2021/22

Deputy Ministers' Committee on Digital and Data

Digital Investment Annual Report

BRITISH
COLUMBIA

Ministry of
Citizens' Services

Message from the Chair

On behalf of the Deputy Ministers' Committee on Digital and Data (the Committee), I'm pleased to present the Committee's 2021/22 annual report about our digital investments. We prepare and publish these reports each year to promote transparency and accountability about our digital investments.

It wasn't that long ago that most of us accessed government services in person, over the phone or by mail. Today, however, most of us regularly use the internet and expect government services to be simple, designed around user needs and available through multiple channels, including online.

The Deputy Ministers' Committee on Digital and Data has been investing in digital projects that help ministries address this change in the way people access services. Since 2011/12, we have invested $622 million in 249 projects that are building inclusive, reliable and easy-to-use services for people in British Columbia. Over that time, the annual capital budget for technology has grown from $20 million to $110 million. This reflects the fact that technology now underpins every government program and service.

This report highlights the impacts of our capital funded digital projects in 2021/22. These accomplishments demonstrate our commitment to delivering better services for people in British Columbia. In this year's report, you'll learn how our investments are providing people with secure digital access to their own health information, modernizing the way people register businesses in British Columbia, expanding support for people evacuated during emergency events and more. In section 4 of this report, we also discuss how the way we fund, manage and deliver technology and digital services is evolving.

I'd like to recognize digital teams across government for their dedication in providing modern services to people in British Columbia. These dedicated public servants are critical to the successes you will read about in this report. On behalf of my fellow committee members, thank you.

I'd also like to recognize my fellow committee members for their commitment in driving a coherent, results-oriented vision for digital products that help people and businesses. I'm proud to work alongside these leaders - together improving the services that people count on.

Sincerely,

Shauna Brouwer
Chair, DMCDD

September 2022

Meet the Deputy Ministers' Committee on Digital and Data

Shauna Brouwer
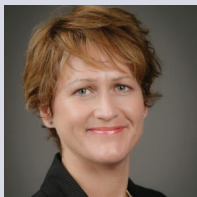Deputy Minister, Citizens' Services (CITZ)

David Galbraith
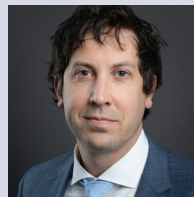Deputy Minister, Social Development and Poverty Reduction (SDPR)

Allison Bond
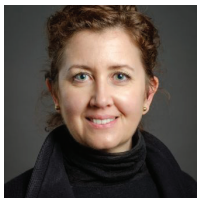Deputy Minister, Children and Family Development (MCFD)

CJ Ritchie
Associate Deputy Minister & Government Chief Information Officer (CITZ)

Shannon Baskerville
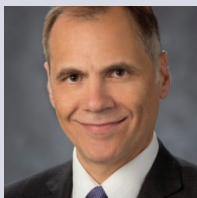Deputy Minister, Advanced Education, Skills and Training (AEST)

Jonathan Dube
Associate Deputy Minister, Health (HLTH)

Christina Zacharuk
Deputy Minister, Education and Child Care (EDUC)

Tiffany Ma
Assistant Deputy Minister and Deputy Secretary to Treasury Board, Finance (FIN)

Kevin Jardine
Deputy Minister, Environment and Climate Change Strategy (ENV)
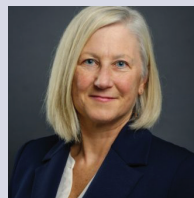
Christine Massey
Deputy Minister, Mental Health and Addictions (MHA)

Lori Halls
Deputy Minister, Lands, Water and Resources Stewardship (LWRS)

Mark Sieben
Deputy Minister, Premier's Office (PO)

Shannon Salter
Deputy Attorney General, Ministry of Attorney General (AG)

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Digital Investment in the Government of B.C.

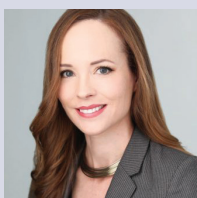## The Role of the Deputy Ministers' Committee on Digital and Data

In March 2022, the former Digital Investment Board was renamed the Deputy Ministers' Committee on Digital and Data. The Committee sets the strategy for digital service delivery, technology and data across government. This involves developing and overseeing the implementation of digital and data plans and strategies, establishing policies and standards and approving cross-government digital and data projects that support government priorities.

The Committee also provides capital funding to ministries for digital products that improve public services for people in British Columbia. This involves establishing investment priorities, approving digital projects and monitoring project progress. It also involves reviewing funding requests that may also require Treasury Board's approval. This annual report focuses on the Committee's digital investment activities.

The Committee has authority to approve projects that cost less than $20 million in total and less than $10 million per year. If projects cost more than these limits, Treasury Board must also approve them.

The DMCDD's Terms of Reference outline the Committee's accountabilities and authorities.

How the Committee on Digital and Data Manages Digital Investment

Government manages capital investments in technology and digital services as an "envelope". Treasury Board approves the annual size of this envelope based on recommendations from the Committee, while the Committee approves individual projects within this envelope.

Every year, the Committee runs a cross-government funding process to select projects that align to its investment objectives and to ministry priorities. The Committee evaluates projects using the following criteria:

- **Strategic alignment:** How projects align to government and ministry priorities and legislated requirements.

- **Value proposition:** How projects will address a clear user or government need, deliver outcomes, track progress, manage risks and provide value for money.

- **Delivery approach:** How the ministry's delivery approach and resourcing plan aligns to the problem at hand.

- **Architecture:** How well the project meets expected technology standards.

- **Sustainability:** How the ministry plans to sustain and continuously improve the product once the project is completed.

The Office of the Chief Information Officer supports the Committee by managing the funding process, reviewing funding requests and monitoring results for funded projects.

2021/22 Year in Review

In 2021/22, the Committee had a budget of $110 million. Of this, ministry teams invested $91 million on 95 projects, and the Committee reprofiled $19 million to future years. Figure 1 highlights key facts about our 2021/22 investments.

Data Highlights for Projects Completed in 2021/22

Financial Overview

$110 M **Estimated Budget**	**$91 M** **Actual Spend**	**95** **Projects Funded**

Spending by Ministry

Ministry	Spending
JERI	$0.297 M
GCPE	$0.341 M
LBR	$1 M
AEST	$2 M
EMLI	$2 M
FLNR	$3 M
CFD	$3 M
ENV	$4 M
TRAN	$5 M
FIN	$5 M
EDUC	$5 M
PSSG	$6 M
SDPR	$6 M
AG	$10 M
HLTH	$17 M
CITZ	$26 M

95 Projects Funded   **46 New projects**

Project Impacts

Provincial Health Gateway Project

1.2 M+ USERS More than 1.2 million registered British Columbians now have access to many of their health records through secure and convenient online means

BC Recovery Benefit Program Project

~2.7 M APPROVED This project administered and managed the B.C. Recovery Benefit during the COVID-19 pandemic in which approximately 2.7 million applications were approved

Liquor & Cannabis Regulation Branch IT System Project

95% PERMITS Introduced a new system to regulate cannabis retail licensing and saw 95% of the 4,508 permits approved the same day

OCIO Private Cloud Platform Project

322 APPLICATIONS The platform supports a community of 322 applications, spanning across 17 ministries and 10 sectors by providing government teams with private cloud-based hosting for their application through OpenShift

BC Services Card Project

1.6 M USERS 1.6 million users onboarded to BC Services Card which now has user experience service enhancements implemented

Wildfire Modernization Phase 2

50 APPLICATIONS The Wildfire Project is a complex, multi-year technology and transformation project aimed at modernizing BC Wildfire's 50 legacy applications; as part of Phase 2, BC Wildfire's first official mobile app was developed to provide real-time wildfire information to the public

Building inclusive, reliable and easy-to-use digital services for people in British Columbia.

Today, 94% of people in British Columbia use the internet regularly and 88% of Canadians have smartphones[1]. Most people now expect that government services will be available digitally and say it is important for them to access government services digitally[2]. Building inclusive, reliable and easy-to-use digital services can also free up public servants to spend more time helping people who prefer to or need to access services in-person, by phone or through other channels. People should be able to access services that meet their needs across many channels – online, phone, paper or in-person.

To address these needs, the Deputy Ministers' Committee is investing in projects that are building inclusive, reliable and easy-to-use digital services. Highlights from our investments in 2021/22 include:

- 80% of projects that completed in 2021/22 delivered public facing benefits, such as better services for people in British Columbia.

- Over 1.2 million people registered for the Health Gateway, which provides secure online access to health information like lab results, medications and health visits.

- The Health Career Access Program launched an online application system that helped recruit, train and hire over 3,700 people to fill vacant long-term care, assisted living, and home support positions across the province.

- The B.C. Recovery Benefit Program launched an online application system that provided over 2.7 million people with a one-time, tax-free payment of up to $1,000 as part of the Province's COVID-19 response measures.

- A new evacuee registration tool helped provide support to over 19,000 people evacuated during the 2021 wildfire season and over 11,000 people evacuated during the 2021 flood events.

- Within a month of launching a new, easy-to-use B.C. Parks website and reservation service, visitors had already made over 100,000 campsite reservations.

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1   Statistics Canada, Canadian Internet Use Survey (2019), retrieved from
    https://www150.statcan.gc.ca/n1/daily-quotidien/191029/dq191029a-eng.htm.

2   Angus Reid Institute, Advancing online government service: Canadians open to more & better access; concerned about cybersecurity (2021), retrieved from https://angusreid.org/online-government-services/.

Case Study: Provincial Health Gateway Project

In 2019, the Ministry of Health launched the Provincial Health Gateway project in partnership with the Office of the Chief Information Officer and the Government Digital Experience Division. The project was a response to public demand for self-serve online access to health information.

In just 22 weeks, the Ministry of Health developed the first version of the Provincial Health Gateway. Today, this service helps connect people in British Columbia with their health records through secure and convenient online access. No matter where someone received public health care in B.C., they can get their health records in a single place.

THE CHALLENGE

Prior to the Provincial Health Gateway project, patient access to health information was fragmented, inconvenient, and didn't effectively empower patients to support their own health and wellness.

In addition, the COVID-19 pandemic presented an urgent need for people in B.C. to access their COVID-19 test results and proof of vaccination. This required a quickly scalable provincial tool that could meet the unprecedented needs of the Province's pandemic response.

SOLUTION

Through the Provincial Health Gateway project, the Ministry of Health designed and built a new service to help people more easily access their health information. It responded quickly and successfully to both public demand and the urgent needs of the pandemic.

The Provincial Health Gateway project used agile delivery approaches, common components and the Province's private cloud platform to develop a new digital service to allow people to access their health information online. This new service connects with the Province's health databases to pull information into one location.

By using the B.C. Services Card app to securely log in to the Health Gateway, anyone 12 years and older can view their:

- blood test and other lab test results,
- medication history,
- immunization records,
- Special Authority drug coverage requests,
- COVID-19 test results and proof of vaccination, and
- health visits billed to B.C. MSP.

Health Gateway users can also make their own private notes about important health events, or they can download, organize and print their health records. People can access Health Gateway on their computer, mobile phone or tablet.

RESULTS

Since 2019, Health Gateway has attracted more than 1.2 million registered users. Health Gateway started by providing medication history. Over time, it expanded to include several other types of health records and continuous improvements based on user feedback.

The Health Gateway project team plans to continue improving the service and adding new health records based on user needs. They expect to make hospital visits, physician reports, and diagnostic imaging reports available through Health Gateway, which will further empower people in B.C. to partner in their own health and wellness.

Modernizing legacy systems so that services are available and reliable.

Technology works best when it is continuously improved and kept up to date. Without continuous improvement, systems deteriorate. Eventually, they become expensive to maintain, no longer meet user needs and can fail. These kinds of systems are known as legacy systems. Because all government services rely in some way on technology, legacy system failures can cause major interruptions to service delivery.

The Committee invests in several projects to modernize or replace legacy systems. Highlights from our 2021/22 investments to address legacy systems include:

- 90% of projects that completed in 2021/22 helped modernize legacy systems that were difficult and expensive to maintain and likely to cause service interruptions.

- Almost 90% of projects that completed in 2021/22 are providing internal benefits, such as improved efficiencies.

- The Ministry of Public Safety and Solicitor General's Victim Services Enhanced Citizen Project replaced seven legacy systems used to provide services to victims of violent crimes with new, more efficient and integrated systems. The new systems are reducing time formerly spent on manual processes by as much as 70%, freeing up staff to better serve people in British Columbia.

- The Liquor and Cannabis Regulation Branch replaced an aging legacy system for liquor licensing and successfully applied the same system to retail cannabis licensing.

- The B.C. Wildfire Service is modernizing 50 legacy systems that support the Province's wildfire response. The team is consolidating these systems into 20 systems that better meet user needs and are easier and less expensive to maintain. Most of the systems developed through this project are already in use to help co-ordinate resources, collaborate with partner agencies and predict wildfires.

Case Study: B.C. Registries Modernization Project

The B.C. Registries and Online Services helps people register businesses, co-operatives, personal property, manufactured homes, and not-for-profit societies within British Columbia. Until recently, the B.C. Registries and Online Services team relied on outdated legacy systems and paper-based processes to deliver their services. In 2018, the Committee approved funding for the B.C. Registries Modernization Project to replace several outdated mainframe systems with new digital services that better support people and businesses. This multi-year, multi-phase project built secure, self-serve, and integrated registries and digital services that better meet people's needs and are supported by modern platforms.

THE CHALLENGE

British Columbia needs businesses to drive its economy. Starting a business in B.C. requires navigating multiple, disparate systems depending on the type of business being created. In the past, business owners had to use a mix of paper forms, online forms, and online self-serve filings, depending on the transaction they needed to complete. The government is now making it easier for business owners to access key services in a simple and secure manner to start and maintain their businesses.

THE SOLUTION

The B.C. Registries Modernization Project set out to replace its legacy mainframe systems with new digital services that better serve people and businesses. The project focused on maintaining the current functionality for businesses, while developing new applications that worked together in an integrated manner.

The development team began in the Exchange Lab, where they started using user-centred design and scaled agile delivery approaches. Focused on applying agile and DevOps practices, the team used the government's own private, online hosted cloud platform and relied on common components like the B.C. Services Card for user authentication, and PayBC for payment.

THE RESULTS

By modernizing systems and processes, Registries offers a more seamless and integrated method for business clients to access services. This helps Registries keep more accurate records, improve data analytics and better manage and track user information, timeline status, and outcomes. It also improves people's service experience by making it faster and easier to register and manage a business in British Columbia. The team is targeting to reduce support calls by 30%, lower the average wait time to get a business name by 50%, and increase the number of self-serve filings from 80% to 100%.

Helping digital teams deliver services quickly and cost-effectively through shared investments and common components.

When people access government services online, they can see the public-facing parts of the service like the website. But underlying these services are important building blocks that can be reused to solve problems for all of government. These building blocks are common components – for example, a way to pay government, prove who you are or fill out an online form. The Committee is investing in several common components and other shared investments that can reduce duplication, save money, and contribute to the rapid delivery of new services.

Highlights from our investments in common components and other shared assets in 2021/22 include:

- 65% of projects that completed in 2021/22 used common components to reduce duplication, save money and deliver results faster.

- 20 common components are now available to use at https://digital.gov.bc.ca/common-components.

- Over 1.6 million people have signed up for a mobile B.C. Services Card, which makes it easy for people to access government services like StudentAidBC, the business registration service or the Provincial Health Gateway online quickly and safely.

- The Province's private cloud platform, which provides private cloud-based hosting that helps digital teams build applications faster and more cost-effectively, now supports 322 applications.

- The Ministry of Citizens' Services launched a new data catalogue that makes it easier to find provincial government data, applications and web services. The data catalogue helps people and businesses find over 3,000 open data sets to make more informed decisions, build new products and services and develop new business models.

- The Public Cloud Accelerator Service team launched a new environment that allows ministries to safely develop applications on the public cloud in alignment with B.C. legislation and policy. Ministries have already built 12 applications in this new environment, which makes it faster and easier to develop applications.

Case Study: Platform Products and Services

In 2017, the Ministry of Citizens' Services launched the Exchange Lab. The Exchange Lab included a physical space to foster collaboration and innovation along with training and support to help teams adopt user-centred design and agile delivery approaches. The Exchange Lab team also started the Platform Product Services (PPS) project. The goal of the project was initially to help digital teams from across government adopt DevOps approaches by providing a secure, private cloud hosting environment along with supporting technology and tools.
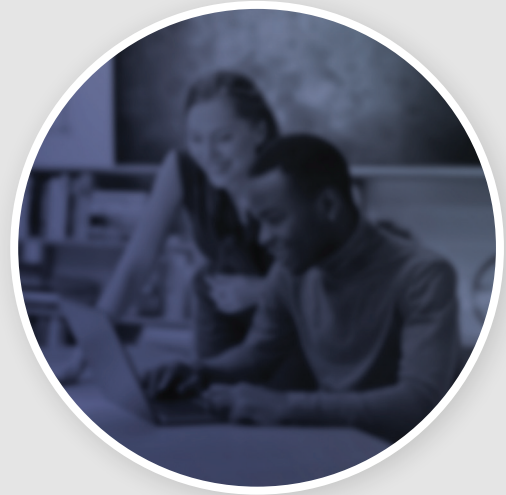
THE CHALLENGE

Teams working in the Exchange Lab were beginning to adopt agile, user-centred delivery approaches to design and build digital services. However, these teams needed new tools and technologies to support these new delivery approaches.

The Exchange Lab team initially launched a pilot project to test a private cloud platform to help teams looking to adopt modern digital service delivery approaches. This new platform attracted interest from teams across government, and several teams began requesting to host their mission critical systems on the pilot platform. As demand grew, the team that supported the platform realized they needed to scale the platform into an enterprise service.

THE SOLUTION

Through the PPS project, the team scaled the private cloud platform, which uses RedHat's OpenShift technology as its foundation, into a reliable and supported platform that can be used across government. The team also provides supporting tools, security toolkits, training, documentation and support to digital teams across government.

One feature of the PPS platform that has been widely adopted is its community-based support model powered by Rocket.Chat that today has more than 2,000 users. Intended to replace a traditional IT support ticket system, Rocket.Chat allows digital teams to reach out directly to the government developer community on any technical topic to troubleshoot issues and seek advice. The chat is widely used by digital teams and has proven very effective for collaborating and getting help from teams that have faced similar coding challenges. Adopted by the community prior to 2020, the chat proved particularly important for teams as they continued to develop remotely throughout the pandemic.

THE RESULTS

This project and its connection to the Exchange Lab is unique, not only within the B.C. public sector, but also across the country. The platform supports a community of 322 applications built and run by 17 different ministries. Designed around Agile methods and DevOps practices, users of the platform can continuously add and release additional features to existing applications in response to user needs, setting a new standard within Canada's public sector tech space.

Teams frequently reuse features developed for one project on others, which helps improve efficiency and reduce delivery time. The average time to launch an app through the platform has gone from 6-12 months down to as little as seven days.

The PPS team is continuing to expand and improve their services based on feedback from users and the developer community.

Trends in Digital Investment

Continued steady investment in digital and technology.

Over the past decade, more and more government programs and services are relying on digital tools to improve efficiencies and better serve people in British Columbia. To meet this need, government's capital budget for digital and technology has grown 450% since 2011/12. Despite the growth in overall budget, actual digital and technology capital spending has only grown by 4.72% since 2018/19 (see Figure 2).

Figure 2: IM/IT Minor Capital Envelope and Expenditures
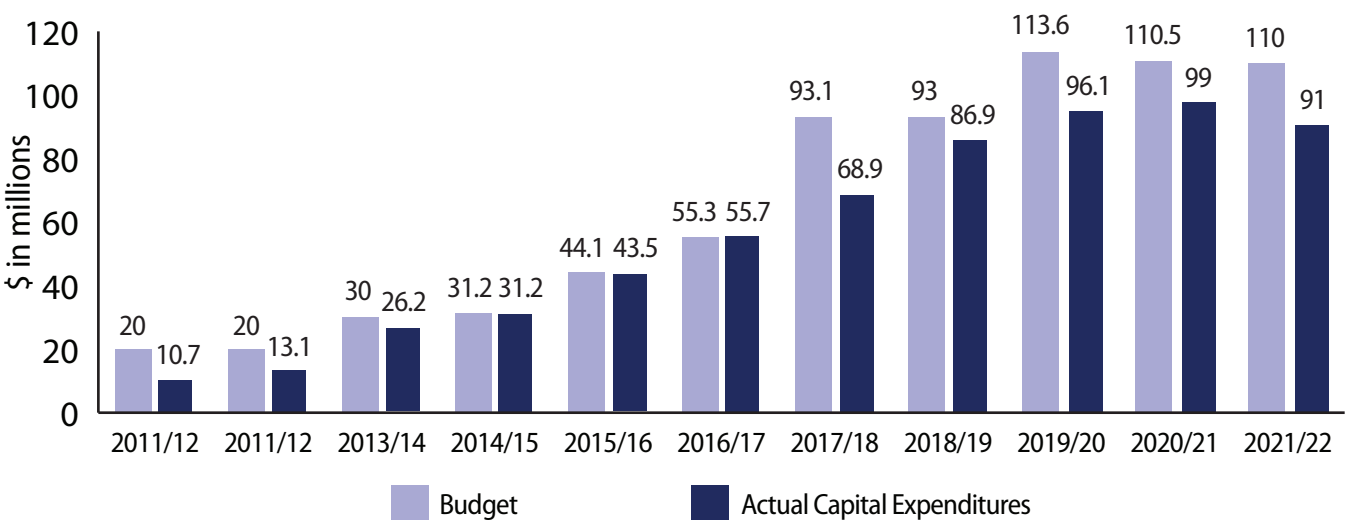
Resourcing constraints are driving underspending.

In 2021/22, ministries directed 93% of their technology-related capital spending towards either professional services costs (87%) or salary costs (6%). This means that government's digital investments are very sensitive to labour market disruptions. Over the past two years, ministries have struggled to procure or hire technologists to work on digital projects due to high demand in the labour market. As a result, most of the project delays that caused underspending in 2021/22 were resourcing-related (see Figure 3).

Figure 3: 2021/22 Project Delay Drivers
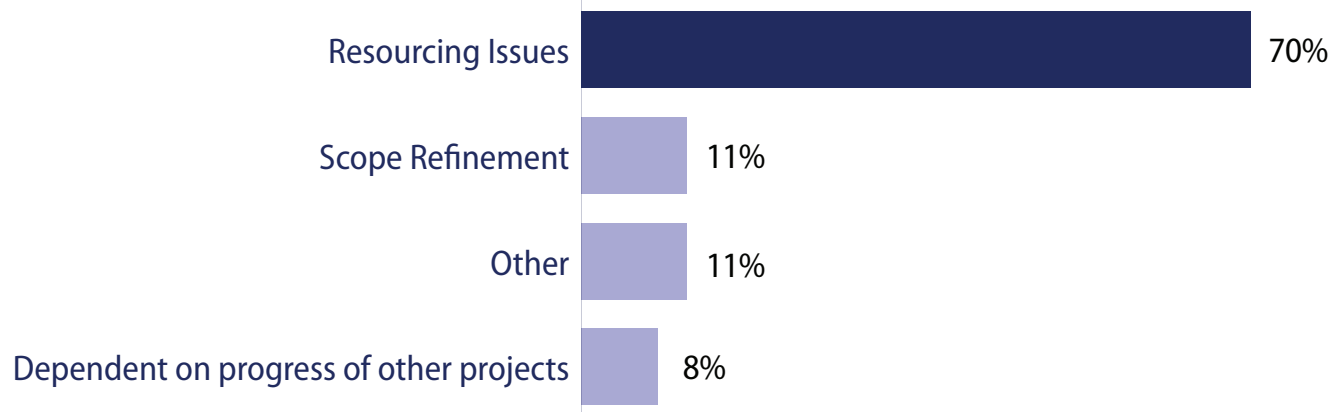
Projects are continuing to get smaller, which is increasing the likelihood of successful delivery.

In the 2020/21 Annual Report, we discussed how projects are getting shorter and less expensive. This trend continued in 2021/22, as shown in Figures 4 and 5. Figure 6 highlights that close to 70% of the digital projects funded by the Committee are valued at less than $6 million in total.

We welcome this trend towards smaller capital projects with shorter timelines. Global research shows that only 13% of large government technology projects are successful, while the rest are either challenged or fail altogether. The larger the project, the more difficult it is to anticipate and adapt to changing policies, priorities and user needs over the life of a project. Projects that don't adapt to these changes can fail to deliver their intended benefits. For those reasons, we've designed our funding processes to encourage smaller, more frequent releases of funding.

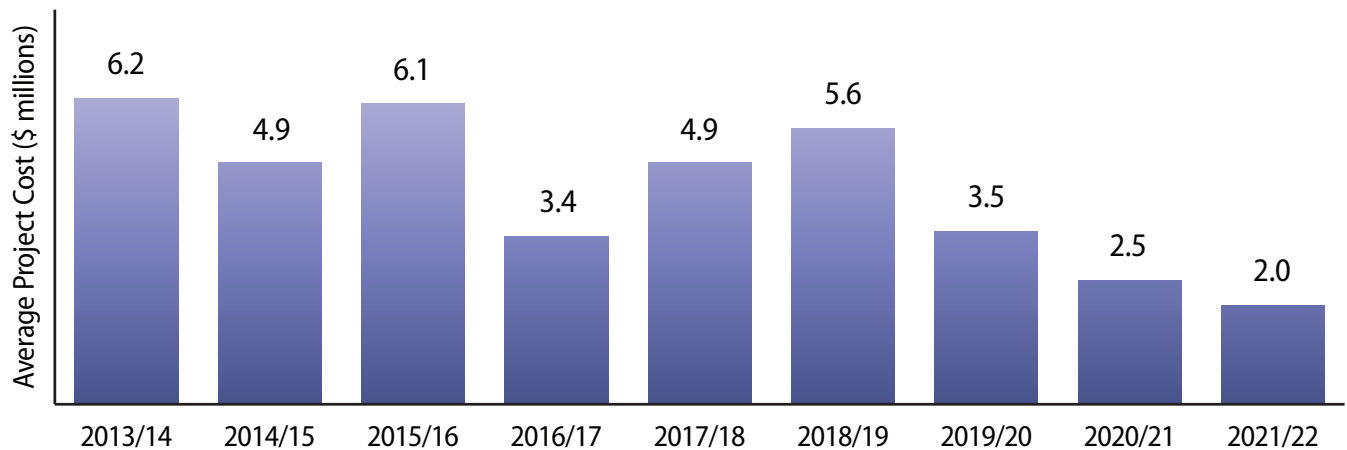## Figure 4: Average Cost of Projects - 2013/14 to 2021/22

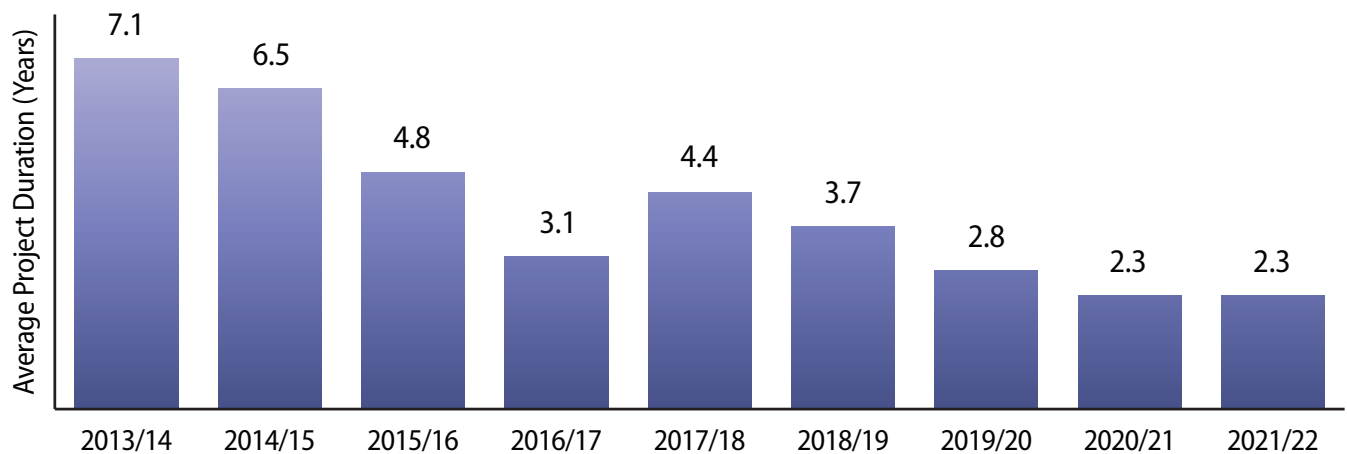## Figure 5: Average Project Duration - 2013/14-2021/22

Figure 6: Number of Active Projects during 2021/22 by Total Project Budget
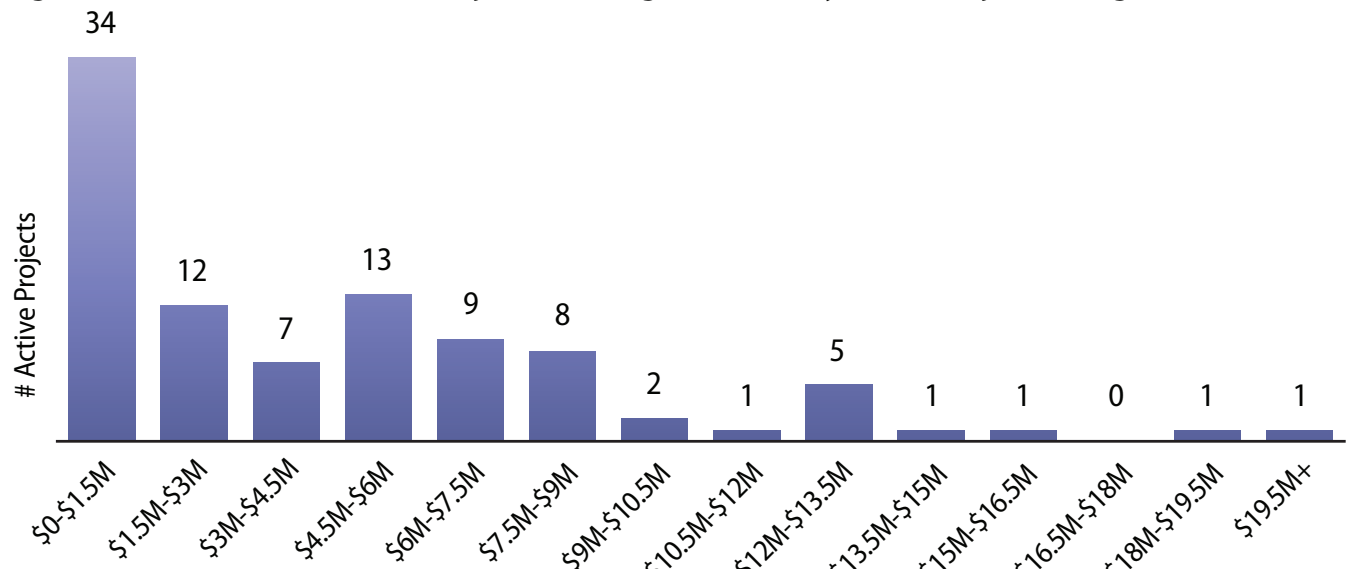
Figure 6 bar chart data:

Budget Range	# Active Projects
$0-$1.5M	34
$1.5M-$3M	12
$3M-$4.5M	7
$4.5M-$6M	13
$6M-$7.5M	9
$7.5M-$9M	8
$9M-$10.5M	2
$10.5M-$12M	1
$12M-$13.5M	5
$13.5M-$15M	1
$15M-$16.5M	1
$16.5M-$18M	0
$18M-$19.5M	1
$19.5M+	1

65% of projects that completed in 2021/22 used common components to cut duplication and save time.

Figure 7: Percentage of projects that completed
in 2021/22 that used common components

65% Using Common Components

35% Not Using Common Components
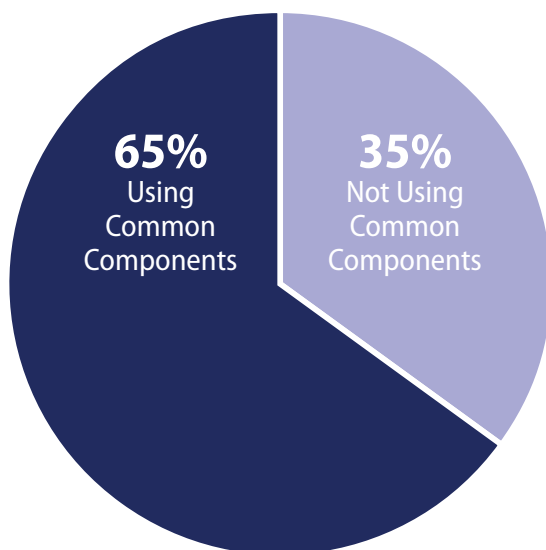
As discussed previously, common components are digital building blocks that can be built by a single team and reused to solve problems for all of government. Examples of common components include a way to pay government, prove who you are or fill out an online form. Common components can help provide people with a common experience of government and allow digital teams to deliver services more quickly and cost-effectively. The Committee is encouraged to see that 65% of projects that completed in 2021/22 used common components, and that almost all newly funded projects plan to use common components to cut duplication and save time.

30% of projects completed in 2021/22 used agile delivery approaches to respond to user needs.

As recently as five years ago, ministries delivered most digital projects using 'waterfall' delivery methodologies. With waterfall approaches, teams plan projects in detail up front, then sequentially design, build, test and implement new products. Waterfall projects can work well for certain types of projects with well-known requirements and technology that changes infrequently.

Today, however, ministries are increasingly favouring agile delivery models that deliver a working product early and iteratively improve it based on user feedback. As outlined in the U.S. Government's 18-F Guide to De-Risking Technology, "technology changes, government policies change, regulations change, laws change, and leadership's priorities change — any project that is planned in great detail up front will be unable to adapt to those changes and will be at significant risk of failure." Agile delivery models can reduce the likelihood of project failures, deliver digital products and services that better meet people's needs and reduce the likelihood of cost overruns.

Figure 8: Project Delivery Methodology
of Projects that Completed in 2021/22
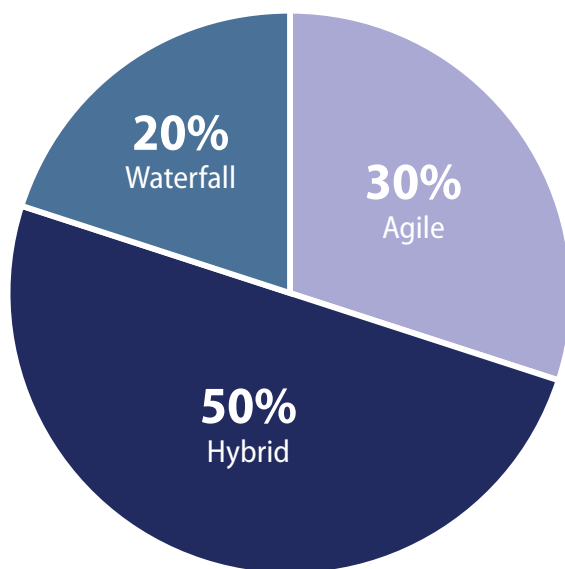
As shown in Figure 8, 30% of projects that completed in 2021/22 used agile delivery approaches. This is a significant increase compared to five years ago, when ministries delivered almost no projects using agile delivery approaches. For new projects that started in 2021/22, this number is even higher; most new projects are now using agile delivery approaches.

Appendix A – Additional Case Studies

Health Career Access Program

The Province identified an opportunity early in the COVID-19 pandemic to address persistent staffing challenges in the long-term care, assisted living and home support sectors and took decisive action to create the Health Career Access Program (HCAP).

The HCAP team rapidly launched a digital service to allow employers to match with interested applicants based on geographic proximity. Applicants hired through the matching program were then supported through an 18-month program of education and on-the-job training in a new role as a health care support worker, before becoming a health care assistant in B.C

THE CHALLENGE

At the beginning of the COVID-19 pandemic, many people were laid off and in search of work, particularly in the tourism and hospitality industries. At the same time, the health care field was facing an existing shortage of workers that was made worse by the pandemic. There was a particular need for health care assistants in long-term care, home support and assisted-living services. The Ministry of Health launched HCAP to match people with jobs and train them to become health care assistants.

THE SOLUTION

Becoming a health care assistant typically requires six to eight months of post-secondary education at the student's expense. Through HCAP, participants gain paid work experience in the health sector, and are supported with paid tuition and an educational stipend while training to become a health care assistant. Upon graduation and registration, newly qualified heath-care assistants are hired into open positions.

The HCAP portal is accessible by both job seekers and employers; job candidates can submit their expression of interest and health authorities can review candidates and manage the hiring process. The project team developed custom tools to create a user-friendly interface inclusive of its different user needs. The team also worked with the BC Ministry of Education to adapt existing education models and facilitate the training of program participants.

THE RESULTS

As of July 6, 2022, more than 3700 participants have been hired through the HCAP program, exceeding its original goal. As the health-care field continues to face a worker shortage, HCAP is expected to provide long-term value in filling critical vacancies, providing people in B.C. with training and job opportunities, and strengthening the resilience of the B.C. job market.

Liquor and Cannabis Licensing System Project

In 2017, the Province completed a proof-of-concept project to modernize the liquor licensing processes and systems used by what was then the Liquor Control and Licensing Branch, with the goal of increasing operational efficiency. In April 2018, the federal government announced that cannabis would be legalized in Canada. Government identified that LCLB would regulate cannabis in B.C., and the branch became the Liquor and Cannabis Regulation Branch (LCRB).

The branch had to pivot its modernization project to develop digital services to support cannabis licensing for businesses and workers.

THE CHALLENGE

After the federal announcement that cannabis would be legalized, the LCRB team needed to design and built a new digital service to support cannabis licence applications. The system also needed to support government in assessing and issuing licences, enforcing regulations, and providing a high level of security and identity verification.

It was important that LCRB launch the new digital service early enough for businesses to apply for their licences before the October 2018 legalization came into effect. Because of this, the team needed to launch a minimum viable product that they could later rapidly build upon. The team also needed to develop the new system iteratively because policy and regulations were either not yet defined, or they changed during the project's lifecycle, as was the case with the elimination of the cannabis worker security verification requirement.

THE SOLUTION

Given the short timeline, LCRB's cross-functional teams used agile approaches to deliver the new system. The team used several common components, including the B.C. Services Card and OrgBook B.C. This project was one of the first to integrate with the B.C. Services Card for identity verification. The team successfully launched the Liquor and Cannabis Licensing Portal within five months.

THE RESULTS

From the August 2018 launch onwards, the online system allowed workers and businesses to apply for and receive cannabis licences and enabled the LCRB to manage applications to ensure compliance for those licences.

Since the launch of the licensing portal, the team has launched several new features. The new system now supports all liquor and cannabis licensing and permitting in British Columbia and helps with oversight and enforcement. This includes managing and overseeing more than 10,000 establishments and issuing thousands of Special Event Permits (SEP) annually. The new online SEP application portal launched September 21, 2021, saw 95% of the 4,508 permits approved the same day (for events between launch and March 31, 2022).

Throughout the development of the Liquor and Cannabis Licensing System, the LCRB engaged with local governments, Indigenous Nations, and key stakeholders to collaborate on the solution and plan for the transition to online service delivery. The outcome is a platform that caters to the needs of citizens by automating and streamlining both liquor and cannabis licensing and regulation processes, improving the efficiency and consistency of the service.

Wildfire Modernization - Phase 2

The BC Wildfire Service delivers services that focus on the prevention, preparedness, response and land-based recovery of wildfires and provides preparedness and response supports for other natural hazard events. Due to the seasonality and unpredictability of natural hazard response in B.C., the organization's systems and processes are built to handle a variety of complexities. These include efficiently deploying B.C. and out-of-province staff to respond to wildfires; helping B.C. residents accurately report wildfires; accurately hiring and renumerating internal and external resources; and leveraging fire weather data to predict wildfires, to list a few.

The Wildfire One Project is a complex, multi-year technology and transformation project aimed at modernizing BC Wildfire Service's 50 legacy applications. The project will centralize business processes and enable business efficiencies through the use of innovative technology. The project recently completed Phase 2, with16 new applications now active and a goal of consolidating core systems down to 20 applications by the end of Phase 3.

THE CHALLENGE
With a few record-breaking fire seasons in the past five years, there has been increased demand from the public and partner agencies to provide timely, relevant data and information on natural hazard response management. Real-time information is needed to support everything from resource co-ordination and wildfire prediction to collaboration across partner agencies.

THE SOLUTION
Wildfire One is built on the concept that wildfire data and information shared across the organization's public-facing tools and internal applications is based on a single source of truth. BC Wildfire Service's adoption of a hybrid-agile approach coupled with the development of a five-year technology roadmap has increased the overall success of the Wildfire program – allowing for the implementation of multiple high-business-value products to be delivered annually.

In addition to carrying over the existing functionality from legacy applications, the project also set out to upgrade a variety of critical business functions:

▷ Fire Weather: This project replaced the legacy fire weather software with a new system for enhanced weather and lightning functionality, increased data sharing with partner agencies and enhanced reporting capabilities.

▷ Public Mobile: BC Wildfire Service's first official mobile app was developed to provide near real-time wildfire information to the public and help increase understanding of wildfire threats and risks. The app's latest features allow citizens to digitally report a wildfire and provides the ability to upload photos and GPS co-ordinates based on the user's location. The new functionality provides timely information to support wildfire preparedness and response activities.

▷ eDiaries: This project streamlined the existing diary system and processes by moving to electronic submission and approval of time diaries. This critical application used by some 2,000 users has drastically expedited payments (by 1-2 months) to BCWS employees and the contractor community through streamlined financial processes.

THE RESULTS
While each application developed under the Wildfire One umbrella supports one or more specific business functions, collectively the solution stands out. B.C. Wildfire Service is internationally recognized as a leader in wildfire management and the work accomplished in Phase 2 has enhanced its ability to manage wildfire risk in a more collaborative and integrated manner. The project, nominated for the Premier's Award in Innovation, will build on the success of Phase 2 as it continues with Phase 3 of its transformation.

Appendix B – Summary of Funded Projects

Investment Name	Investment Description
Ministry of Advanced Education, Skills and Training	
Student Information Management / Policy and Rules Engine	This project will replace existing information systems so ministry staff can monitor student performance and manage loans.
Ministry of Citizens' Services	
Data Innovation Program Tech Solution	This project will allow the Ministry of Citizens' Services and academic researchers to use multiple data sources to better understand the services people in British Columbia need.
DataBC Common Components - API Management Services	This project will help modernize government's digital architecture. The investment aims to advance a common Application Programing Interface (API) Management Service Platform to meet growing demand from developers to share and find APIs in a secure way.
Freedom of Information (FOI) Enhancement and Modernization	This project will develop new technology that will be used across government to respond to requests for records more efficiently.
Identity Infrastructure	This project will upgrade digital identity services, including IDIR (the B.C. Public Service's employee directory), Web Access Management and Biometrics, to make them easier to use for B.C.'s Public Service.
Platforms Products and Services (PPS)	This project will test and evaluate emerging application development approaches, platforms and technologies that government could use to serve B.C. residents better.
DataBC Common Components	This project will improve existing software that supports mapping on websites so people and businesses can find and use more data in British Columbia.

Investment Name	Investment Description
Public Cloud Accelerator Service	This project aims to develop centrally managed services that enable all ministries to adopt application hosting services in the public cloud, in compliance with legislation and core policy requirements, and with security and privacy by design.
B.C. Services Card	The B.C. Services Card provides access to government services for residents. This project includes new features to make the card more user friendly.
BCeID	A BCeID account provides secure access to online government services. This project will update the technology being used to improve the service.
Business Registration Systems Rewrite	This project will replace aging computer systems that support business registries including Corporate Online, Names Request Online and the OneStop Business Registry.
Service B.C. Payment Modernization	The purpose of this project is to modernize and move B.C. OnLine (BCOL) Registries Financial Accounting System (FAS) and eGARMS to PayBC.
Ministry of Jobs, Economic Recovery and Innovation	
Investment Capital Branch eTCA modernization	This project will update the Electronic Tax Credit Application (eTCA) system. eTCA is a key component of the Venture Capital Tax Credit Program (VCP) which helps small businesses gain access to venture capital.
Trade & Industry Development CRM Upgrade to Salesforce Lightning	This project will reduce errors and improve self-service options for end users by moving from Salesforce Classic to the Lightning version of the ministry's CRM system.
Ministry of Labour	
Employment Standards & Temporary Foreign Worker Registry Transformation Initiative	This project is increasing access to services delivered by the Ministry of Labour by improving supports for vulnerable workers and small business employers, and enforcement of minimum standards for wages and working conditions in B.C.

Investment Name	Investment Description
Ministry of Education	
Education Data Warehouse 2.0	This project will allow the Ministry of Education and its partners to collect, manage and analyze education statistics efficiently and securely while enhancing data visualization and insights for the ministry.
Open VMS Application	This project will replace two outdated technologies with a single system to track capital investments in school districts throughout B.C. and provide students and schools better access and reporting on transcript information.
PEN Identifier	This project will modernize the existing application, link the PEN to the B.C. Services Card Program, and improve access registration for early learning, B.C. K-12 and post-secondary schools.
Ministry of Finance	
B.C First Nations Grant program	The objective of this project is to provide Treaty First Nations bands and certain associated employers with financial relief from costs due to the Employer Health Tax for up to 20 years.
B.C. PST Rebate on Select Machinery and Equipment	This project will add new capabilities to an existing online platform allowing businesses to apply for a temporary Provincial Sales Tax (PST) rebate to help corporations recover from the financial impacts of the COVID-19 pandemic.
B.C. Emergency Benefit for Workers - Financial Modules	This objective of this project is to add new features to administer and manage the one-time B.C. Emergency Benefit for Workers, including audits, collections, appeals and related financial transactions.
B.C. Increased Employment Incentive	This project will add new capabilities to an existing online platform for a new employment incentive program allowing employers to apply for a one-time refundable tax credit.
B.C. Recovery Benefit Program	This project will add new features to administer and manage the B.C. Recovery Benefit during the pandemic.
Cabinet Operations Solution	The objective of this project is to replace the existing SharePoint site used by the Cabinet Operations staff with a new content management system based on the Drupal platform.

Investment Name	Investment Description
Homeowner Grant	This project will centralize the collection of approximately 1.1 million homeowner grant applications from throughout B.C., to ensure consistency in making decisions about applications and to make sure B.C. homeowners receive the grant they are entitled to.
Risk Management Branch (iVOS) Upgrade Project	This project will upgrade the existing risk management system, improving the security and stability of the system as well as providing increased functionality for users.
Tobacco and Fuel Tax Exemption	This project will modernize and replace the current paper-based tax exemption process with a new electronic point-of-sale verification and documentation system for tax-exempt sales of tobacco and fuel made on-reserve in B.C.
Government Communications and Public Engagement	
Today's News Online (TNO) Modernization	This project will modernize the TNO platform: redesign, re-architect and rebuild the media monitoring application using modern technology and programming languages.
Ministry of Health	
B.C. E-Substances Reporting Betterments	The E-Substances project will improve the existing B.C. E-Substance Reporting application that was released into production to support the Province's Vaping Action Plan and address the rise in youth vaping.
Customer Relationship Management Transformation	This project will advance the ministry's client strategy and provide guidance for expanding our use of the common platforms we have recently established using Salesforce and Service Now. In addition, it will support the transformation of the Third-Party Liability (TPL) application, used to recover costs from liable third parties, and another suitable application onto the Salesforce platform.
Drug Control and Management (Part 2)	This project will improve the privacy and security of patient health information on the province's community pharmacies prescription database.

Investment Name	Investment Description
Enterprise Master Patient Index (EMPI) Task Management Reporting	This project will help implement reporting capabilities including an analytics and reporting platform for the Enterprise Master Patient Index (EMPI).
Health Career Access Program (HCAP)	Government announced the Health Career Access Program (HCAP) on September 9, 2020 to provide a flexible pathway to rewarding careers in healthcare while taking decisive action to address persistent staffing challenges in the long-term care, assisted living, and home support sectors. This program enabled the recruitment of over 3,000 entry-level health care workers annually in long-term care (LTC) homes, assisted living (AL) facilities, and health authority owned and operated home health services across the province. Participants begin working as Health Care Support Workers (HCSWs) and receive publicly funded, employer-sponsored training leading to full qualification as a health care assistant (HCA).
Health Information Exchange	This project will enhance the secure electronic transmission of health care-related data between health care providers to improve the cost, quality, safety, and speed of patient care.
Health Sector Identity and Access Management	This investment will implement identity and access management services that serve the diverse needs of the B.C. health sector. These services will enable providers on demand access to the digital resources they need, while at the same time protecting those resources from unauthorized requests.
Healthcare Client Identity Management Automated Performance Test Harness	This project will replace the Healthcare Client Identity Management (HCIM) legacy test harness, a series of scripts and manual processes that are used to test the HCIM after every release or upgrade. Automating performance tests for registries is a necessary step in reducing costs, increasing efficiencies, and delivering better care to patients.
Healthcare Client Identity Management FHIR Messaging	This project will implement an updated messaging protocol across the province by adopting a globally recognized approach to messaging, namely the Fast Healthcare Interoperability Resources Specification (FHIR). FHIR is an international standard that relates to data formats and an application programming interface (API) for exchanging electronic health record data.
HealthNet Infrastructure	This project will upgrade the system that supports the exchange of electronic health information.

Investment Name	Investment Description
HIBC Technology Transition	The investment aims to migrate and refresh end-of-life technology environments that support Health Insurance B.C. (HIBC) systems.
Hospital Out of Province Claims Fixes and Enhancements	This project will address issues that have been identified since the application was upgraded in 2021.
Integrated Health Clinical Readiness	This project will allow for better management of clinical and patient data, improving patient safety.
Java-Oracle-Glassfish Struts (JOGS) Security Remediation	This project will update old applications.
Medical Assistance in Dying (MAID)	This project is intended to provide required quarterly data reporting to Health Canada and collect additional information to support provincial oversight for the MAID application system.
Mental Health Substance Use Virtual Clinic Expansion	This project will integrate the Foundry virtual care platform into B.C. Foundry Care Centres.
Office of the Provincial Health Officer's (OPHO) Analytics Delivery Platform	This project will deliver a platform to support the sharing of interactive analytics reports with health-care partners in the response to key public health issues.
Pre-Surgical Screening	This project will create a digital pre-surgical screening questionnaire and process that can triage patients.
Provider Location Registry Provincial Integration	The investment aims to apply an international messaging standard to the provider (physician and clinical facilities / organizations) Location Registry.
Special Authority Transformation Project	This project will support the transformation of the Special Authorities program in the Ministry of Health by digitizing internal processes.
System for Contracts, Resourcing, Utilization and Budget Solutions (SCRUBS)	This project allows the Ministry of Health to manage program budgets and contracts more effectively.
Transform Information Technology (IT) Service Management	This project will establish new services for ministry employees from IT work units and bolster foundational pieces to enable use of asset and demand management services.

Investment Name	Investment Description
Virtual Assistant	This project will expand the existing Digital Assistant chat bot to include question-and-answer support along with live-agent handoff for B.C. Cancer Agency websites.
Ministry of Attorney General	
Autoplan Care Enhancements (ACE)	This project updated the existing Civil Resolution Tribunal case management system so that all motor vehicle injury claim disputes as of May 1, 2021, will be initiated using an online dispute resolution system.
Comprehensive Disclosure Solution	This project will deliver a complete, end-to-end content management system that will receive, manage, process and distribute digital evidence and disclosure to all parts of the criminal justice system.
Court Administration Transformation Suite - Video conference refresh/ expansion	This project will upgrade and enhance remote video conferencing equipment to provide better court administration services and may reduce the need for travelling to court.
Court Administration Transformation Suite Court Fees and Fines	This project will update systems that collect fees and fines.
Integrated Legislation Development System	This project will streamline and expedite the legislative drafting process.
Justice Electronic Delivery Initiative (JEDI)	To execute a series of projects, with appropriate budget and governance, which address the immediate crisis by reducing person-to-person contact in justice matters and ensuring timely access to justice; making those changes within a context to permanently shift to digital offerings which meet public expectations.
Liquor and Cannabis Licensing System	This project introduced a new system to regulate and licence private cannabis retail stores. The same technology was used to replace an outdated system and paper-based application process for liquor licensing, providing more digital services for the industry.
Public Guardian & Trustee: PGT Client Collaboration/ Online Tools	The project will develop client collaboration and online tools to improve the current manual, paper-based processes for sharing sensitive documents and payments relating to people under the care of the Public Guardian Trustee (PGT).

Investment Name	Investment Description
Public Guardian and Trustee Document Management	This project sets the foundation to offer new online services in the future.
Residential Tenancy Branch Continuous Service Improvement Transformation	This project will replace obsolete systems and provide people with convenient, online services.
Ministry of Public Safety and Solicitor General and Emergency Management B.C.	
B.C. Coroners Service – Investigative System	This project will integrate and optimize information to enhance the investigation of deaths and the identification of death trends and risks to public health and safety.
Community Corrections Case Management	This project will enable B.C. Corrections to provide staff with improved case management tools and ready access to critical information.
Driver Medical Fitness Transformation	This project will use digital technology to receive medical reports, assess a driver's medical fitness and streamline the requests for drivers, health providers and ICBC.
Emergency Support Services (ESS) Transformation	In response to the 2017 and 2018 wildfires, this project will develop a system to improve support to evacuees and streamline financial reimbursement to the vendors that supply goods and services in an evacuation. It will also provide improved reporting capacity during emergency events, which will allow for better situation awareness and management of evacuations.
Gaming Policy Enforcement Branch (GPEB) Online Services - Betterments	This project will move the Gaming Policy and Enforcement Branch (GPEB)'s paper-based lottery retail registration processes to online application and payment submission services.
Security Programs Division - Business Transformation	This project will improve access and turnaround time for citizen security screening and security licensing by modernizing the Security Programs Division's case management system.
Victims Services - Enhanced Citizen Service Delivery	This project will support programs that ensure victims of crime and violence are effectively supported in their recovery through timely and accessible services.

Investment Name	Investment Description
Ministry of Energy, Mines and Low Carbon Innovation	
B.C. Digital Trust Service	This project will build a Proof of Concept that demonstrates the value of verifiable credentials relating to the mining industry, enabling safe and secure online transactions using a digital identity.
Community Energy and Emissions Database (CEED) Evolution	This project will track community and provincial efforts to implement clean energy projects and their contribution toward CleanBC goals for reducing GHG emissions in Indigenous and civic communities.
Mines and Mineral Resources Program Automation and System Integration	This project will bring together data systems on mines and mineral resources, allowing for automated reporting and simplified access to data.
Mines Digital Services – Major Mines	This project will develop a new system to provide consistent access to open-source data on mining projects and reduce complexity for review staff, mining proponents, Indigenous communities, and the public.
Ministry of Environment and Climate Change Strategy	
B.C. Parks Open Information Access	This project will develop a system to provide information to improve business management, public service, and environmental protection of B.C.'s 14 million hectares of protected areas.
Integrated Incident (Spills) Management System	This project will introduce a new system to manage incidents such as spills and to support consistent approaches to how incidents are managed.
Species and Ecosystems Information Systems Modernization Program	This project will develop a system to bring together data about species and ecosystems from 27 different data sources.
Water Information Services Project (WISP)	The purpose of this project is to develop a functional and quality solution for the administration and governance of water resources that will replace the current legacy system.

Investment Name	Investment Description
Ministry of Forests, Lands, Natural Resource Operations and Rural Development	
ARCHES Database Development	This project will replace the B.C. Register of Historic Places and Fossil Management Database and modernizing services to the public for legal, real estate, development, resource extraction, and research purposes.
Coast Forest Revitalization	This project will upgrade applications to support new waste policies and sampling procedures and to improve waste and residue collection.
Forest Operations Map	This project will develop software to share map data on forest operations on a single public site in compliance with new requirements.
Forestry Suite of Applications Modernization Program	This project will modernize a suite of over 60 aging forestry program applications to improve the response to forest policy changes and better support forestry partners, First Nations, and communities.
Land Resource Manager Operations (LRMOPS)	This project will improve and standardize the data and processes used to manage, engineer and maintain forestry resource roads.
Wildfire Management, Prevention and response - Part 2	This project will introduce a single online portal to support the wildfire management system.
Ministry of Children and Family Development	
Mainframe Ministry of Children and Family Development (MCFD) Resource and Payment System	This project will modernize the current payment system to improve existing processes and prepare for future upgrades.
Youth Transition Initiative - STADD Project	This project will implement a technology solution to support the Ministry's expanded youth transition service delivery model.

Investment Name	Investment Description
Ministry of Social Development and Poverty Reduction	
AMP Debt Management and Sponsorship	This project will modernize debt management, sponsorship, and other systems to improve the issuing of payments to vulnerable people.
AMP Payment Calculation and Production	This project is one of three projects in the Application Modernization Program (AMP) and includes the Ministry of Children and Family Development (MCFD) integration with Integrated Case Management (ICM) and begins the planning and discovery activities for Payment Calculation and Production. All of these projects are prerequisites for future income assistance payment production projects.
Oracle Exadata @ Cloud Upgrade (on-premise)	Integrated Case Management and Oracle Exadata provide the technical foundation for the sector's citizen-facing digital services by supporting 200K+ individuals receiving regular income assistance cheques. This project will install, set up and conFigure solutions related to a recent upgrade of Exadata hardware, an Oracle Database computing platform.
Oracle Policy Automation Upgrade	The Oracle Policy Automation (OPA) product is a required component for the Integrated Case Management system and is designed to transform legislation and policy into executable business rules, particularly for the calculation of benefit entitlements and payment amounts. This project will upgrade OPA and extend its useful life by another five years.
Prevention and Loss Management System (PLMS) Replacement	This project will replace an existing loss management system with new centralized data systems that will improve reporting and analysis.
WebMethods Upgrade	The WebMethods product is the Ministry's primary integration platform allowing data to successfully communicate electronically both in and out of the Integrated Case Management system and other applications interfaces. This project will upgrade WebMethods and extend its useful life by another five years.
Ministry of Transportation and Infrastructure	
Advanced Camera and Sensor Information System	This project will integrate data from cameras and sensors throughout the province, such as highway and infrastructure images and videos, as well as weather, avalanche and seismic data for managing transportation, infrastructure and public safety.

Investment Name	Investment Description
DriveBC Input Utility Tool	This project will adapt the existing online traveller information system, DriveBC, to allow for accurate traveller information to be added for the public and for information related to emergencies, traffic conditions, and other travelling information.
OnRouteBC	This project will deliver an online permitting system for commercial drivers to self-permit using a map-based routing tool with turn-by-turn driving instructions, improving safety and efficiency of transportation throughout the province.
Passenger Transportation Modernization	This project will deliver, in support of the ministry ride-hailing initiative, an application capable of supporting a modernized commercial vehicle sector.
Weather Services	This project will develop a custom weather and avalanche information solution that will increase traveller safety and provide road and weather condition information.