Minister of Health

Ministre de la Santé

Ottawa, Canada K1A 0K9

Mr. Richard Denis
Interim Clerk of the Senate and Clerk of the Parliaments, and Chief Legislative
Services Officer
The Senate
Centre Block, Room 185-S
Ottawa, Ontario K1A 0A4

Dear Mr. Denis:

I have the honour to present the Response of the Government of Canada to
the Eighteenth Report of the Standing Senate Committee on Social Affairs,
Science, and Technology, entitled *Challenge Ahead: Integrating robotics,
artificial intelligence and 3D printing technologies into Canada's healthcare
systems.*

Pursuant to rule 12-24(3) of the Rules of the Senate of Canada, you will find
enclosed, two copies, in both official languages, for tabling in the Senate.

Yours sincerely,

The Honourable Ginette Petitpas Taylor, P.C., M.P.

Enclosures

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The Honourable Arthur C. Eggleton, P.C.
Chair, Standing Senate Committee on Social Affairs, Science and Technology
The Senate of Canada
Ottawa, ON
K1A 0A4

Dear Senator Eggleton,

On behalf of the Government of Canada, I am pleased to respond to the Eighteenth Report of the Standing Senate Committee on Social Affairs, Science and Technology (the Committee), entitled *Challenge Ahead: Integrating Robotics, Artificial Intelligence and 3D Printing Technologies into Canada's Healthcare Systems* (the Report), which was tabled in the Senate on October 31, 2017.

Our Government commends the members of the Committee and the many witnesses who have appeared before it. The valuable perspectives expressed in this report clearly demonstrate widespread commitment to ensuring that innovative health technologies such as new applications of robotics, artificial Intelligence (AI) and 3D printing are effectively and efficiently integrated into Canada's health systems with the aim of providing Canadians with the highest possible quality of care in a safe and equitable fashion.

The Report is well aligned with our Government's commitment to innovation, including within Canada's health systems. The attached response has adopted a thematic approach to highlight federal initiatives and investments in innovation and our Government's desire to leverage and build on this work to support the integration of important cutting-edge technologies into health systems, such as the technologies covered within your Report

Our Government thanks the Senate Committee for its insightful and thoughtful work on emerging innovative technologies and the implications these may have on Canadian health systems and society as a whole. I trust that this response demonstrates our Government's ongoing commitment to strengthen health care in Canada through the integration of robotics, AI and 3D

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printing and other innovative technologies with the aim of ensuring that Canadians have access to the highest possible quality of care.

Sincerely,

Ginette Petitpas Taylor
Minister of Health

GOVERNMENT RESPONSE TO THE REPORT OF THE STANDING SENATE COMMITTEE OF SOCIAL AFFAIRS, SCIENCE AND TECHNOLOGY ENTITLED _"CHALLENGE AHEAD: INTEGRATING ROBOTICS, ARTIFICIAL INTELLIGENCE AND 3D PRINTING TECHNOLOGIES INTO CANADA'S HEALTHCARE SYSTEMS"_

Innovations in health technologies offer significant potential to transform health care delivery. Governments and health stakeholders are working collaboratively to explore how to best integrate robotics, AI, and 3D printing into Canada's health systems.

The potential benefits of these cutting edge technologies are becoming increasingly apparent. From a patient perspective, they will facilitate the delivery of faster, more accurate, and more personalized care. From a health systems standpoint, these innovative technologies have the potential to reduce the cost of care and improve health system sustainability.

However, with the exception of certain specific populations (e.g. First Nations people living on reserve and Inuit, military) the federal government does not have jurisdiction over the delivery of health care services, and therefore has a limited role to play in the direct integration of these technologies into health systems. Therefore, this response focuses on the role of the federal government as a catalyst and convener in facilitating national dialogue and supporting provinces and territories in the integration of these technologies. In addition, it also highlights federal support for research in the areas of robotics, AI and 3D printing.

In addition, as part of the Government's commitment to advance reconciliation with Indigenous peoples, permanent bilateral mechanisms have been established with the Assembly of First Nations (AFN) and First Nations, the Inuit Tapiriit Kanatami and the four Nunangat Regions, and the Métis National Council. The permanent bilateral mechanisms include an annual meeting with the Prime Minister, biannual meetings at the Ministerial level, and quarterly meetings with senior officials from relevant departments. These meetings have included discussions on the transformation of health services to Indigenous peoples, and provide a platform for future dialogue on the application of emerging health technologies in Indigenous communities.

The Government of Canada is committed to innovation, including within Canada's health sector. Over the last two years, the federal government has put in place an ambitious array of initiatives aimed at creating an innovative and prosperous Canada. Given the provincial and territorial role in the delivery of health services to their residents, much of the work that the federal government is currently undertaking in the health sector is being done in collaboration with provincial and territorial governments as well as with others key stakeholders.

This response is grouped into three themes, aligned with the Committee's recommendations: 1) supporting national dialogue; 2) optimizing pan-Canadian levers and leveraging ongoing efforts; and 3) promoting collaborative research.

Theme 1: Supporting National Dialogue

The Government recognizes the importance of supporting national dialogue on the integration of emerging technologies with participation from a wide range of stakeholders. In collaboration with provinces and territories, and federally funded pan-Canadian health organizations, the federal government supports many fora that serve as platforms to discuss these technologies.

The Canadian Agency for Drugs and Technologies in Health (CADTH) has an important role to play in the integration of new technologies, as it is responsible for assessing the cost-effectiveness of technologies and making recommendations to health care decision-makers. In response to the recommendations made in the Report, the Government of Canada will work with CADTH to facilitate a national dialogue as part of its annual symposium. This symposium brings together over 700 key stakeholders from across Canada and therefore is a natural venue for such a dialogue.

The federal government regularly participates in and supports the Canadian Science Policy Conference, hosted by the Canadian Science Policy Centre (CSPC). CSPC is a not-for-profit organization that acts as a national convener to facilitate discussion amongst members of the Canadian science policy community. CSPC's annual Canadian Science Policy Conference includes presentations and panel discussions on many different emerging issues in science with a broad range of domestic stakeholders. For example, the 2017 conference included a session on artificial intelligence (AI), where participants discussed both the opportunities and challenges associated with the integration of AI in health systems. The CSPC provides a venue to promote further discussion on the integration of these technologies and to continue the dialogue with various national stakeholders.

The Government of Canada also supports many other events that explore innovative technologies and their potential health system implications. These have the effect of stimulating the exchange of information between governments, the public, health care stakeholders and health care entrepreneurs. For example, the Health Canada Science Symposium in winter 2018 explored the actual and potential applications of AI, deep learning, and machine learning in health. It also considered related implications for Canadian health systems. Furthermore, Health Canada hosts an annual Science Forum, which brings together research scientists, regulators and policy makers to showcase their work, share their findings

and discuss the peer-reviewed science that underpins the department's policies, regulations and decision-making.

The Canadian Institutes of Health Research (CIHR) also facilitates national dialogue on emerging technologies such as AI, robotics and 3D printing. As one of its priority areas for investment, CIHR's Institute of Population & Public Health is focusing on building research capacity to use AI approaches in population and public health research. As part of this work, the Institute is convening stakeholders and facilitating a dialogue on AI and the opportunities and challenges that come with it. For example, it hosted a joint event with the Canadian Institute for Advanced Research in January 2018 on the use of AI and machine learning techniques in addressing persistent public health issues.

Health innovation has been a topic at numerous federal/provincial/territorial (FPT) fora, such as the FPT Conference of Deputy Ministers of Health and the FPT Health Ministers' Meeting. Provincial and territorial governments are also actively considering emerging technologies, with several jurisdictions adopting their own innovation strategies or initiatives to improve the delivery of health services for their residents.

In addition to facilitating national dialogue, the Government of Canada actively participates in a broader international dialogue on these issues. Canada contributes to the Organization for Economic Co-operation and Development (OECD) Working Party on Biotechnology, Nanotechnology and Converging Technologies. This Working Party advises the OECD on emerging policy issues related to these technologies, and assists member countries in understanding and managing the changing nature of research, development and innovation. Automation in health care is examined by the Working Party in the context of its neurotechnology applications, such as the use of AI-enabled technologies to support patients impacted by neurodegenerative disease. Participation in this broader dialogue helps ensure that Canada's research and technology frameworks are well aligned with international best practices.

Theme 2: Optimizing Pan-Canadian Levers and Leveraging Ongoing Efforts

Ethical Considerations

The evolution of innovative technologies raises many ethical questions and could potentially challenge current ethical frameworks. Consideration will need to be given to biases, social norms and values, social risks, privacy and data integrity in assessing these technologies.

As recommended in the Report, the Government is carefully examining the ethical risks surrounding the development and adoption of these technologies. The federal research granting agencies support research examining ethical issues and provide health researchers with ethics policies and guidelines. Furthermore, CIHR's Standing Committee on Ethics proactively identifies emerging ethical issues of strategic relevance to the CIHR's mandate and works to develop action plans. This Committee includes a mix of Canadian and international ethics experts and provides the CIHR's Governing Council with high-level strategic advice on the ethical, legal and socio-cultural dimensions of the CIHR's mandate. The federal research granting agencies' work in this area contributes to the exploration of ethical considerations for emerging technologies prior to them being integrated into health care systems.

Further to the recommendations made in the Report, the Government of Canada is already taking action on some of these emerging ethical issues, such as the risk of gender bias in the development and integration of these technologies. For example, Health Canada's Sex and Gender Action Plan includes a partnership between the CIHR's Institute of Gender and Health, CIHR's Institute of Aboriginal Peoples' Health and Health Canada's Gender and Health Unit to fund research-policy partnerships. One such partnership project is exploring sex, gender and diversity considerations in the design, application and evaluation of digital technologies that support informal caregivers in delivering care at home.

Commercialization Concerns

As noted by the Committee, many new robotic, AI and 3D printing technologies struggle to successfully commercialize and make it to market. Given that these devices often represent never-before-seen technology, health care administrators are cautious of implementation even after new devices have received all relevant Health Canada regulatory approvals. While provincial and territorial governments are largely responsible for health service delivery, including the adoption of new technologies, the federal government does have several initiatives which address the report's recommendations around commercialization.

The Government of Canada has a dedicated research and development procurement program, which to date has been managed by Public Services and Procurement Canada (PSPC). The Build in Canada Innovation Program supports innovators in moving their products or services from the laboratory to the marketplace. This program, with a priority stream in health, matches innovations with federal government departments to facilitate the first sale of a technology, and the opportunity to test it in a real-life setting and receive feedback on commercialization viability. Many federal departments and agencies have utilized this program to pilot test health innovations. Recently, Budget 2018 announced that in order to simplify single point access to

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innovation support programs, the Build in Canada Innovation Program will be consolidated into Innovative Solutions Canada, a different procurement support program administered by Innovation, Science and Economic Development Canada (ISED).

The National Research Council (NRC) is the Government of Canada's largest research organization supporting industrial innovation and the advancement of knowledge and technology development. NRC's Industrial Research Assistance Program (IRAP) helps innovative small and medium sized Canadian companies develop new products and processes, and provides business and technical advisory services to firms. In 2016-17, IRAP supported 7,400 innovative companies with funding and advice to move them further towards the point of commercialization, many of whom are developing health care technologies. The Budget 2018 investment of $700 million over five years in IRAP will allow this program to continue to support innovation, including a new threshold limit of $10 million for project investment which will support more and larger business research and development projects. Budget 2018 also announced that IRAP's Concierge Service will be transferring over to ISED to consolidate and simplify government innovation support programs.

The Government of Canada recognizes the need to do more to support the commercialization of health innovations, and the growth of the health and biosciences sector, as the Committee has recommended. Accordingly, in Budget 2017, the Government of Canada announced a new vision for Canada's economy as a global leader in innovation, anchored by the Innovation and Skills Plan. The Plan included the creation of several new programs, such as the Strategic Innovation Fund, Innovative Solutions Canada, and the Innovation Superclusters Initiative. Each of these programs will help foster commercialization and innovation while creating an environment conducive to economic growth.

The Strategic Innovation Fund, administered by ISED, is a $1.26 billion, five-year fund which invests in firms of all sizes across all industries to create new jobs, skills and opportunities for Canadians. The fund supports four types of activities, two of which relate directly to commercialization: research, development and commercialization of new products and services, and public-private collaboration in developing and demonstrating new technologies.

The cross-departmental Innovative Solutions Canada program represents a new model for federal investments in innovation and commercialization. This $100 million program, launched in December 2017, will require 20 federal departments to set aside one per cent of their research and development expenditures annually. With this allocated funding, departments will issue challenges, seeking novel solutions and not yet commercially available products or services. By funding proposed solutions, the program is supporting the development of early-

stage, pre-commercial innovations.

Also launched in December 2017, the Venture Capital Catalyst Initiative, will make $400 million available through the Business Development Bank of Canada to increase late-stage venture capital funding for Canadian firms looking to grow, expand and compete globally.

As indicated in the Report, a continuum of support from research to commercialization is needed for innovative technologies to have a positive impact on patient care. The Government of Canada's $950 million Innovation Supercluster Initiative will support five superclusters which include companies of all sizes, post-secondary institutions and other partners. The Digital Technology Supercluster, based in British Columbia, will use big data and cutting-edge applications of augmented reality, cloud computing and machine learning to improve service delivery in several sectors, including precision health. While not specifically focused on health, two other Superclusters will focus on the important technologies outlined in the Report and may have trickle down effects to impact innovation and commercialization in the health sector. The Advanced Manufacturing Supercluster, based in Ontario, will incorporate advanced robotics and 3D printing to build up next-generation manufacturing capabilities. Based in Quebec, the AI-Powered Supply Chains Supercluster will bring various sectors together to build intelligent supply chains through artificial intelligence and robotics.

The Government of Canada has also created six industry-led Economic Strategy Tables, one of which is the Health and Biosciences Economic Strategy Table (HBEST). HBEST membership reflects the full diversity of sector experience and expertise and has been mandated to make recommendations to the government to position Canada as a global leader in health and bio-sciences innovation.

Also critical for successful commercialization is a supportive intellectual property (IP) regime. The Government of Canada has announced that it is developing a new comprehensive IP strategy. Budget 2018 committed $85.3 million over five years, with $10 million per year ongoing, in support of this strategy. This will support modernizing Canada's IP regime to facilitate the commercialization of innovative new products. ISED recently completed consultations on the new IP strategy, including possible measures that would increase commercialization outcomes for Canadian businesses and support their growth.

Health Care Delivery Renewal

The Government of Canada has shown leadership in engaging with provinces and territories to strengthen health systems. On March 22, 2017, Budget 2017 committed $11 billion over 10

years to s███████ provinces and territories to improve access to home and community care and mental health and addictions services. New technologies and digital health innovation such as virtual home care and e-mental health are important tools to help deliver these services.

Digital health infrastructure (such as electronic health records and electronic medical records) and high-quality digitized health data are key enablers for the increased development and adoption of new application of robotics, AI and 3D printing. Although Canada has a strong health data infrastructure, it faces persistent gaps in the availability and sharing of health information which prevent decision-makers, entrepreneurs and innovators from fully harnessing the information needed to inform research and development, business and policy decisions. Budget 2017 commitments of $300 million for Canada Health Infoway and $53 million for the Canadian Institute for Health Information will accelerate the digital transformation of health care and will help make meaningful data more readily available.

CADTH also provides valuable information to health care decision-makers to support the adoption of value-added innovations. Over the past several years, CADTH has examined robotic assisted surgery, robotic therapy and assistive devices for individuals with development disabilities such as the use of robotic exoskeletons for spinal cord injuries. CADTH will continue to review these new technologies as they become market ready to support provinces, territories and health care providers in adopting value-added innovations.

Budget 2017 also committed an additional $51 million over three years starting in 2019-2020 to continue the Canadian Foundation for Healthcare Improvement's work to scale-up and spread proven innovations to improve health care across Canada. For example, in June 2017, 11 improvement teams across Canada were accepted into CFHI's Connected Medicine collaborative and will receive support for the design, implementation and evaluation of a remote consult service in their jurisdictions.

All of these initiatives are helping to improve and modernize Canadian health systems, addressing the Committee's recommendations related to health care delivery renewal.

Rural and Remote Health Care Delivery and Equity of Access to Emerging Technologies

As noted in the report, many applications of these technologies require reliable high-speed broadband internet coverage. The Government of Canada is committed to facilitating equitable access to these technologies. In December 2016 the Government launched Connect to Innovate, a new $500 million program that will extend and enhance broadband service in rural and remote communities. The Canadian Radio-television and Telecommunications Commission

has also recently classified broadband Internet as a basic telecommunications service, created a new $750 million fund, and established universal upload and download targets.

The Government of Canada also invests in research into rural and remote applications of these technologies through its research agencies. For example, the three federal research granting agencies support the work of researchers developing robotic systems for rural and remote areas. CIHR investments in this area have led to the development of an image guided automated robot which can be operated remotely, allowing radiologists to biopsy and treat cancer patients in remote locations.

The Government of Canada is currently working with Indigenous partners to leverage technologies to improve the quality of care and expand access to primary health care services in rural, remote and isolated Indigenous communities. Examples of existing projects include mobile health technologies, electronic medical records, public health surveillance systems and telehealth sites. In addition, Budget 2017 provided $5 million over five years to the Department of Indigenous Services Canada for the implementation of remote presence technology demonstration projects. These demonstration projects will, for example, allow physicians to perform services through a video-link in real time, including diagnosis, assessment, patient consultation and emergency care..

Workforce Adjustment and Education and Training Requirements

The Committee suggests that the integration of robotics, AI and 3D printing technologies will have a substantial impact on the health care delivery workforce. Some work will be automated, and many remaining positions will require new skills to work effectively alongside new technologies.

Health human resource planning and training requirements are primarily the responsibility of provincial and territorial governments and professional bodies (e.g. the Royal College of Physicians and Surgeons of Canada). The FPT Committee on Health Workforce (CHW) provides policy and strategic advice to the Conference of Deputy Ministers of Health (CDM) on health workforce challenges and the planning, organization and delivery of health services. It responds to requests for advice from the CDM on emerging issues in health human resources and health delivery and provides a pan-Canadian forum for collaborative action, strategic discussion and information sharing on priority FPT issues.

Employment and Social Development Canada has been working with provinces and territories to assess the potential impacts and to ensure that the appropriate resources are available to employees and employers. The Forum of Labour Market Ministers is an FPT forum focused on

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ensuring Canada has a skilled, adaptable and inclusive workforce. One of the key action items of the Forum for 2017-2020 is to develop better knowledge of the impacts of, and strategic responses to, evolving labour market trends, including disruptive technologies and the changing nature of work.

The Government recognizes that more work is needed to address skills gaps and help Canadians adjust to automation in the workplace and other changes to the labour market. In Budget 2018, the Government re-affirmed its commitment to provide $225 million over four years, starting in 2018-2019, and $75 million per year thereafter, to establish Future Skills, a new organization to support skills development and measurement in Canada. This organization will work with provinces and territories, the private sector, not-for-profit organizations, labour and educational institutions to help identify skills required in today's labour market, explore innovative approaches to skills development and share information to help inform future skills investments and programing. Future Skills will officially launch in spring 2018.

The Government also recently announced the Skills Boost initiative. Part of this initiative includes providing more opportunities for those who lose their jobs after several years in the workforce to pursue full-time self-funded training without losing their Employment Insurance benefits. Although experts do not forecast that automation will lead to significant job loss in the health sector, skills retraining will be needed for employees to work effectively alongside these emerging technologies.

Regulatory Oversight

Report recommendations two, four and eight highlight the importance of ensuring that regulatory frameworks keep pace with, and enable, positive change. Health Canada's future as a regulator will depend on its ability to adapt to the rapidly changing environment and meet health care needs. Therefore, Health Canada has several foresight programs which actively monitor new technologies and work with key stakeholders to ensure regulations are applied appropriately to new products.

In addition, Health Canada is undertaking a five-year regulatory review project focused on supporting timely access to therapeutic products that meet health system needs, including medical devices. Between now and 2021, Health Canada will adapt regulatory tools to support better access to digital health technologies, provide scientific advice aimed at improving the quality and efficiency of medical device regulatory submissions, and strengthen the surveillance of these products once they are in the market.

Health Canada is also undertaking a separate regulatory review initiative specific to 3D printing. The goal of this project is to assess whether the current Canadian regulatory environment provides optimal regulatory oversight for medical uses of 3D printing. This project is in direct response to the recent surge in availability of 3D printing and the resultant increase in adoption of this technology in various medical areas. The results of the review will be used to identify opportunities for new policy frameworks, potential regulatory gaps in 3D printing oversight and potential mitigation strategies.

Canada is also participating in collaborative international efforts to ensure broader regulatory harmonization and to ease market access for Canadian innovations in other countries. Canada is a leader in international medical devices and pharmaceutical regulatory fora, such as the International Coalition of Medicines Regulatory Authorities, and the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use, which work to address international harmonization issues and set standards. Health Canada works closely with the United States Food and Drug Administration and other international counterparts within the International Medical Device Regulators Forum to advance joint initiatives. Canada also participates in the International Organization for Standardization and International the Electrotechnical Commission's Joint Technical Committee, which is currently working to develop international standards for AI. These programs and partnerships help reduce overall regulatory burden to manufacturers.

Finally, Budget 2018 announced an additional $11.5 million over three years for the Government to pursue a regulatory reform agenda focused on supporting innovation and business investment. With these funds, the Government will carry out targeted reviews of regulatory bottlenecks to innovation and growth in the health/bio-sciences sector, among others. This new investment will support an agile regulatory system, able to respond to evolving and emerging technologies.

Theme 3: Promoting Collaborative Research

Recommendation 13 from the Report calls on the Presidents of CIHR, the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council (SSHRC) to regularly collaborate on mechanisms that would accelerate research in the field of robotics, AI and 3D printing.

The Government of Canada recognizes the value of science and the important contribution researchers make to improve the health and well-being of Canadians. In June 2016 the Honourable Kirsty Duncan, Minister of Science launched a review of federal support for

fundamental science. Known as Canada's Fundamental Science Review, the review was undertaken by an independent advisory panel of distinguished research leaders and innovators, led by Dr. David Naylor. It examined the research investments and program machinery currently in place to ensure that federal support for fundamental science is strategic and effective.

The advisory panel's report recognized Canada's strong research system but also identified some challenges. A key theme in the report is the need to strengthen governance and coordination. In light of these findings, the Government established the Canada Research Coordinating Committee (CRCC) with participation that includes the presidents of the three federal research granting agencies – the CIHR, the Natural Sciences and Engineering Research Council of Canada and the Social Sciences and Humanities Research Council. This committee has been tasked by the Minister of Science and the Minister of Health to improve and build on existing coordinated efforts across the three federal research granting agencies and the Canada Foundation for Innovation. One of the initial priorities for the committee is to provide advice and advance efforts in key emerging research areas such as AI, quantum technologies, and regenerative medicine. The work of the CRCC will contribute to addressing recommendation 13 of the Report.

In addition, these three federal research granting agencies are currently collaborating to support multidisciplinary research in these fields, notably through tri-agency programs such as the Networks of Centres of Excellence suite of programs. CIHR, NSERC and SSHRC will continue to support a number of projects across the country that are harnessing and developing new tools and technologies to improve health outcomes for Canadians in a safe, effective and ethical manner.

Budget 2018 announced major investments of $925 million over five years, and $235 million per year ongoing for these three federal research granting agencies to support new investigator-initiated research projects. These funds could represent an opportunity for researchers to explore additional areas related to AI, robotics and 3D printing in health. To enhance interdisciplinary and higher risk research, Budget 2018 announced the creation of a new tri-council fund, with $275 million over the first five years and $65 million per year ongoing.

The application of AI to the health sector will require new data platforms and infrastructure.. Recent commitments by the Government of Canada and the provinces and territories of $126M in Canada's Strategy for Patient-Oriented Research (SPOR) data platforms will aim to improve harmonization and accessibility of health data across the country. In addition, The

Government of Canada announced new investments of $572M over five years, with $52 million per year ongoing, in Budget 2018 to implement a Digital Research Infrastructure Strategy. These platforms can be leveraged as the foundation for extensive data analytics, deep learning and AI in order to improve health care services across jurisdictions.

Canada has had a longstanding history of investing in AI, and the Government of Canada recognizes that AI has immense potential to transform all sectors of the economy, including health care. As a result of these longstanding investments, Canada is a world leader in cutting edge AI research and is uniquely positioned globally to capitalize on the research that has been done over the past decades. Building on this, Budget 2017 announced a $125M investment to launch a pan-Canadian AI Strategy for research and talent, which aims to position Canada at the forefront of innovative AI research and development.

The NRC is also engaging in key collaborative research in these areas. NRC researchers, in collaboration with business, universities and colleges, apply leading-edge technology to practical applications in a number of fields such as interactive simulation, 3D printing, AI and data analytics. Recent examples include the NRC's development and commercialization of simulation training capabilities for neurosurgical, cardiovascular, urological and orthopaedic applications.

Conclusion:

This response outlines the broad range of initiatives and investments that the government has put in place to support the integration of new technologies into Canada's health care systems., However, the Government of Canada recognizes that there is more work to be done. Creating an ecosystem that effectively and efficiently supports the adoption of value-added innovations will require ongoing coordinated and collaborative efforts. The Government of Canada is committed to continuing work in this area and to explore new ways to support and catalyze the adoption of innovations to improve patient care and health system sustainability.