 billion five-year Strategic Innovation Fund to consolidate and simplify existing business innovation programming, in particular the Strategic Aerospace and Defence Initiative, Technology Demonstration Program, Automotive Innovation Fund and Automotive Supplier Innovation Program.

  With a single, streamlined Fund, businesses will have access to a simpler application process, more timely processing, and assistance that is more responsive and focused on results.

  The Strategic Innovation Fund will attract and support new high-quality business investments—and will continue to be available to aerospace and automotive firms, while also expanding its support to other dynamic and emerging sectors, such as clean technology and agri-food.

  To support this program expansion, Budget 2017 proposes to provide ***a further $200 million over three years, starting in 2017–18, to supplement existing funding***. Of this amount, $100 million will be new funding and $100 million will be drawn from the $1 billion announced in Budget 2016 to support clean technology.

- **Venture Capital Support:** To support the continued growth of Canada's innovative companies, Budget 2017 proposes to make available ***through the Business Development Bank of Canada $400 million on a cash basis over three years, starting in 2017–18, for a new Venture Capital Catalyst Initiative*** that will increase late-stage venture capital available to Canadian entrepreneurs (late-stage venture capital is typically offered to young, established businesses with sales and revenue, in order to help the businesses grow).

  With funds leveraged from the private sector, and depending on the proposals received, this investment could inject around $1.5 billion into Canada's innovation capital market.

- **Next Generation Entrepreneurs:** Budget 2017 proposes to ***provide Futurpreneur Canada with $14 million over two years, starting in 2017–18***, to continue its important work of supporting the next generation of entrepreneurs. Futurpreneur Canada will match these investments with funding received from other government and private sector partners.

- **Strategic Procurement:** Budget 2017 proposes to provide ***up to $50 million, starting in 2017–18, to launch a new procurement program, Innovative Solutions Canada***, modelled on the very successful U.S. Small Business Innovation Research program.

- **New IP Strategy:** In recognition of the importance of a well-functioning intellectual property regime, Budget 2017 announces the Government will develop a new intellectual property strategy over the coming year. The strategy will help ensure that Canada's intellectual property regime is modern and robust and supports Canadian innovations in the 21st century.

- **Strengthening Science in Government:** Budget 2017 proposes to elevate the importance of science in government, with the establishment of a Chief Science Advisor and related secretariat. As part of her/his mandate, the Chief Science Advisor will provide advice on how to ensure that government science is open to the public, that federal scientists are able to speak freely about their work, and that science is effectively communicated across government.

The Chief Science Advisor will be responsible for providing advice to the Prime Minister and the Minister of Science, and will serve primarily in an advisory and coordinating capacity. Budget 2017 proposes to ***establish an annual budget of $2 million for the Chief Science Advisor and related secretariat***.

In addition, over the coming year, the Government will work to develop a new federal science infrastructure strategy. This will include a review of existing investments in federal science infrastructure, including federal laboratories and testing facilities, and provide a roadmap for future investments. The strategy will offer a more integrated and effective approach to federal laboratories, information technology and human resources in the federal science community, and will seek to ensure that federal scientists have the access to the world class infrastructure, innovative equipment and computer networks they need to produce the best results for Canadians.

As part of the Government's commitment to establishing and maintaining modern federal science infrastructure, Budget 2017 also proposes to provide $80 million on a cash basis over five years, starting in 2017–18, to replace the Sidney Centre for Plant Health, located in Sidney, British Columbia. A new, world class plant health research facility will help support the safety of Canada's agriculture and agri-food sector, while facilitating trade and economic growth that benefits all Canadians.

- **National Research Council:** The National Research Council has a long track record of success in helping industry take ideas from the research stage through to development and demonstration. Recognizing the National Research Council's important role in fostering and supporting innovation in Canada, Budget 2017 proposes ***to renew funding of $59.6 million in 2017–18***, to support the Council's business innovation initiatives.

- **Additional Allocations for Specific Organizations:**

  - **Stem Cell Research** - Budget 2017 proposes to provide the Stem Cell Network with renewed funding of ***$6 million in 2018–19***.

  - **Space Exploration** - Budget 2017 proposes to provide ***$80.9 million on a cash basis over five years, starting in 2017–18, for new projects through the Canadian Space Agency*** that will demonstrate and utilize Canadian innovations in space, including in the field of quantum technology as well as for Mars surface observation.

  - **Quantum Information** - The ***Institute for Quantum Computing*** is a world-leading Canadian research facility that furthers our understanding of these innovative technologies. Budget 2017 proposes to provide the Institute with ***renewed funding of $10 million over two years***, starting in 2017–18.

  - **Social Innovation** - Through community-college partnerships, the Community and College Social Innovation Fund fosters positive social outcomes, such as the integration of vulnerable populations into Canadian communities. Following the success of this pilot program, Budget 2017 proposes to ***invest $10 million over two years***, starting in 2017–18, to continue this work.

  - **International Research Collaborations** - The Canadian Institute for Advanced Research (CIFAR) connects Canadian researchers with collaborative research networks led by eminent Canadian and international researchers on topics that touch all humanity. Past collaborations facilitated by CIFAR are credited with fostering Canada's leadership in artificial intelligence and deep learning. Budget 2017 proposes to provide r***enewed and enhanced funding of $35 million over five years, starting in 2017–18***.

Supporting Innovation Economies

The Innovation and Skills Plan is an ambitious effort to make Canada a world leader in innovation, with a focus on expanding growth and creating good, wellpaying jobs in six key areas: advanced manufacturing, agri-food, clean technology, digital industries, health/bio-sciences and clean resources.

Initial efforts will centre on three industries that touch the lives of all Canadians and offer great potential for growth and job creation: clean technology, digital industries and agri-food.

*[**Editorial Note** – Additional details of investments in these three industries are highlighted in the budget. There was no mention however of the health/bio-sciences economy, for which my readers are most interested in.]*

Health Care Investments Related to Innovation

To promote a more innovative health care system, Budget 2017 proposes measures that include:

- Improving access to prescription medications, lowering drug prices and supporting appropriate prescribing through an investment of $140.3 million over five years, starting in 2017–18, with $18.2 million per year ongoing, for Health Canada, the Patented Medicine Prices Review Board and the Canadian Agency for Drugs and Technologies in Health.

- Addressing health data gaps, supporting improved decision-making and strengthening the reporting on health system performance through an investment of $53.0 million over five years, starting in 2017–18, with $15.0 million per year ongoing, for the Canadian Institute for Health Information.

- Expanding e-prescribing and virtual care initiatives, supporting the continued adoption and use of electronic medical records, helping patients to access their own health records electronically, and better linking electronic health record systems to improve access by all providers and institutions through an investment of $300 million over five years, starting in 2017–18, for Canada Health Infoway.

- Continuing to accelerate innovations in all provinces and territories through an investment of $51.0 million over three years, starting in 2019–20, with $17.0 million per year ongoing, for the Canadian Foundation for Healthcare Improvement.

Summary Investment Table (Table 1.3 from Budget)

Table 1.3
Skills, Innovation and Middle Class Jobs
millions of dollars

	2016–2017	2017–2018	2018–2019	2019–2020	2020–2021	2021–2022	Total
Equipping Canadians With the Skills They Need to Get Good Jobs							
Helping Canadians Get New and Better Jobs	0	200	300	400	550	625	2,075
Helping Working Adults Upgrade Their Skills	0	0	93	151	164	46	454
Encouraging Unemployed Canadians to Seek New Training Through Employment Insurance	0	0	22	36	37	38	132
Investing in Skills Innovation	0	0	25	50	75	75	225
Expanding the Youth Employment Strategy	0	150	150	96	0	0	396
A New, Ambitious Approach to Work-Integrated Learning	0	12	36	45	48	80	221
Renewing Investments in Pathways to Education Canada	0	0	10	10	10	10	38
Improving Access to the Canada Learning Bond	0	1	2	3	3	3	11
Expanding Employment Insurance Benefits to Offer More Flexibility for Families	0	108	188	190	196	205	886
Improving Benefit Delivery	0	12	0	0	0	0	12
Modernizing the *Canada Labour Code*	0	2	3	3	3	2	13
Post-Secondary Student Support Program	0	45	45	0	0	0	90
Indspire	0	5	5	5	5	5	25
Supporting Access to Skills Development and Training for Indigenous Peoples	0	50	0	0	0	0	50
Reducing Employment Barriers for First Nations Youth Living On-Reserve	0	39	0	0	0	0	39
Investing in Adult Basic Education in the North	0	5	5	5	0	0	15
Global Skills Strategy	0	4	4	0	0	0	8
Attracting Talent to Strenghten University Research	0	4	17	17	17	17	71
Improving the Temporary Foreign Worker Program and the International Mobility Program	0	82	56	56	56	56	304
Recognizing Foreign Credentials	0	6	6	6	6	6	28
Teaching Kids to Code	0	20	30	0	0	0	50
Expanding Digital Learning Opportunities	0	1	5	8	8	8	30
Developing Assistive Technology	0	2	4	5	5	6	22
Making Home Internet Access More Affordable for Low-Income Families	0	3	5	6	3	2	18
Promoting STEM to Young Canadians	0	4	3	2	2	2	12
Subtotal—Equipping Canadians With the Skills They Need to Get Good Jobs	**0**	**753**	**1,013**	**1,090**	**1,185**	**1,184**	**5,225**

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Skills, Innovation and Middle Class Jobs
millions of dollars

	2016–2017	2017–2018	2018–2019	2019–2020	2020–2021	2021–2022	Total
A Nation of Innovators							
Accelerating Innovation Through Superclusters	0	50	250	250	250	150	950
Innovating to Solve Canada's Big Challenges	0	37	42	2	2	2	83
The New Strategic Innovation Fund: A Simpler, More Flexible Tool to Grow Canada's Economy	0	50	100	50	0	0	200
Supporting Canadian Innovators Through Venture Capital	0	3	10	14	6	-7	26
Supporting the Next Generation of Entrepreneurs	0	7	7	0	0	0	14
Helping Innovative Companies Grow Through Strategic Procurement	0	10	10	10	10	10	50
Obtaining the Best Value in Procurement	0	3	3	0	0	0	6
Strenghtening Science in Government	0	2	2	4	4	4	16
Positioning National Research Council Canada Within the Innovation and Skills Plan	0	60	0	0	0	0	60
Stem Cell Research	0	0	6	0	0	0	6
Space Exploration	0	2	0	0	0	11	12
Quantum Information	0	5	5	0	0	0	10
Social Innovation	0	5	5	0	0	0	10
International Research Collaborations	0	7	7	7	7	7	35
Attracting International Tourists to Grow Our Economy	0	5	42	42	43	40	172
The *Investment Canada Act*	0	1	0	0	0	0	1
Advancing Regulatory Alignment	0	2	2	2	0	0	6
Supporting Early-Stage Mineral Exploration by Junior Companies	0	45	-15	0	0	0	30
Supporting Jobs in the Resource Sector	0	30	0	0	0	0	30
Subtotal—A Nation of Innovators	**0**	**323**	**475**	**381**	**321**	**216**	**1,717**

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Skills, Innovation and Middle Class Jobs
millions of dollars

	2016–2017	2017–2018	2018–2019	2019–2020	2020–2021	2021–2022	Total
Canada's Innovation Economy: Clean Technology, Digital Industries and Agri-Food							
Access to Financing for Cleantech Firms	0	51	51	51	26	26	207
Promoting the Demonstration of Clean Technologies	0	25	70	90	90	125	400
Investing in Research and Development for Clean Energy and Transportation	0	0	57	57	57	57	229
Encouraging Clean Technology in the Natural Resources Sectors	0	13	65	66	56	0	200
Expanding Tax Support for Clean Energy	0	2	3	2	1	1	9
Capitalizing on International Business Development for Clean Technology	0	3	4	4	4	0	15
Establishing a Clean Technology Data Strategy and the Clean Growth Hub	0	6	6	7	7	0	27
Growing Canada's Advantage in Artificial Intelligence	125	0	0	0	0	0	125
Advancing Agricultural Science and Innovation	0	4	9	16	16	15	60
Subtotal—Canada's Innovation Economy: Clean Technology, Digital Industries and Agri-Food	**125**	**104**	**266**	**294**	**257**	**225**	**1,271**
Total—Chapter 1: Skills, Innovation and Middle Class Jobs	**125**	**1,180**	**1,754**	**1,766**	**1,764**	**1,625**	**8,213**
Less funds existing in the fiscal framework	*0*	*-547*	*-706*	*-677*	*-639*	*-197*	*-2,766*
Less projected revenues	*0*	*-107*	*-299*	*-305*	*-316*	*-329*	*-1,356*
Less funds sourced from departmental resources	*0*	*-38*	*-14*	*-14*	*-14*	*-14*	*-94*
Net Fiscal Cost	**125**	**487**	**736**	**770**	**794**	**1,086**	**3,997**

Note: Totals may not add due to rounding.