Disclosure Letter

Digital Supercluster ("Supercluster") Additional Annual Disclosures
Fiscal period ending March 31, 2021

In accordance with our annual reporting requirements for the 2020/2021 fiscal period we confirm:
1. Since their implementation:
    a) there were no updates to our Intellectual Property Strategy,
    b) the Data Strategy was updated in September 2020 to include a Data as an Asset section with the aim of improving Members' data literacy and, where feasible, encouraging them to consider sharing and/or generating data for strategic or commercial purposes while leveraging and adopting data standards
    c) the financial controls operated as intended, and
    d) the intellectual property strategy operated as intended and supports the objectives set out in the Corporate Plan.

2. Since our last fiscal year, we have implemented or updated the following policy, procedures or standards:
    a) the Investment Policy to update investment guideline
    b) the Advance Policy to support members in pursuing projects which are part of our Covid-19 Program
    c) the Delegation of Authority policy to ensure proper lines of approval are in place
    d) the Membership Agreement to simplify and update how membership fees are charged
    e) the Board Mandate and Terms of Reference for Board Committees for simplification and clarification purposes
    f) the Co-Investment guidelines to support calls for Project Investments

3. There were no:
    a) Instances where Foreground Intellectual Property was not included on the Member-accessible registry,
    b) Member disputes referring to the dispute resolution mechanism regarding ownership of and access to Foreground Intellectual Property, and
    c) Audits or evaluations carried out during the year except the audit of the Supercluster annual financial statements.

4. In addition to regular IP workshops supporting SMEs across various dimensions during and before proposal development, the Supercluster led specific IP Thought Leadership sessions during fiscal year 2020-2021. A total of 133 SME members signed into these sessions that focused on IP strategies for collaborative engagements, the importance of cybersecurity and IP and data considerations in the context of collaboration. These sessions were also recorded and have been accessible by SMEs throughout the year. It is hard to accurately quantify how many times the output of the sessions has been shared by those who attended the sessions or how many individuals viewed the recorded sessions. However, YouTube reports 157 organizations accessed the recordings through that vehicle. In addition to the workshops and thought leadership sessions, we provided IP support on a project-specific basis to all Members participating in the development of projects. With four major calls for proposals and hundreds of submissions to these calls, we conservatively estimate over 2000 specific interactions where support was provided to Members in respect of IP. In addition, we provided support to over 100 SMEs in respect of accessing legal advice in relation to the negotiation of Project Agreements, including advice in relation to IP. It should be noted we are not privy to the advice that Members get from their own lawyers. Finally, our monthly newsletters provide information, guidance and references to support SMEs and others relating to IP and data. The readership of our newsletter is 900 and over the course of the year, combined with invitations to participate in IP events organized externally, we conservatively estimate that there have been 2,000 touch points through the past year.

5. Staff are paid a salary, short term incentive based on personal and organisational performance, and benefits according to our Board approved compensation policy. Funding of these salaries is from various sources including industry and ISED. For the fiscal period ending March 31, 2021 and in regard to ISED funding, two employees were paid in excess of $300,000 and the ranges of salaries for senior employees were:
    Officers: $250,000 - $410,000
    Directors and Vice-Presidents: $120,000 - $250,000

6. Consistent with our prior submissions, financial items requiring disclosure are:
    a) Supercluster Funded Eligible Costs incurred and paid in the Fiscal Year were $47,275,486
    b) Unfunded Eligible Costs incurred and paid in the Fiscal Year were $683,460
    c) Industry Matching Funds received in the Fiscal Year are $20,756,082
    d) Total funding for operating and administrative expenses received was $7,431,043

e) Total Supercluster funding provided for project investment was $46,448,901

f) Total ISI funding for project investment was $39,066,647

7. The steps taken to protect network and data security are included in our Data Strategy.

8. Ecosystem Development occurs in both our technology leadership and capacity building programs. In technology leadership, our focus is on building relationships. Our collaborative innovation model builds partnerships between industry partners and post-secondary institutions, integrates SMEs, into supply chains with market leaders and brings government, industry and academia together to find innovative solutions to big challenges. The result is a Team Canada approach to innovation.

While technology is certainly an important component of success, we also recognize that people lie at the heart of successful innovation. We need creative leaders who combine imagination, passion and drive to bring innovations to life. Then we need people with the digital skills to take advantage of the well-paying jobs and career opportunities these innovations create. For that reason, we co-invest in innovation projects that help Canadian enterprises build job ready, world-class digital talent and teams.

We build this talent using innovations in rapid skilling systems. These systems respond directly to industry needs by combining targeted, rapid learning & development solutions with line of sight to employment potential. With our partners, we've added $35M of total new investment this year to create over 6,000 learning and development placements in digital skilling and leadership. These placements include positions to help youth who are not employed, not in education and not in training find a new path to career success with hubs across Canada in Vancouver, Calgary, Toronto and Halifax. It includes training innovation leaders how to use digital transformation to drive new revenues streams, improve operational productivity and become successful as a digital enterprise. It extends to small businesses that not only provide employees with opportunities to upskill, it helps SMEs build organizational learning plans essential for retaining talent and growing their businesses.

9. Our programs with the underlying projects that have been announced at March 31, 2021 were as follows:

Data Commons	Digital Twins	Precision Health	Capacity Building	Strategic
Earth Data Store	Augmented Reality for Maintenance and Inspection	Autism Sharing Initiative	Athena Pathways	Supply Hub
Forest Machine Connectivity	Digital Aviation Records System (DARS)	Dermatology Point-of-Care Intelligent Network	Autonomous Systems Technician	
Fresh Water Data Commons	Optimizing Healthcare through Applied Digital Twinning	Healthcare to Homecare - Feasibility Study	Competency Assessment Mapping Platform for Industry Responsive Education (CAMPFIRE)	
Multi-Omics and Medical Imaging Engine (MOMI)	Predictive Analytics for Manufacturing Processes	Healthcare to Homecare	Canadian Tech Talent Accelerator	
Precision Agriculture to Improve Crop Health	The Learning Factory Digital Twin	Intelligent Network for Point-of-Care Ultrasound	Design for Startups	
Protecting Our Oceans	Wellness.ai	Personal Health Wallet	Diversifying Talent in Quantum Computing	
Satellite-based Environmental Analytics		Reducing Opioid Use for Pain Management	Future Capital	
		Tailored Health - Pharmacogenetics	HyperTalent	
		The Secure Health & Genomics Platform Program	W Venture	
		TRUSTSPHERE		
		Workplace Brain Health		

COVID-19 Project
AI-based Prediction Tool for COVID-19 Patient Care
Clothing to Remotely Connect to Care
Confidential Virtual Addiction Treatment for Healthcare Workers
COVID Cloud   -   Feasibility Study: Beacon - Realtime Global Data Sharing Network
Digital Mental Health Tools for Healthcare Workers Providing COVID-19 Care
Digital Telework for Remote Physical Work
DirectFood.store (DFS): Securing the Food Supply Chain
Emergency Food Distribution Network
Global Clinical Network for Infectious Diseases
HEALTHYACCESS
Improving ICU Capacity During COVID-19 Outbreaks
Leveraging AI in Canada's Social Response to COVID
Lifesaver II   -   Feasibility Study: Lifesaver - Predicting emerging pandemics

COVID-19 Project
Looking Glass: Protecting Canadians in a Return to Community
Mobile Wellness Declaration
Early Detection of COVID-19 through Artificial Intelligence
Point-of-Care Ultrasound for COVID
Project ABC
Project ACTT - Access to Cancer Testing & Treatment in Response to Covid-19
Protecting Canadians by Predicting the Evolution of COVID-19
Providing Safe and Effective Home Care During COVID-19
Rapid Assessment of Disability Claims During and Post COVID-19 (Phase 1 & 2)
Rapid Deployment of Emergency Case Management
Raven 2   - Feasibility Study: Rapid Repurposing of Drugs for COVID-19
Reduce Risk: Post-COVID Analytics Platform for Returning to Work
ReSTART: Post-COVID Surgeries and Medical Procedures
Scaling Safe Food Delivery for Canadians   - Feasibility Study: Feeding our Front Lines
Screen O/S   - Feasibility Study: Risk Management Frameworks for Workplace Safety
Stronger Together: Social Infrastructure for Community Health
Supporting Canada's Elderly During the COVID-19 Pandemic
Telewound Care Canada
Virtual Pulse
xrAI

In addition to the list above, there are seven (7) projects selected through the Technology Leadership program with a total value of $80,238K. This includes a commitment of $30,031K Supercluster funds and $50,208K from industry consortia. There are also ten (10) projects selected through the Capacity Building program with a total value of $35,012K. This includes a commitment of $9,207K Supercluster funds and $25,805K from industry consortia. These projects have not yet been announced.

Project Descriptions

Capacity Building Program
Partnering with employers, educators and community organizations to build job ready, world leading talent.

Athena Pathways
Project Lead: Artificial Intelligence Network of BC (AInBC)
Partners: Careteam, D-Wave, KPMG, MetaOptima, Microsoft, Society for Canadian Women in Science and Technology, Teck Resources Limited, British Columbia Institute of Technology, Northeastern University, Simon Fraser University, University of British Columbia

Partner Co-Investment: $616K
Digital Technology Supercluster Co-Investment: $250K (Total ISI funding - $56K)
Total Investment: $866K

Athena Pathways is helping Canadian women see the potential of the tech sector, and how a career in Artificial Intelligence aligns with their skills and interests. This 18-month program will provide girls and women, from middle through post-secondary students to professionals and leaders, training in computing science and gender diversity in AI. In addition, dozens of internships and mentorships in AI will be made available to women across the tech ecosystem.

There have been over 300 women participants and 120 scholarships awarded to students at post-secondary institutions. Over 70 women have completed Azure training through Microsoft's Global Knowledge partnership and 20 have been hired through employer partners. This project is scheduled to complete in July 2021.

Competency Assessment Mapping Platform for Industry Responsive Education

Project Lead: BCIT
Partners: LifeLabs, IECBC

Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.3M
Total Investment: $0.5M

CAMPFIRE, the Competency Assessment Mapping Platform for Industry Responsive Education pilot program, aims to provide the kind of skilled talent employers need, and rewarding employment for workers who need new skill sets. This project will help connect 600 early- and mid-career workers with the digital skills and competencies they need to transition to new work over the next 24 months. This project is scheduled to complete in February 2022.

Canadian Tech Talent Accelerator

Project Lead: NPower Canada
Partners: Blueprint, Microsoft

Partner Co-Investment: $7.3M
Digital Technology Supercluster Co-Investment: $1.4M
Total Investment: $8.7M

The COVID-19 pandemic and resulting rapid increase in online work has widened the digital divide and skills gap, contributing to higher unemployment – especially for more vulnerable Canadians. Indigenous, Black, and other racialized youth, people with disabilities, LGBTQ2S+ youth, women and newcomers to our country face multiple barriers to employment. This project will support Canada's economic recovery by providing valuable, in-demand tech skills to 2500 unemployed and underemployed youth (18 to 29 years old) from communities underrepresented in the digital economy. This project is scheduled to complete in August 2023.

Design for Startups

Project Lead: Emily Carr University of Art and Design (ECUAD)
Partners: A&K Robotics Inc., CoPilot AI
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.3M
Total Investment: $0.5M

Design for Startups will bridge the gap between technology and design for improved product development. The project will bring together the technology and design communities by connecting designers with tech startups through intensive 12-week design problem-solving sessions. This is a fundamental step in building new talent capacity paving the way for a brighter future for design-led technology companies in B.C. This project is scheduled to complete in January 2022.

Diversifying Talent in Quantum Computing

Project Lead: UBC
Partners: Microsoft Corporation, D-Wave Systems
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.3M
Total Investment: $0.5M

The field of quantum computing is exploding with the power to solve our most challenging problems and the demand for talent in this emerging field is high. With British Columbia emerging as a leader in quantum computing, the 24-

month Diversifying Talent in Quantum Computing program will work with K-12 and Indigenous education leaders to ensure that youth and young adults are aware of the career opportunities presented by this revolutionary technology. This project is scheduled to complete in October 2021.

Future Capital
Project Lead: Female Funders
Partners: Simon Fraser University (SFU, Microsoft Corporation
Partner Co-Investment: $0.7M
Digital Technology Supercluster Co-Investment: $0.5M
Total Investment: $1.2M

Future Capital provides investment education that enables women to lead and shape the future of the economy. Through the Future Capital program, 500 Canadian women will gain access to a new platform for education, become members of an emerging network of women decision-makers in the tech and innovation ecosystem, and gain new opportunities to lead innovation within Canada. This project is scheduled to complete in January 2022.

HyperTalent
Project Lead: BC Tech Association
Partners: St. Paul's Hospital Foundation, School District 10 (Arrow Lakes), Accenture, Vancouver School Board (VSB), SAP, British Columbia Institute of Technology (BCIT), Microsoft Corporation, Vancouver City Savings Credit Union (Vancity), Providence Health Care, Unbounce
Partner Co-Investment: $0.1M
Digital Technology Supercluster Co-Investment: $0.3M
Total Investment: $0.4M

This program will focus on K-12 educators and Indigenous youth to tackle the tech talent shortage in British Columbia. HyperTalent will connect more than 100 teachers from rural and urban school districts with educational seminars, tours of leading technology companies, and hands-on experiences. This will build awareness of the kinds of tech careers open to students and support school curriculums with real-world examples of the opportunities ahead. This project was completed in October 2020.

W Venture
Project Lead: Victoria Innovation, Advanced Technology and Entrepreneurship Council (VIATEC)
Partners: Coast Capital Savings Innovation Centre (CSIC), Communitech, Accelerate Okanagan, Purpose Five, University of Victoria (UVic)
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.5M
Total Investment: $0.6M

The Women's Entrepreneurship Program will build capacity for women entrepreneurs and their tech ventures. Through boot camps, workshops, mentorship and peer-sharing on leadership skills, this nine-month program will provide opportunities for women to gain entrepreneurial skills and insights in a supportive environment. Thirty women from across BC graduated from the program. The graduates' companies have had a revenue growth of >$600K, created 41 jobs and attracted 11 follow-on investments. This project was completed in July 2020.

Wireless Systems Technician
Project Lead: College of the Rockies (COTR)
Partners: British Columbia Institute of Technology (BCIT), Teck Resources Limited
Partner Co-Investment: $0.6M
Digital Technology Supercluster Co-Investment: $0.3M
Total Investment: $0.9M

The Wireless Systems Technician program will offer new training and certification as the resource sector implements new technologies networks to enhance operations with real-time data. The pilot program will focus on training women, Indigenous peoples, and youth who are currently under-represented in the field, so they can build telecommunications careers close to home, addressing the short supply of qualified industry employees. This project is scheduled to complete in June 2022.

Data Commons Program
New business insights through new platforms to collect, store and analyze data.

Earth Data Store
Project Lead: UrtheCast Corp.
Partners: Geoscience BC, Sparkgeo Consulting Inc., University of Victoria (UVic), Microsoft Corporation, Mitacs
University of British Columbia (UBC)
Partner Co-Investment: $2.2M
Digital Technology Supercluster Co-Investment: $1.7M
Total Investment: $3.9M

This project collects, standardized, and secures data from multiple sources such as earth observation satellite imagery and environmental sensors, for predictive purposes. Through interactive visual maps and running deep learning algorithms, this project has demonstrated an improved capability to observe and protect remote areas, and enable real-world applications in protecting aquatic ecosystems and predicting environmental disasters.

EarthDaily Analytics created new services that are being provided globally and now produce 10% of Brazil's Earth Observation data for two international agriculture customers. Microsoft used this work to demo their new Azure Orbital service and the University of Victoria developed 'P3 Aqua', a prototype application for marine environmental monitoring. Sparkgeo, through improved analytics, was able to expand its product offering to insurance companies. This project was completed in December 2020.

Forest Machine Connectivity
Project Lead: Mosaic Forest Management Corp.
Partners: Lim Geomatics Inc., Canfor, University of British Columbia (UBC)
Partner Co-Investment: $4.5M
Digital Technology Supercluster Co-Investment: $3.3M
Total Investment: $7.8M

This project will use an Industrial Internet of Things (IIoT) network of 'smart' devices to monitor, collect, exchange, analyze, and deliver valuable insights to contractors, machine operators, and managers in the timber harvesting supply chain. This data will improve productivity, efficiency, and competitiveness of Canada's wood products manufacturing industry. The project start is delayed due to impact of the COVID-19 pandemic on the operations of the Consortium Members. The project is scheduled to start work in June 2021. This project is scheduled to complete in June 2023.

Fresh Water Data Commons
Project Lead: Carl Data Solutions Inc.
Partners: University of Victoria (UVic), Teck Resources Limited, Microsoft Corporation, Living Lakes Canada, Genome British Columbia (Genome BC)
Partner Co-Investment: $3.3M
Digital Technology Supercluster Co-Investment: $1.6.3M
Total Investment: $5.0M

Water is a precious resource under significant pressure globally as a result of climate change, and human and industrial activities. This project is integrating various sources of data to better understand ecosystem health, specifically of major water systems in the Columbia Basin, to better inform water use, conservation, and management. The project has developed a flexible, affordable and scalable platform, FlowH2O that analyzes and processes large amounts of water data to understand water management needs including environmental monitoring data through solar-powered sensors installed at Anderson Creek and eDNA research undertaken as part of the project. This project was completed in May 2021.

Precision Agriculture to Improve Crop Health
Project Lead: Terramera Inc
Partners: Genome British Columbia (Genome BC), Agriculture & Agri-Food Canada (AAFC), University of Saskatchewan, Trent University, Compression.ai, Simon Fraser University (SFU), Sightline Innovation, Michael Smith Foundation for Health Research
Partner Co-Investment: $4.7M
Digital Technology Supercluster Co-Investment: $2.7M
Total Investment: $7.3M

In the face of climate change, increasing threats from pests and pathogens are impacting our environment and food security. This project is developing new pest and pathogen controls through the application of computational biochemistry, genomics, machine learning, computer vision and robotics, to manage disease in field crops, minimize the use of pesticides, and secure export markets. The project has established the information exchange framework and testing environments including a customized automated climate-controlled growth chamber that is uniquely retrofitted to accurately replicate on-farm conditions. Early predictions on novel fungicide formulations to fight Wheat Leaf Rust are in testing. This project is scheduled to complete in December 2021.

Protecting Our Oceans
Project Lead: MDA Systems Ltd
Partners: Simon Fraser University (SFU), VizworX Inc.
Partner Co-Investment: $0.9M
Digital Technology Supercluster Co-Investment: $0.7M
Total Investment: $1.5M

Food security, regional economies and the health of the world's marine ecosystems are at risk due to illegal fishing which results in $23B of lost income per year. Identification and apprehension of these illegal ships, or "dark vessels", would provide significant economic benefit on a global basis but demands a very high level of precision. Using data from a combination of remote sensing satellites, this project will enhance existing ship detection and tracking technology with an ability to identify offending dark vessels by applying novel machine learning algorithms and AI to advanced space-based data.

In 2019, MDA was awarded a 3-year contract with the Government of Canada to use satellite technology to detect vessels engaging in illegal fishing, and the project has completed a demonstration of the technology. The project is continuing to build on this success and has now put the key foundations in place that will allow identification of dark vessels, recognition of behavior patterns consistent with IUU fishing, and efficient 3D Visualization capabilities for operators.

This project is scheduled to complete in October 2021.

Satellite-based Environmental Analytics
Project Lead: UrtheCast Corp.
Partners: Microsoft Corporation, BGC Engineering Inc., Government of Canada (Environment and Climate Change Canada), Mitacs, BC Parks Foundation, University of Victoria (UVic), Hatfield Consultants Partnership
Partner Co-Investment: $1.8M
Digital Technology Supercluster Co-Investment: $1.1M
Total Investment: $2.9M

Climate change is threatening the environment, resource industries, animal, and human health. The SEA project team is building a system to automate and accelerate the generation of high-quality, analytics-ready mosaics using multiple sources of complex earth observation satellite data. The mosaicking process seamlessly combines images, eliminating satellite location errors and correcting for discrepancies in spectral content (i.e., colours) to ensure the final mosaic is ready for analytics. These high-quality mosaics will be ready for use with environmental monitoring applications, that leverage machine learning and augmented reality, giving users the tools they need to quickly and accurately map wildlife areas, evaluate changes in land surfaces, and manage at risk areas.

As of spring 2021, the project team has created initial versions of three large-scale mosaic products (of areas in Canada, Namibia, and Zambia); this has required overcoming technical challenges around 'best available measurement' selection in order to seamlessly stitch thousands of images into high-quality mosaics. Even larger, country-scale, mosaics are currently under development. This project is scheduled to complete in July 2022.

Digital Twins Program
Creating virtual replicas of production environments for real-time operations management, simulation, modelling and training.

Predictive Analytics for Manufacturing Processes
Project Lead: D-Wave Systems
Partners: Solid State AI, Simon Fraser University (SFU), AVCORP
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.2M
Total Investment: $0.4M

Quantum computing and advanced machine learning can be used to analyze chemical, temperature, voltage and other critical data in the metal finishing manufacturing line for complex aircraft parts. New insights were gained with respect to the development of a digital twin for optimized large equipment manufacturing processes, including more effective mapping, cleansing, and processing of industry data. The project was completed in the Fall of 2020.

Solid State AI developed and commercialized software called AIMS (Artificial Intelligence for Manufacturing Systems), which allows users to import, visualize, and execute machine learning models on manufacturing data. This project was completed in November 2020.

The Learning Factory Digital Twin
Project Lead: AVCORP
Partners: AMPD Ventures Inc, Microsoft Corporation, University of British Columbia (UBC), Convergent Manufacturing Technologies Inc., LlamaZOO Interactive, Boeing Vancouver/ Aeroinfo
Partner Co-Investment: $2.7 M
Digital Technology Supercluster Co-Investment: $2.1M
Total Investment: $4.8M

This project is working towards demonstrating a functional blueprint of a digital twin solution for the manufacturing processes of aerospace components. This project will allow hands-on learning and research to drive continuous improvements through predictive planning, real-time monitoring, and quality control. The digital twin will also inform future work and create a new approach to advanced aerospace manufacturing.

The project continues to digitalize existing industrial production lines for aircraft parts by creating new, digitally driven industrial tools for spatial planning, asset state determination, and Foreign Object Detection (FOD). The project has created simulation models of production processes and layout modelling to evaluate capacity planning and resource allocation for optimizing workflows and demonstrated capabilities in physics-based models, probabilistic predictions and sensitivity and spatial analysis. The project is on track to complete by the end of 2021. This project was completed in November 2020.

Augmented Reality for Maintenance and Inspection
Project Lead: Boeing Vancouver/ Aeroinfo
Partners: Simon Fraser University (SFU) Finger Food Advanced Technology Group (Unity Technologies)
Partner Co-Investment: $0.3 M
Digital Technology Supercluster Co-Investment: $0.2M
Total Investment: $0.6M

Imagine you are an engineer who needs to document damage on the surfaces of commercial aircraft or large shipping vessels: current technology makes this time consuming, expensive, and challenging work. The ARI project was tasked with designing an augmented reality algorithm that could accurately map a 3-D model on top of a real-world aircraft image in order to improve the safety, accuracy and cost of inspections of these very large objects. The This project was completed in December 2020 and successfully demonstrated that the technology developed could anchor and identify a fixed-point location using a 3-D model on a real aircraft using augmented reality. The research project lays the groundwork to be able to visualize all the important repair and maintenance records for an aircraft live and in 3-D, which will lead to more efficient and intuitive inspections of aircraft.

This project was completed in December 2020 and successfully demonstrated that the technology developed could anchor and identify a fixed-point location using a 3-D model on a real aircraft using augmented reality. The research project lays the groundwork to be able to visualize all the important repair and maintenance records for an aircraft live and in 3-D, which will lead to more efficient and intuitive inspections of aircraft.

Precision Health Program
Improving the prevention, early diagnosis and treatment of disease through innovative digital technologies for better health and wellness for citizens.

Autism Sharing Initiative
Project Lead DNAstack Corp.
Partners: Pacific Autism Family Centre Foundation, Ontario Brain Institute, Molecular You Co., Excelar Technologies (Connected Displays Inc.), The Hospital for Sick Children (SickKids), University of British Columbia (UBC), Roche, Autism Speaks
Partner Co-Investment: $6.9 M
Digital Technology Supercluster Co-Investment: $4.3M
Total Investment: $11.2M

Autism, or autism spectrum disorder, refers to a broad range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. The Autism Sharing Initiative project aims to build the first federated and fully protected global network for sharing genomics and biomedical data to accelerate research to develop precision healthcare approaches for individuals with autism. This project was completed in December 2020 and successfully demonstrated that the technology developed could anchor and identify a fixed-point location using a 3-D model on a real aircraft using augmented reality. The research project lays the groundwork to be able to visualize all the important repair and maintenance records for an aircraft live and in 3-D, which will lead to more efficient and intuitive inspections of aircraft.   This project was recently contracted and is in the early discovery stage. This project is scheduled to complete in June 2022.

Dermatology Point-of-Care Intelligent Network
Project Lead Change Healthcare
Partners: MetaOptima Technology Inc., Careteam Technologies, University of British Columbia (UBC), Providence Health Care, University of Victoria (UVic), BCCancer
Partner Co-Investment: $6.2 M
Digital Technology Supercluster Co-Investment: $3.6M
Total Investment: $9.9M

Imagine being able to quickly diagnose deadly skin cancer with cutting edge technology. Early detection of skin cancer is critical to improving the chances of survival, yet there can be up to a six month wait time to see a dermatologist. By using AI-powered medical imaging that incorporates dermatology and pathology data and images for care providers, patients can get diagnosed in days, rather than months, anywhere in Canada.

As of spring 2021, the first patients have been onboarded into the new DERMINT system through a pilot study that is intended to validate the patient journey, care planning, system usability and effectiveness in order to monitor and support treatment decisions related to skincare conditions including cancer. This project is scheduled to complete in November 2021.

Healthcare to Homecare
Project Lead: XCO Tech Inc
Partners Greenroom Research Inc, iClinic Systems, University of Victoria (UVic), Kinduct Technologies Inc, Ontario Brain Institute
Partner Co-Investment: $1.6 M
Digital Technology Supercluster Co-Investment: $1.0M
Total Investment: $2.6M

The Healthcare to Homecare project will enable and empower seniors to live longer and healthier lives in their own homes. Frailty is a medical condition of reduced function and health in older individuals that increases the odds of developing multiple medical conditions. There are an estimated 3 million frail or pre-frail patients in Canada alone. This project team is developing the Frailty Care System (FCS) to help identify key causal factors of frailty enabling the provision of essential clinical care, remote patient monitoring, and self-care programs leading to improved health. Healthcare to Homecare is the project arising from the feasibility study called Healthcare to Homecare approved in 2020. This project is scheduled to complete in February 2022.

Intelligent Network for Point-of-Care Ultrasound
Project Lead: Providence Health Care
Partners: Natural Sciences and Engineering Research Council of Canada, Canada Foundation for Innovation, University of British Columbia (UBC), Clarius Mobile Health, Change Healthcare, Rural Coordination Centre of BC (RCCBC)
Partner Co-Investment: $1.9M
Digital Technology Supercluster Co-Investment: $0.7M
Total Investment: $2.6M

Ultrasound imaging is used to provide an early diagnosis of many medical conditions, including urgent heart and pregnancy conditions. This project will combine portable ultrasound devices, imaging technology, and machine learning to enable family physicians to make accurate diagnoses, regardless of where patients live. Access to diagnoses made possible with ultrasound is limited by the availability of machines and ability of clinicians to analyze the images. In BC, only 5% of physicians are trained to interpret scans resulting in 40% of patients that are unable to access specialized diagnostic tests or face long wait times. This project is scheduled to complete in February 2022.

To date, 50 probes (or handheld devices) have been successfully deployed in rural settings, with user education and live telehealth support being operational. Work on the AI enabling features of the ultrasound tool are showing strong results. This project is scheduled to complete in June 2022.

Personal Health Wallet
Project Lead: Molecular You Co.
Partners: Mitacs, Molecular You Co., Stone Paper Inc. (Three Lefts), University of British Columbia (UBC)
Partner Co-Investment: $0.8M
Digital Technology Supercluster Co-Investment: $0.5M
Total Investment: $1.4M

By applying blockchain technology to personal health data, individuals will have full custody of their health data in a secure environment. This allows patients to determine with whom they will share their health data, while also providing informed consent for that sharing. Development and pilot testing of the newly patented MyPDx platform has been successfully completed with a major pharmaceutical partner and is underway with a second partner that will demonstrate the platform's capacity to work with new data types. This project is scheduled to complete in December 2021.

Reducing Opioid Use for Pain Management
Project Lead Careteam Technologies
Partners: Providence Health Care, BC Children's Hospital Research Institute (BCCHR), Xerus Medical Inc., Mitacs, University of British Columbia (UBC), National Research Council of Canada (NRC), Thrive Health, Excelar Technologies (Connected Displays Inc.)
Partner Co-Investment: $2.7M
Digital Technology Supercluster Co-Investment: $1.7M
Total Investment: $4.4M

Opioids are recognized as one of the most effective healthcare tools for managing pain. However, their potential dependency has led to opioid abuse that has created a national crisis in North America. Up to 10% of surgery patients who are prescribed opioids may become addicted. Opioids may also present challenges in their use post-surgery by reducing a patient's responsiveness, causing respiratory depression and delirium. This project is developing an active monitoring system to enable physicians to improve pain management, and proactively manage opioid prescriptions and their use in surgery patients to allow for personalized evaluation of a patient's use of opioids and response to pain and optimize treatment. Development and pilot testing of the newly patented MyPDx platform has been successfully completed with a major pharmaceutical partner and is underway with a second partner that will demonstrate the platform's capacity to work with new data types.

As of spring 2021, the project has integrated a full suite of best practice pain management resources into Thrive and Careteam digital platforms in order to support patients in reducing risk of opioid dependence. Surgical patients at St. Paul's Hospital in British Columbia are currently onboarding as part of the pilot study for the Project, with high-risk patients being identified and supported from the start of their surgical journey. This project is scheduled to complete in June 2022.

The Secure Health & Genomics Platform Program
Project Lead: Deloitte
Partners: University of British Columbia (UBC), Genome British Columbia (Genome BC), Lifelabs, Microsoft Corporation, Molecular You Co., DNAstack Corp.
Partner Co-Investment: $2.0M
Digital Technology Supercluster Co-Investment: $1.4M
Total Investment: $3.4M

The Secure Health and Genomic Platform ecosystem set out to create the national digital platform capabilities for using health and genomic data to improve patient health and wellness through precision diagnosis and treatment. Phase I focused on building a health and genomics data library with an opportunity to plan and design for a target state and build a minimum viable product (MVP) solution that will be scalable, cost-effective, open, and interoperable with users engaged from the start. This project was completed in April 2020.

Tailored Health – Pharmacogenetics
Project Lead: TELUS
Partners: Lifelabs, Emily Carr University of Art and Design (ECUAD), GenXys Health Care System, Genome British Columbia (Genome BC)
Partner Co-Investment: $2.7M
Digital Technology Supercluster Co-Investment: $2.1M
Total Investment: $4.7M

This project set out to demonstrate an integrated approach to prescribing medication that would digitally connect testing labs and medication decision support software with electronic medical systems (EMR) and pharmacy management systems. The project sought to leverage pharmacogenetic testing (PGx) to address a significant pharmacological healthcare burden by identifying what medications would be the most appropriate for specific individuals based on multiple variables including genetic make-up.

The project created a framework for technical integration and data governance for exchange of medical data in electronic medical systems to inform medication decision support, and conduct research to further understand physician and pharmacist perception of using PGx in their practice. The project has decided not to continue at this time due to COVID-related priorities. This project is scheduled to complete in July 2021.

TRUSTSPHERE
Project Lead: Careteam Technologies
Partners: Mitacs, MedStack Inc., SecureKey Technologies Inc., Smile CDR Inc., IDENTOS, BC Children's Hospital Research Institute (BCCHR), University of British Columbia (UBC)
Partner Co-Investment: $3.7M
Digital Technology Supercluster Co-Investment: $2.2M
Total Investment: $5.9M

Surveys demonstrate that Canadians want to be able to manage their own health and wellness and to have increased access to digital health tools. The TRUSTSPHERE project aims to create an innovative 'digital circle of care' solution for Canadians through the creation of a platform that will allow users to share confidential information easily and securely with online healthcare services and interact collaboratively with health care providers in compliance with the highest standards of privacy protection.

The Project Team is actively developing and testing the beta stage of the platform through a use case with BC Children's Hospital and pediatric patients that will connect families, caregivers, and clinicians to improve patient-centered care for children with Type 1 Diabetes. This project is scheduled to complete in July 2022.

Workplace Brain Health
Project Lead: InteraXon Inc.
Partners: Hatch, The University of Western Ontario (UWO), Cambridge Brain Sciences
Partner Co-Investment: $1.1M
Digital Technology Supercluster Co-Investment: $0.8M
Total Investment: $2.0M

With 13% of the global population afflicted by some kind of mental health disorder, mental health is of critical importance in the working lives of Canadians. Employers play a vital role in promoting the mental wellness of their employees which can in turn improve productivity. This project is developing a platform using cognitive quantification tools and brain sensing technologies to gather and analyze anonymous brain-health data in order to create a personalized wellness strategy for employees to lead happier and healthier lives.

The first of two clinical studies being trialed with HATCH employees has been completed and are showing very positive preliminary results. R&D points include increased focus, productivity, decreased social anxiety, better awareness of internal states and improved sleep. This project is scheduled to complete in August 2021.

COVID-19 Program
Tackling critical issues in the fight against COVID-19 including how to: improve patient care and outcomes; optimize health systems and decision making; and, test novel approaches to care delivery.

AI-based Prediction Tool for COVID-19 Patient Care
Project Lead: 16 Bit
Partners: Vector Institute, Sunnybrook Research Institute, SofTx Innovations Inc., Roche, London Health Sciences Centre, Layer 6 AI
Partner Co-Investment: $0.6M
Digital Technology Supercluster Co-Investment: $1.3M
Total Investment: $1.9M

There is an urgent need to better anticipate the clinical needs of the healthcare system as the COVID-19 pandemic evolves and the number of Canadians contracting the virus grows. This project is developing a prediction tool using artificial intelligence to help frontline clinicians make better decisions, test solutions with predictive clinical decision support systems, and help administrators and policymakers to better manage hospitalizations of COVID-19 patients and improve their health outcomes for patients.

To date, 16Bit has gathered information on almost 500 inpatients that were admitted due to complications of COVID-19 in an effort to create Canada's largest multi-center public dataset of hospitalized COVID-19 patients. This project is scheduled to complete July 2021.

Clothing to Remotely Connect to Care
Project Lead: Myant Inc.
Partners: Holland Bloorview Kids Rehabilitation Hospital, The Hospital for Sick Children (SickKids), Toronto Rehabilitation Institute (KITE), Southlake Hospital
Partner Co-Investment: $1.1M
Digital Technology Supercluster Co-Investment: $1.1M
Total Investment: $2.2M

This project aims to support virtual healthcare through the application of remote wearable technologies. While virtual healthcare delivered through telephone or video conferencing is being used, its effectiveness is limited because it relies on self-reporting by the patient of health data and symptoms. Textile-based sensors integrated into garments such as tank tops and chest bands can continuously capture critical data such as temperature, heart and lung health, breathing and movement. Leveraging Myant's cloud-based platform, doctors and other health professionals can assess real-time and historical biometric data in conjunction with the patient's existing health information to make more informed clinical decisions and deliver better care faster.

Following the successful alpha release of the Skiin Health App, which includes a real-time signal capture and display of a person's heart rate, resting heart rate, ECG, activity, posture, location and body temperature, a beta launch has commenced, with a scheduled Canadian consumer launch in Spring 2021. Clinical trials are underway to monitor ECG in patients' homes using this wearable technology. This project was completed in March 2021.

Confidential Virtual Addiction Treatment for Healthcare Workers
Project Lead: ALAViDA
Partners: Pacific Blue Cross, Health Sciences Association, Hospital Employees Union, BC Nurses Union (BCNU), Digital Health Circle, Fraser Health Authority, HealthCare Benefit Trust BC GEU, PORTAGE LEGAL SERVICES
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.8M
Total Investment: $1.0M

COVID-19 has layered a second public health emergency on top of the ongoing opioid epidemic and healthcare professionals, faced with unprecedented demands, are at an increased risk for substance use and abuse. This project is delivering an on-line virtual care addiction treatment program that is powered by AI that will enable healthcare workers to have access to confidential evidence-based treatment options no matter where they are.

The program was made available to over 34,000 frontline workers in the Fraser Health region and growing. The project exceeded its engagement targets in the Proof-of-Concept phase and succeeded in its mission to provide critical healthcare workers 100% confidential, virtual, evidence-based treatment options for SUD. Achieving this, the project has built a strong business case for widespread adoption of pre-disability SUD treatment and the incorporation of this form of treatment into existing employee benefit plans. To date, the technology and treatment platform have been deployed with PPI Insurance, TIPI Insurance Partners, Cowan Insurance, Benefits Plan Administrators, MyHSA, League and Pacific Blue Cross among others. This project was completed in May 2021.

COVID Cloud
Project Lead: DNAstack Corp.
Partners: Vector Institute, McMaster University, Genome British Columbia (Genome BC), BioSymetrics, Sunnybrook Research Institute, Ontario Genomics Centre of Genomics and Policy, McGill University, Microsoft Corporation, FACIT Inc., Roche, Mannin Research, Ontario Institute for Cancer Research
Partner Co-Investment: $1.9M
Digital Technology Supercluster Co-Investment: $3.2M
Total Investment: $5.1M

As COVID-19 continues to spread globally, there remains an urgent need to understand the DNA footprint of this virus and its new variants. Large volumes of genomic sequencing data are being generated to help understand, predict and treat COVID-19. The COVID Cloud platform enables the sharing of data using industry standards and provides scientists and decision makers with better information about COVID-19 derived from real-time genomics, clinical, epidemiological, and other data. COVID Cloud is the project arising from the feasibility study called Beacon - Realtime Data Sharing Network approved in 2020 (Lead: DNAStack; Partners: Global Alliance for Genomics and Health, The Hospital for Sick Kids; Total Budget: $295K; Supercluster funding: $250K)

Technical development of the COVID Cloud platform remains ongoing as partnerships have been established with both Ontario's Ministry of Health and Ontario Genomics to deploy COVID Cloud as a solution to support provincial COVID surveillance and the effectiveness of public health measures. The COVID Cloud platform was selected by CanCOGeN to deliver, alongside other groups, a national data sharing platform that will enable countrywide variant surveillance. This project was completed in April 2021.

Digital Mental Health Tools for Healthcare Workers Providing COVID-19 Care
Project Lead: Starling Minds
Partners: Genome British Columbia (Genome BC), University of British Columbia (UBC)
Partner Co-Investment: $0.5M
Digital Technology Supercluster Co-Investment: $2.0M
Total Investment: $2.5M

Healthcare workers in general suffer from more stress, anxiety, trauma and depression than most other occupations—an issue that has been exacerbated with the onset of COVID-19. This project aims to leverage Starling Minds' suite of best-practice digital mental health tools to develop new programs focused on prevention and intervention that are specific to healthcare workers. The project has also expanded its scope to include teachers given evidence of high mental health burdens faced by these professionals during the pandemic.

As of April 2021, Starling Minds' mental health care platform was available to 30,000 health care workers across Fraser Health Authority in British Columbia, and was available to over 200,000 educators, principals and vice principals across Canada. This project was completed in June 2021.

Digital Telework for Remote Physical Work
Project Lead: Sanctuary Cognitive Systems Corporation (Sanctuary AI)
Partners: Expeto Wireless Inc. (Expeto), Revera, University of British Columbia (UBC), Alpine Building Maintenance, Microsoft Corporation, Forcen, Blackbird Interactive Inc.
Partner Co-Investment: $1.7M
Digital Technology Supercluster Co-Investment: $4.0M
Total Investment: $5.7M

Physical interactions in labour intensive environments, such as healthcare, contribute to the spread of COVID-19 amongst healthcare workers and vulnerable populations. This project aims to expand beyond the existing use of video and audio technologies for the virtual work environment to include remote physical work by demonstrating the use of robots in long-term care and clinic settings using 4G/5G networks and digital medical tools such as digital stethoscopes and biometric monitoring to improve patient care, patient outcomes, and the work environment for healthcare teams

The project has successfully established a digital learning environment to support AI model development, refined robot piloting capabilities for the healthcare setting, and is currently validating the robot capabilities in a testing environment. This project was completed in May 2021.

DirectFood.store (DFS): Securing the Food Supply Chain
Project Lead: Wisebox Solutions Inc.
Partners: D-Wave Systems, i-Open Technologies, Novex Delivery Solutions
Partner Co-Investment: $0.5M
Digital Technology Supercluster Co-Investment: $1.0M
Total Investment: $1.5M

In response to the challenges created and enhanced by the pandemic, this project further develops and scales the DirectFood.store (DFS) platform, addressing challenges to the supply chain, promoting healthy eating, responding to evolving consumer preferences, enabling traceability and transparency in the supply chain, and adapting to the Internet grocery revolution. DFS will transform the food supply chain with a more transparent and traceable experience for producers, restaurants, and consumers through the further development of a first of its kind traceable, direct-to-consumer digital marketplace for producers.

DirectFood.store's South Carolina region has officially launched, and they are now a member of the South Carolina Department of Agriculture's Certified program as well as the Organic Trade Association. DirectFood.store's platform was recently showcased at the South Carolina Agriculture Convention where over 1,000 farmers attended. In the Greater Vancouver region (serving Chilliwack through Vancouver, BC), DirectFood.store has fully deployed to over 60 vendors with over 900 products available. This project is scheduled to complete July 2021.

Early Detection of COVID-19 through AI
Project Lead: Patriot One Technologies Inc.
Partners: University of British Columbia (UBC), Cisco Systems Canada Co., Cincinnati Reds Stadium
Partner Co-Investment: $0.7M
Digital Technology Supercluster Co-Investment: $4.5M
Total Investment: $5.2M

Early detection and mitigation of potential infections of COVID-19 is critical to flattening the curve and minimizing future waves of pandemic outbreaks. Current testing and screening require close contact to measure body temperature on an individual basis. Being able to screen large numbers of people in venues such as arenas, stadiums, hospitals, stores, and airports will be an important tool to ensure the health and safety of Canadians. This project applies computer vision and machine learning technologies to develop an AI powered monitoring system to screen for elevated temperatures, social distancing violations, and face covering compliance to protect the health and safety of Canadians.

As of spring 2021, Patriot One, has successfully integrated new health and safety features into its existing PATSCAN video recognition system, which works with commodity-priced thermal cameras and any IP based optical camera. These new AI-powered features include social-distancing non-compliance detection, missing mask detection, and elevated temperature screening analytics. This project is scheduled to complete August 2021.

Emergency Food Distribution Network
Project Lead: FoodMesh
Partners: Traction on Demand
Partner Co-Investment: $0.4M
Digital Technology Supercluster Co-Investment: $2.0M
Total Investment: $2.4M

In Canada, 58 percent of food produced is either lost or wasted. Meanwhile, more than one in eight families don't have access to a safe and secure food supply. Wasted food is a local and global problem, with steep economic, environmental and societal costs. These impacts have been magnified during the COVID-19 pandemic, due to volatility in the supply chain. This project seeks to improve and expand the FoodMesh platform to serve as an Emergency Food Distribution Network, enhancing efficiency of the food supply chain and better connecting farmers, suppliers, buyers, and charities.

An MVP of the Community portal has been completed and is ready to demo and Marketplace 2.0 has been completed. The Pilot with United Way has allowed charities to access food at wholesale prices while significantly increasing revenue to grocers. The Marketplace 2.0 pilot helped secure a $6 million purchase order from Food Banks BC to build an emergency food purchase program over 3 years, province wide, a key component of the EFDN. This project is scheduled to complete November 2021.

Global Clinical Network for Infectious Diseases
Project Lead: Spectrum MD
Partners: New York City Department of Health, Vitalite Health Network, Nova Scotia Health Authority, Alberta Health Services, Horizon Health Network, Massive Change Network, Fraser Health Authority, Saskatchewan Health Authority (SHA), Enso, National Collaborating Centre for Infectious Diseases (NCCID), Finger Food Advanced Technology Group (Unity Technologies)
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $2.3M
Total Investment: $2.6M

HEALTHYACCESS
Project Lead: Invixium Access Inc.
Partners: Manawa Networks, InventCanada Innovations Inc., Mara Technologies Inc.
Partner Co-Investment: $0.8M
Digital Technology Supercluster Co-Investment: $0.9M
Total Investment: $1.6M

As the economy re-opens, companies will have to abide by public health guidelines and ensure their employees are safe. A critical component to workplace safety is the ability for companies to screen employees and visitors for COVID-19 upon entry to buildings in a simple, fast and cost-effective manner. This goal of HEALTHYACCESS was to develop a comprehensive solution for access control and workforce management by augmenting Invixium's IXM TITAN face recognition product with technological enhancements to offer rapid, touchless, and hygienic thermal screening, mask detection, and vital signs monitoring for employees and visitors. The solution will be extensible to enhance worksite safety with integrations to building management systems to allow for transactional contact tracing capabilities to ensure healthy access for businesses and industries globally.

Invixium is gaining market traction and adoption with the deployment of their IXM TITAN with Enhancement Kit for touchless face recognition and an employee wellness screening solution with installations in North America, the Middle East, Africa, India, and Europe. This project was completed in March 2021.

Improving ICU Capacity During COVID-19 Outbreaks
Project Lead: Altis Labs Inc.
Partners University Health Network, Bayer, Quantitive Imaging for Personalized Cancer Medicine, Trillium Heath Partners (THP)
Partner Co-Investment: $0.4M
Digital Technology Supercluster Co-Investment: $0.9M
Total Investment: $1.3M

Hospital intensive care units (ICUs) cater to patients with severe illnesses requiring constant monitoring and specialized treatment including ventilation. Pandemics like COVID-19 significantly increase the risk of ICU overcrowding given the surge in patients, which negatively impacts the quality of care. This project will develop software that predicts patients' risk of ICU admission and expected length of ICU stay based on patients' medical imaging. The software will enable hospitals to better manage and predict ICU capacity leading to better care and outcomes for patients.

Working actively with its hospital partners in Toronto, the project lead has received Research Ethics Board (REB) approval to gather the clinical data necessary for the project. Clinical data has been de-identified and made accessible to designated researchers in a secure environment within the hospitals' network to allow for the development and training of the predictive algorithm that is the core goal of the project. This project is scheduled to complete December 2021.

Leveraging AI in Canada's Social Response to COVID
Project Lead: HelpSeeker Inc
Partners: Canadian Mortgage and Housing Corporation, Corsac Technologies Corporation, York University, AltaML, A Way Home Canada, Canadian Observatory on Homelessness, University of Calgary
Partner Co-Investment: $0.1M
Digital Technology Supercluster Co-Investment: $0.6M
Total Investment: $0.7M

Despite the $280 billion spent on the Canadian social services sector every year, more data is needed to follow changes in demand and service provision. In support of a collective effort to strengthen Canada's response to COVID-19 and our country's recovery capacity, Canada's top social researchers and machine-learning experts have partnered to develop a predictive algorithm to better anticipate occurrences of homelessness, suicide, and domestic violence. The InnSoTech AI platform provides real-time data and insights to predict community and social support needs before they become crises for evidenced-based decision making.

The project completed in spring of 2021, with successful development of the InnSoTech algorithm, which is now being utilized by multiple cities across Alberta to enumerate homelessness during COVID-19. This project was completed in February 2021.

Lifesaver II
Project Lead: Finger Food Advanced Technology Group (Unity Technologies)
Partners: Matidor.com, Eventbase Technology, MNP, University of British Columbia (UBC)
Partner Co-Investment: $1.2M
Digital Technology Supercluster Co-Investment: $2.9M
Total Investment: $4.0M

Given the size and diversity of our country, a one-size-fits-all COVID-19 solution does not make sense for all of Canada. In response, Unity Technologies is leading LifeSaver, a project under the COVID-19 Program that aims to fill information gaps by consolidating and harmonizing vast arrays of data in order to synthesize and display relevant, meaningful information for businesses and the general public. Lifesaver II is the project arising from the feasibility study called Lifesaver - Predicting Emerging Pandemics approved in 2020. The team has created a ready-to-use application, called CovidPilot, that provides clear geospatial visualization of the COVID-19 exposure risk that is relevant, predictive, and easily understandable for a wide range of users. This project was completed in February 2021.

Looking Glass: Protecting Canadians in a Return to Community
Project Lead: Kings Distributed Systems Ltd.
Partners: Distributed Computer Labs, Limestone Analytics, aiSight Inc., Queen's University
Partner Co-Investment: $0.9M
Digital Technology Supercluster Co-Investment: $1.3M
Total Investment: $2.2M

Clear, evidence-based understanding of the impact of decisions made to protect the health of Canadians is needed to inform good policy making at all times but especially during a pandemic. This project team took on the challenge of developing a scenario-driven, decision support platform based on robust modelling in order to better inform public

policy and practice, for government and industry, as physical distancing measures, reopening of schools and businesses, and widespread testing are considered, and the country looks towards a return to work and community.

Completing in spring 2021, this project has resulted in the successful development of a user-friendly, web-based application for use by policy makers at all levels of government. Behind the application are two innovative predictive modelling tools, able to process large amounts of data through a one-of-a-kind distributed computing model. This project was completed April 2021.

Mobile Wellness Declaration
Project Lead: BioConnect
Partners: Mara Technologies Inc, Suprema
Partner Co-Investment: $0.4M
Digital Technology Supercluster Co-Investment: $0.6M
Total Investment: $0.9M

In preparing for the return to work and society, employees and residents in high density buildings are vulnerable for contracting viruses such as COVID-19. This project developed a digital COVID-19 screening tool, incorporating a wellness declaration and temperature scanner, that can be integrated into existing keycard access systems. This will mitigate the spread of COVID-19 by preventing potentially ill people from entering buildings and keeping workers, visitors, and residents in long-term care facilities safe.

In fall 2020, MaRs Discovery District selected BioConnect's platform to expand from using the Wellness Check at the main point of entry at to all exterior entry points, screening over 200 people per day in line with new mandates set out by Ontario's Ministry of Health. This project was completed February 2021.

Point-of-Care Ultrasound for COVID
Project Lead: Providence Health Care
Partners: Rural Coordination Centre of BC (RCCBC), University of British Columbia (UBC), Change Healthcare, Clarius Mobile Health, Vancouver Coastal Health (VCH)
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.5M
Total Investment: $0.7M

Rapid, accurate diagnosis of potential COVID-19 patients is critical for patient care and to better understand community infection and spread. This project is an augmentation of the Intelligent Network Point-of-Care Ultrasound project and aims to use a handheld ultrasound device powered by artificial intelligence to provide real-time diagnosis of patients with pneumonia, potentially caused by COVID-19. Frontline workers, particularly in rural and remote areas, will be supported through the development of virtual training, remote clinical support, and artificial intelligence tools to rapidly identify COVID-19 lung abnormalities and provide a clinical decision support tool.

As of spring 2021, the project has deployed ultrasound devices to clinicians, completed education and peer support for the COVID context, and has completed nearly 70% of the necessary lung ultrasound scans. This project is scheduled to complete July 2021.

Project ABC
Project Lead: Cambian Business Services, Inc.
Partners: IBM Canada Ltd., Simon Fraser University (SFU), Shift Health Paradigms Ltd. (Tickit Health), Providence Health Care, Inc. Digital Health Circle, WELL Health Technologies Corp., Mitacs, Lifelabs
Partner Co-Investment: $1.0M
Digital Technology Supercluster Co-Investment: $3.0M
Total Investment: $4.0M

To manage the COVID-19 pandemic, healthcare organizations need to implement broad-based testing and vaccination campaigns at a scale and pace never before undertaken. This project is introducing new digital technologies that automate processes for registration, booking, and service delivery of tests and vaccines. The solution addresses legacy, paper-based manual workflows and delivers accurate and efficient recording of vaccination information with a streamlined clinical workflow. The platform is flexible and can be integrated with other systems including public websites, EMRs, and pharmacy systems.

As of spring 2021, the Project Team has developed a suite of enhanced, integrated digital tools, including citizen self-scheduling, priority sequencing, and demand forecasting, enabling mass testing and immunization campaigns for COVID and other infectious diseases, in a more efficient, secure, and accurate way than ever before. This project is scheduled to complete July 2021.

Project ACTT - Access to Cancer Testing & Treatment in Response to Covid-19
Project Lead: Canexia Health
Partners: Novartis, Pfizer, Nova Scotia Health Authority, Lifelabs, Illumina, GenoLife, Semaphore Solutions, Health Novateur Ventures Inc., Eastern Ontario Regional Laboratory Association (EORLA), AstraZeneca, Xtract Technologies Inc. (Xtact AI), Queen's University
Partner Co-Investment: $1.0M
Digital Technology Supercluster Co-Investment: $1.6M
Total Investment: $2.6M

Since March 2020, the COVID-19 pandemic has contributed to the delay or postponement of at least 100,000 surgeries in Canada, including cancer tissue biopsies, putting patients at risk and creating an immense backlog in the healthcare system. Project ACTT is helping to address the issue by deploying a minimally invasive circulating tumour DNA (ctDNA) test, known as liquid biopsy, as an alternative to some surgical tissue biopsies. The test will be optimized through deep learning and will incorporate an automated treatment recommendation system as well integrate with labs and healthcare data repositories.

More than 1,600 Canadian cancer patients have received this test to date and 50% of tests have resulted in reportable findings. The consortium is developing a localized provincial testing infrastructure through partnerships with large academic hospital and community labs. This project is scheduled to complete July 2021.

Protecting Canadians by Predicting the Evolution of COVID-19
Project Lead: Terramera Inc
Partners: Microsoft Corporation, ProMIS Neurosciences. Inc., University of British Columbia (UBC), Menten AI Canada, Inc
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $1.8M
Total Investment: $2.0M

Canada will need to prepare for inevitable future "waves" of COVID-19 as new strains are likely to evolve. The ability to predict virus variations even before they emerge will be essential to stopping future pandemics. This project brings together a select group of world-class artificial intelligence, computer modelling, and structural biology researchers to forecast changes to the virus so we can pre-design tests, therapies and vaccines to manage future outbreaks. These models can significantly reduce the response time to deploy new diagnostics and medicines to help protect Canadians.

To date, an algorithm has been developed to predict the structure of the coronavirus and its variants and there is an enhanced understanding of the folding complex proteins. This project was completed in May 2021.

Providing Safe and Effective Home Care During COVID-19
Project Lead: Alaya Care Inc.
Partners: ParaMed, AceAge inc, e-Cobalt, Careteam Technologies, Saint Elizabeth Health Care, Partners In Community Nursing (PICN), Acclaim Health, University of Victoria (UVic), Bayshore Health
Partner Co-Investment: $0.7M
Digital Technology Supercluster Co-Investment: $1.0M
Total Investment: $1.6M

Home care patients and their caregivers are at risk of being squarely in the next wave of COVID-19 victims. Preventing the spread of COVID-19 with this vulnerable population is essential to reduce hospitalizations and prevent avoidable burden on the healthcare system. However, traditional homecare provides a significant challenge with respect to COVID-19 due to the multiple visits many patients receive from various care workers. To combat these challenges, this project will significantly increase the functionality of AlayaCare's existing digital toolkit and accelerate the ability to deliver the COVID-19 specific functionality, including scheduling algorithms, employee and patient pre-screening, and alerting service providers in real-time about symptomatic employees or patients.

Canada-wide adoption of COVID patient and employee screener forms across AlayaCare's customer base with over 470,000 screener forms completed since the start of the project. This project was completed in April 2021.

Rapid Assessment of Disability Claims During and Post COVID-19
Project Lead: Owl Labs Inc.
Partners: Labarge Weinstein LLC, Deloitte, Reinsurance Group of America (RGA), Royal Bank of Canada Insurance (RBCI)
Partner Co-Investment: $4.2M
Digital Technology Supercluster Co-Investment: $4.4M
Total Investment: $8.6M

The COVID-19 pandemic has resulted in an exceptionally large increase in life and disability claims. This project aims to monitor eligibility of such claims for more streamlined processing of claims as well as reducing the financial impact of malingered claims. The goal is to minimize the broad financial impact of COVID-19-driven claims on Canadians by minimizing the expected increase on insurance premiums for Canadians and their employers resulting from those malingered claims.

Version two out of an anticipated five versions of the product has been completed and is already experiencing strong commercial traction. Five pilots are demonstrating at least a 4-5x ROI, identifying approximately $1M in ineligible claims. This project is scheduled to complete in February 2022.

Rapid Deployment of Emergency Case Management
Project Lead: Careteam Technologies
Partners: Regional Geriatric Program of Eastern Ontario, Alaya Care Inc., The Ottawa Hospital, Caredove CognisantMD
Partner Co-Investment: /
Digital Technology Supercluster Co-Investment: $0.5M
Total Investment: $0.5M

More than half of Canadians face an increased risk of COVID-19 because they are seniors or have an underlying health condition. This risk is increased due to a lack of communication and coordination tools that allow organizations to connect and share information with each other as well as with patients and their caregivers. This project aims to change this through a digital platform that brings together both health and social service organizations so they can share personalized care plans, communicate about case management and conduct online assessments of both COVID-19 and regular health statuses. It gives patients and caregivers a convenient hub for online check-ins, an easy way to make service requests, and a way to receive tailored information and resources.

As of spring 2021, the platform has been broadly deployed in the Ottawa region including hospitals and community services, through the Regional Geriatric Program of Eastern Ontario and the regional Dementia Society. A second pilot deployment is underway in Sault St. Marie. Feedback from both pilots has been extremely positive in terms of patient empowerment and better access to care resources. This project is scheduled to complete in June 2021.

Raven 2
Project Lead: Variational AI Inc.
Partners: adMare Bioinnovations, University of British Columbia (UBC)
Partner Co-Investment: $0.3M
Digital Technology Supercluster Co-Investment: $1.6M
Total Investment: $1.9M

Despite the approval of COVID-19 vaccines, there remains a need for broad-spectrum coronavirus antiviral therapeutics. Both are needed for an effective pandemic response. Raven2 is a digital/computational platform powered by Variational AI's proprietary generative AI algorithm. The algorithm is trained based on experimental and computational drug discovery data provided by the Vancouver Prostate Center/University of British Columbia and from publicly available sources to generate new and better small molecules more quickly than current methods. RAVEN2 is the project arising from the feasibility study called RAVEN - Rapid Repurposing of Drugs for COVID-19 approved in 2020 (Lead: Variational AI; Partners: AdMare BioInnovations; Total Budget: $500K; Supercluster funding: $250K)

The trained model has generated almost fifty novel compounds to date that are predicted to bind to the target site of the virus and validation in assays will begin shortly with medicinal chemistry efforts from adMare. This project is scheduled to complete in August 2021.

Reduce Risk: Post-COVID Analytics Platform for Returning to Work
Project Lead: Molecular You Co.
Partners: AltaML, MRM Proteomics Inc., Roche
Partner Co-Investment: $0.8M
Digital Technology Supercluster Co-Investment: $1.4M
Total Investment: $2.2M

Employees are eager to return to work, yet there is no accurate method available to know if an individual is safe to return to work. While physical distancing and safety requirements can protect people, what is needed is a tool that can rapidly assess a person's risks from the virus and can predict post-infection situations. The Reduce Risk project will enable a rapid-risk assessment by collecting data in a single place to analyze it and create models of the disease, allowing us to better understand how the body responds to COVID-19. The new analytics platform will include a safe and secure central data warehouse with one of the largest sets of high-dimensional COVID-19 patient data. The platform will also include artificial intelligence and machine learning tools that will accelerate analysis and generate new knowledge.

As of spring 2021, the project team has collected the necessary clinical data to develop and train an algorithm that will be able to provide the severity of COVID-19 in uninfected individuals. Once complete, the results of this project will enable employers and employees to confidently manage safe return to work planning through deeper, more accurate insights around at-risk patients. This project is scheduled to complete in November 2021.

ReSTART: Post-COVID Surgeries and Medical Procedures
Project Lead: SeamlessMD
Partners: Sinai Health System, Unity Health Toronto, Toronto East Health Network, Excelar Technologies (Connected Displays Inc.), Xerus Medical Inc., AltaML
Partner Co-Investment: $0.1M
Digital Technology Supercluster Co-Investment: $1.6M
Total Investment: $1.7M

The backlog of elective surgeries and other medical procedures due to COVID-19, such as endoscopies and chemotherapy, is estimated in the hundreds of thousands across Canada. It could take 5 five to ten10 years to clear the backlog, even by performing more surgeries than before the crisis. The ReSTART project aims to help tackle the backlog and prevent a resurgence of COVID-19 in the healthcare system through an end-to-end digital solution that can more effectively manage surgical services, by allowing patients to remotely complete preoperative assessments, COVID-19 screenings, and access educational content on how to prepare for their surgery. The machine learning incorporated into the system will use health record data to predict cancellations, readmissions and emergency visits, and help forecast the urgency and prioritization of cases.

Over 500 patients at five hospital sites across Ontario have been enrolled into the ReSTART surgery platform to date. Four hospital organizations (Toronto East Health Network, Unity Health, Sinai Health, and St Joseph's Health Hamilton) have gone live with the platform via integration with their electronic health records and surgical scheduling systems. This project is scheduled to complete in August 2021.

Scaling Safe Food Delivery for Canadians
Project Lead: Food-X Technologies
Partners: Routific, ETG Consulting Inc, Microsoft Corporation, OpsGuru, AltaML
Partner Co-Investment: $0.9M
Digital Technology Supercluster Co-Investment: $2.6M
Total Investment: $3.4M

The substantial increase in demand for online grocery orders amplified by the COVID-19 environment has made it difficult for grocers to keep up with demand and stay in business. In response, Food-X and its partners launched this effort to develop and deploy an e-grocery management system to ensure fresh food is delivered safely to our frontline workers and patients at scale. This project is developing an end-to-end eGrocery Management solution to address the unprecedented demand for online sales and ensure food security for Canadians through better food supply chain management. Scaling Safe Food Delivery for Canadians is the project arising from the feasibility study called Feeding the Frontlines, approved in 2020.

The project has developed and deployed foundational software in Canada for supply chain management and logistics, and landed a significant partnership with Carrefour, one of the world's largest grocers. The project lead has more than

doubled their tech team from 25 to 60 employees and is on track to add 40+ new hires. This project is scheduled to complete in October 2021.

Screen O/S
Project Lead: Gemina Labs
Partners: Nomadic Pictures, University of British Columbia (UBC), Thunderbird Entertainment, Patriot One Technologies Inc.
Partner Co-Investment: $0.5M
Digital Technology Supercluster Co-Investment: $0.5M
Total Investment: $1.0M

Up to 40 per cent of COVID-19 transmissions come from people with pre-symptomatic and asymptomatic disease, Gemina Labs (formerly Eco-Screen Solutions) is now leading Screen O/S, a project initially focused on improved screening for the education sector and film industry. The team is working on a solution for instantly screening pathogens in order to provide reliable and anonymized risk reporting to leaders and regulators, as well as secure and private results directly to students and employees. Screen O/S is the project arising from the feasibility study called Risk Management Frameworks for Workplace Safety approved in 2020 (Lead: EcoMine Technologies; Partners: UBC, Patriot One Technologies; Total Budget: $175K; Supercluster funding: $87.5K)

Gemina has developed an on-the-spot digital certificate through their digital application, Testpoint, which pairs a physical test with a mobile application and provides a digital risk management system for workplaces. This solution was successfully deployed at a food processing facility in Alberta, where an exposure risked the shutdown of the entire facility. Gemina is currently focused on producing their own proprietary saliva-based test that detects the COVID-19 virus directly in minutes. This project is scheduled to complete in June 2021.

Stronger Together: Social Infrastructure for Community Health
Project Lead: Curatio Network
Partners: OnCall Health Inc, Wellness Garage, Simon Fraser University (SFU), University of British Columbia (UBC), Zu.com, Pacific Blue Cross, Cloud DX
Partner Co-Investment: $0.5M
Digital Technology Supercluster Co-Investment: $1.4M
Total Investment: $1.9M

The Stronger Together project is helping to care for out-patients at home during the pandemic, especially those that are frail, vulnerable, and isolated. The initiative uses Curatio's platform to deliver peer support, coaching from nurses and experts, evidence-based health literacy programs, and daily check-ins for both patients and families. The platform is privacy and regulatory compliant. Cloud Dx integrates remote patient monitoring and with secure technology, streamlines clinician workflow to monitor vital signs from anywhere.

Thirteen 'communities' have been established within the Curatio platform in a variety of areas including stroke recovery, respiratory health and wellbeing, prostate cancer, plan to move your kids, parenting during COVID-19, keeping mentally strong with multiple myeloma, disability and physical activity, cardiovascular health and wellbeing, COVID-19 survivors and long haulers, and 4+2 diabetes reversal strategy. Survey results from clinicians and patients show a 92% overall approval rating of the app. This project was completed in March 2021.

Supporting Canada's Elderly During the COVID-19 Pandemic
Project Lead: 3D Bridge Solutions Inc.
Partners: Censeopharm Consulting Inc.,Wescana Pharmacy Group Prolucid Technologies Inc., Careteam Technologies, MedStack Inc., SnapPea Design, Wellness Pharmacy Group
Partner Co-Investment: $0.2M
Digital Technology Supercluster Co-Investment: $0.7M
Total Investment: $0.9M

The elderly in Canada have been hardest hit by the COVID-19 pandemic as the disease spread quickly inside long-term care homes. This project will develop a digital hub that controls a tamper-resistant e-dispenser. This new tool will allow the elderly to access their medications wherever they are living, with remote support from caregivers and medical professionals who can monitor their medication intake in real-time. The system will also allow healthcare practitioners to determine if there is a pattern of not taking their prescriptions. The first prototype of the hardware has been completed. This project is scheduled to complete in November 2021.

Telewound Care Canada
Project Lead: Swift Medical
Partners: Central East Local Health Integration Network (CE LHIN), The Research Institute of the McGill University Health Centre, University Health Network, SE Health, Alaya Care Inc.
Partner Co-Investment: $0.5M
Digital Technology Supercluster Co-Investment: $2.5M
Total Investment: $3.1M

In Canada, 30-50% of all health care involves a wound, accounting for approximately 3% of the national health care spend or $4 billion annually. COVID-19 has exacerbated the impact of wounds on patients and the system as the older, co-morbid population at the highest risk for wounds is also at the greatest risk for COVID-19 complications. Telewound Care solution combines high resolution, calibrated images with sub-millimeter accuracy and intelligent lighting calibration along with AI and deep learning to enable early identification of patients at the hightest risk of new or worsening wounds to support proactive care intervention.

Telewound Care Canada recently launched in four innovative virtual wound care programs throughout Ontario and Quebec. The AI-powered wound care enhances the quality of images as well as the accuracy of measurements and assessments enabling high-quality consultations during the pandemic. Early feedback from clinicians was also very positive in terms of both usability and performance. This project is scheduled to complete in July 2021.

Virtual Pulse
Project Lead: TTA Technology Training Associates Ltd.
Partners: CAE Inc., Finger Food Advanced Technology Group (Unity Technologies), British Columbia Institute of Technology (BCIT), Animism Studios
Partner Co-Investment: $1.0M
Digital Technology Supercluster Co-Investment: $2.2M
Total Investment: $3.2M

The Virtual Pulse project is building a digital training platform that brings together an extended reality training tool using the web and virtual reality modules. Virtual Pulse's simulations will recreate real-life clinical situations. This will help develop clinical reasoning abilities, which are a combination of cognitive, psychomotor and affective skills required to meet patients' health needs. The demand for nurses and other health providers in Canada is so acute that hospitals and healthcare facilities are re-training staff for new roles. In addition, healthcare professionals are seeing a drop in applied skills, clinical reasoning, and procedural memory, as their time becomes dominated with COVID-19 specific care. Further, physical distancing has created additional barriers to traditional medical training. Virtual Pulse will better prepare health care professionals, ensuring they have the tools they need to face these challenges.

As of spring 2021, thirteen virtual simulation modules plus one virtual reality experience have been developed and tested successfully. The COVID module has been taken by over 1,800 Frontline Registered Nurses, and the Project Lead is exploring plans to translate various modules to ensure they are accessible in both Canada's official languages. This project is scheduled to complete in November 2021.

xrAI
Project Lead: 1QB Information Technologies Inc. (1QBit)
Partners: Vancouver Coastal Health (VCH), Saskatchewan Health Authority (SHA), First Nations Health Authority, Fraser Health Authority, Trillium Heath Partners (THP), Microsoft Corporation
Partner Co-Investment: $0.8M
Digital Technology Supercluster Co-Investment: $2.0M
Total Investment: $2.8M

X-rays are a critical tool in identifying COVID19 patients. This project uses artificial intelligence to identify lung abnormalities on chest x-rays in real-time, enabling clinicians on the frontline in emergency rooms and rural hospitals to better identify COVID-19 and other lung-related illnesses. In the hands of clinicians, this tool can improve patient outcomes and save lives.

As of spring 2021, the first successful deployment of the technology has taken place in Ontario, with Trillium Health Partners. Further deployments are planned for health organizations in Saskatchewan and British Columbia, across both rural and urban settings by August 2022. This project is scheduled to complete in August 2022.