MOBILITY STRATEGY

CONNECTIVITY　　SECURITY　　DIGITAL　　CLOUD　　**MOBILITY**

OCIO | Office of the Chief Information Officer

BRITISH COLUMBIA

INTRODUCTION

In October 2016 the Office of the Chief Information Officer (OCIO) launched a strategy setting the 3-year strategic direction for IT in government. With the mission of modernizing the BC Government's services and workplaces to benefit all British Columbians, the OCIO Strategy 2016 identified five strategic pillars: Connectivity, Security, Digital, Cloud and Mobility. Collectively, these pillars underpin our success in moving toward a modern, digital government.

As we journey towards our goal of transforming into a digital government, mobility will create new opportunities, enhance services and enable flexibility.

Mobility will change the way we work and how we deliver programs and services to citizens. Service delivery will be enhanced by allowing the freedom to work and deliver services anywhere, anytime and on any device.

Our digital vision focuses on user experience where the citizen and employee expectations of convenience, flexibility and service can be met. Mobility allows the work we do to take place at the best possible location for the task. It allows us to find new innovative ways of expanding capabilities inherent with 'smart' technology.

Our 5 strategic pillars

CONNECTIVITY
Secure, reliable networks and internet access

SECURITY
Protected and available services and data

DIGITAL
Digital technologies for public value

CLOUD
On-demand computing

MOBILITY
Mobile devices, apps and workspaces

Mobility enables us to:

1. access services from anywhere, anytime, on any device

2. provide timely response, decisions and reporting

3. enhance security through infrastructure modernization

4. tailor / enhance user experience by leveraging mobile device capabilities

5. empower employees with better tools to deliver better services

OCIO Mobility Strategy

WHAT IS MOBILITY

Mobility is about creating opportunity for government to deliver services digitally through wireless connections, services and applications. Mobile devices, such as smartphones or tablets, can enable deeper engagement with citizens, who, through the use of mobile apps, will connect with government to report incidents or safety issues, or inform government policy and decision-making. The increased capabilities provided by 'smart' technology, such as GPS and photos, enrich these connections. For the B.C. Public Service, mobility is about employee productivity, engagement and creativity through greater choice and flexibility.

There are four key enablers that maximize mobility to provide easier access to government services and move us toward a digital government.

NETWORKS

In a mobile world, services are not bound by physical space or time. Citizens are able to connect 24 hours a day, seven days a week from anywhere in the world. By connecting to different networks, citizens' ability to access government services will increase. Access to cellular and Wi-Fi networks will enable the Internet of Things (IoT), connect smart buildings, and provide flexible work environments resulting in new and innovative ways of doing business and interacting with government.

In the future, "devices will connect almost exclusively via wireless network" - Gartner

DEVICE MANAGEMENT

Devices are personal; they have become an extension of us, unique to our personal and work habits, methods and abilities. The type of device we use and how we use it impacts our ability to provide and receive digital services. Ministry choice is key and our ability to deliver consistent services across many different types of devices is critical to enabling a digital government.

Citizens have a growing expectation for governments to deliver integrated services across all channels, including mobile, web, call centres, virtual personal assistants, and others – Gartner

APPS FOR MOBILE

Modern application development tools and services make it easier to build, deploy and manage modern web and mobile apps. Government services need to be developed using a range of approaches that place the user at the centre and maximize mobile opportunities. With the broad variety of devices being used, a mobile app framework and platform reduces the cost and time of developing multi-device solutions. In some cases the move to cloud-based Software as a Service (SaaS) models will enable a cost efficient one-solution-fits-all devices approach.

POLICY

Core policy must be adaptable to account for rapid changes in technology. It must be fluid and flexible enough to enable employees to use, create and deliver mobile services while maintaining compliance to privacy and security requirements.

70% of information workers use a smart phone at least weekly for work, 35% say the same for a tablet, and 49% say that they choose the device themselves as opposed to following a company approved list or using a company issued cellphone - Forrester

THE BENEFITS OF MOBILITY FOR CITIZENS

Visually impaired citizens' lives can be improved through the use of mobile technologies.   Using the same technology as family, friends and their community, visually impaired citizens can use voice commands to read or write, determine denominations of money using a camera app, and determine their location through GPS and take photos.   Mobile apps and smart devices will make it possible for the visually impaired across the province to take advantage of government services, independently.

Mobility opens the door to deliver services in a modern, consistent way to increase citizen satisfaction. Citizens expect on-demand easy access to information and services. Mobility offers the opportunity to meet these expectations anywhere, anytime, through any device. The freedom to access services in a way that is appropriate to each citizen increases public confidence.

By 2019, 20% of user's interactions with the smartphone will be via virtual personal assistants   - Gartner

Through its very nature, mobility offers new ways for citizen engagement. For example, the B.C. Moose Tracker app allows citizens to play an important part in moose conservation and management. The app lets users upload vital information about any moose encounter directly to a province-wide database, to help wildlife staff closely monitor moose populations and be alerted to emerging issues.

The beauty of digital, and especially mobile, is that it makes feedback instantly available. - Forrester

Our Principles

- User driven design
- Device independence for choice
- Deliver frequent, incremental updates to services
- Security and privacy by design

THE BENEFITS OF MOBILITY FOR EMPLOYEES

Mobility enables us to work and receive services in the best possible location for the task. No longer bound by the confines of physical office space, a mobile worker is able to connect outside in the field. Forestry workers drive into remote areas using GPS enabled smart vehicles, capture videos and photos enroute, and upload them to headquarters. Drones can be deployed for a deeper look into the forest. Mobility allows us to work real-time, in any environment with new and consistent tools, increasing productivity and creating opportunities for new and innovative ways to work.

The first apps that employees want access to are productivity apps like email, calendar, notes and offices – Forrester

Work tools such as email, calendaring, office apps and mobile enabled websites on our mobile devices are the beginning of the creation of our digital workforce and enabling Leading Workplace Strategies. In a culture of mobile access, we develop a reliance and attachment to our mobile devices and are passionate about the information and services available to us. We expect our digital work experience to mirror that of our experience at home; we want consistency and the ability to consume services the way we do in our personal lives.

By 2022, 70% of software interaction enterprises will occur on mobile devices to address the need for delivering government services via mobile service - Gartner

Along with increased information availability, increased speed, convenience and quality of service delivery, mobility also offers us opportunities for cost savings. Through mobile device management, we are able to make better investment decisions and choices for our workforce technology. Aggregating software licensing and device management, including how we purchase and manage mobile phones, creates an opportunity to maximize the value of government investments. At the same time, mobile device management ensures we continuously improve our levels of security as new devices are made available.

By 2020, two thirds of all custom employee facing mobile apps will be created by enterprise business analysts using coding-optional tools - Gartner

Using 'smart' device capabilities, such as apps, GPS, photo and video creates a rich environment for innovation and change. A strong mobile culture creates freedom and flexibility through real choice of anywhere, anytime and any device resulting in increased innovation and employee satisfaction.

Smart buildings of the future are fully connected,

automated and interact with other IoT mobile devices and smartphones through apps. From optimizing employee traffic flow to adjusting temperature and lighting, through mobile connected smart buildings we can provide a better employee experience.

Adopting emerging technologies and making them readily available to our employees gives government an advantage in a competitive workforce environment. A modern, flexible work culture, supported by mobility, helps us to be a progressive employer of choice which strengthens our ability to recruit and retain talent.

With the right connections, tools and flexibility through non-traditional work environments we reduce the need to work in fixed space. In that reduction we create savings for government and shrink our carbon footprint. Managing the business of government through mobile technology and tools, and the mobile workspace, allows us to provide real time, start-to-finish experience while employees and citizens are "on the move."

Work anywhere/anytime encourages a mobile workforce more capable of responding to changing business conditions and a global economy. It promotes employee engagement and wellbeing through its focus on finding the appropriate work-life balance that is consistent with organizational values. - Gartner

OCIO Mobility Strategy

WHERE **WE'RE GOING**

For the citizen, success means secure access to services whether at home, the office, at a café or even while travelling abroad at a time that is convenient for them and in a way that is consistent and easy. For a citizen who needs to do an address change, or take care of a strata dispute, they no longer have to consider 'office hours' and make a trip to a physical location. That update is done easily and simply on a mobile app or through a web-based service at any time, even at a 3 a.m. meal break.

> *Regardless of the access point or device, citizens will look to government to provide easy, consistent services with their information protected and their right to privacy valued.*

Through the Smart Buildings Initiative, the BC Government is improving how it manages the energy performance of government buildings. This will result in a reduction in greenhouse gas emissions and lower energy costs. As we increase our connections through IoT and mobile apps, we drive service and financial benefits through mobility. Interactions between the connected building and mobile apps provide building access, temperature controls, room booking, even employee locator services through GPS for emergency purposes.

For ministries, a modern trusted and approved government mobile app development framework is key. A mobile development platform with services that are easy to use and re-use for routine challenges, help move us closer to better citizen experiences and enabling a digital government.

The mobile government worker will have a richer set of tools, connection points and devices to match their needs; supporting a work environment that is flexible and productive. Whether in the field or the office, access is consistent and may be on the same devices using the same tools they use at home.

Policy will allow for a greater degree of choice, and will support working in flexible ways. Changes to our telecommunications services will provide connection points seamlessly and reliably – modernizing our networks, expanding Wi-Fi and increasing cellular services will enable smart buildings, the IoT and support the use of mobility tools at the touch of a fingertip.

ROUTINE MOBILE DEVELOPMENT CHALLENGES

1. information storage for offline apps

2. mobile app deployment for citizens

3. multi-factored app development (responsive web vs native vs hybrid)

4. Security and Privacy

Networks, devices, mobile app development and modern policy are all pieces of our mobility landscape. Our success requires us to focus on how all of these components work together and on the interactions between all of the OCIO`s strategic pillars, Government Communications & Public Engagement's user-centric service design and ministry service delivery. Each of these components plays a role in providing a comprehensive digital experience for citizens and employees.

OUR MOBILITY ACHIEVEMENTS

We've **modernized Government's network**

upgraded **2,000** government offices to modern networks

implemented **Office in a Box** enabling cellular network based pop-up offices

implemented **remote access service** providing mobile devices secure access to the government network through cellular technology

We've introduced greater choice of **devices**

13,000 devices enrolled in the Mobile Device Management Service with **enhanced security**

7,000 user/lines now migrated to Unified Communications Service

3,300 Managed Print devices have been deployed for **secure anywhere, any location printing**

39 unique mobile devices have been approved for use

We have **apps for mobile**

We've been making **Government websites mobile**

We've piloted **Skype for Business**

We've launched **AirWatch** providing a catalogue with over **75 unique approved mobile apps**

We've developed a **BC Services Card App** for android

We've **Updated Policy**

and **published**

Information Security Policy 3.0

Mobile Device Guidelines answering FAQs and questions about travel

a **Mobile Device Security Standard**

OCIO Mobility Strategy

OUR CURRENT OCIO STRATEGIC GOALS

Looking ahead, the **OCIO Strategy 2016** sets our path forward through **four strategic goals.**
The **mobility initiatives** on the following pages are aligned to these **key strategic goals** which show us the critical nature of mobility in achieving a **digital government.**

GOAL ①

ENABLE DIGITAL

Enabling the public service to deliver digital services that are convenient and easy to use is going to take an all-of-government approach. The OCIO will play a key enabling role in setting the BC Government's foundation for digital service delivery.

GOAL ②

ENGAGED WORKFORCE

An engaged and supported workforce is needed to deliver quality services. Flexible work arrangements support collaboration, experiential learning and innovation. Staff with the right tools and training are more effective at delivering value. As more of our workforce approaches retirement, succession planning will become increasingly important.

GOAL ③

OPERATIONAL EXCELLENCE

Striving for operational excellence is about sound management, governance and operations of IT so government services are reliable, secure and accessible. Integrating and making it easy to access the many technology choices and platforms available today, both in-house and in the cloud, ensures that government services remain sustainable and interoperable.

GOAL ④

MAXIMIZE VALUE

Maximizing value from IT investments is about ensuring the OCIO remains focused on delivering our commitments and maintaining cost-effectiveness. In today's context of ongoing change, our investments, assets and approaches should continuously adapt to maximize business value.

OUR MOBILITY GOALS

GOAL **①** **ENABLE DIGITAL**

We will

1. Provide the leadership, tools and collaborative work environments that support digital service delivery across the public service

7. Simplify identity verification (authentication) to government services

We will achieve this by

1.3 Developing policies, standards, and security and identity guidelines to facilitate the development of government mobile apps and services

1.5 Modernizing and simplifying key IT policies and standards

7.2 Developing a mobile app that increases the convenience of the BC Services Card

GOAL **②** **ENGAGED WORKFORCE**

We will

4. Provide the tools and promote collaboration for a modern workforce

We will achieve this by

4.1 Offering government staff a better choice of the devices they need to do their job, while protecting sensitive information

4.2 Exploring cloud-based productivity software for all government staff

4.3 Making more collaboration tools such as video conferencing, voice-over IP, and team project management available to government staff

4.5 Creating opportunities for information sharing and collaboration **(NEW)**

4.6 Making OCIO services available to ministries though mobile devices **(NEW)**

Note: *Numbering and goals align to the OCIO Strategy 2016*

OCIO Mobility Strategy

OUR MOBILITY GOALS

GOAL (3) OPERATIONAL EXCELLENCE

We will

3. Improve the resiliency of our infrastructure and networks

4. Optimize the OCIO's IT investment portfolio

We will achieve this by

2.3   Implementing an enterprise mobile management solution to protect our devices, apps and data

3.3   Improving and expanding network connections in government offices for digital access - for staff and for citizens **(NEW)**

4.2   Implementing a governance practice **(NEW)**

GOAL (4) MAXIMIZE VALUE

We will

4.   Leverage analytics capabilities to inform decision making

We will achieve this by

4.1   Modernizing and automating OCIO business processes and systems to gather data for analytics

Note: *Numbering and goals align to the OCIO Strategy 2016*

MEASURES

Strategic Actions		Targets 17/18	Key Performance Indicators	Lead, Support
1.1.3	developing a 'pathfinder' mobile application platform through the BC Developers Exchange using early adopters to facilitate the development of mobile app framework. (contingent on funding).	» Launch and communicate Mobile Strategy » Establish mobility framework through the Pathfinder project » Prototype an application based on the framework	» mobile framework use » improved speed of solution delivery	DEVEX / SPPB
1.1.5	modernizing key IT policies and standards to include mobility	» Chapter 12 Core Policy Project Phase 1 complete » Policy Lab pilot complete	» user satisfaction	SPPB
1.1.5	developing easier to use security and risk tools for mobile app development	» short form STRA for installation of apps complete	» user satisfaction	SB
1.7.2	developing a BC Services Card mobile solution to make it possible for ministries to on-board to new mobile programs	» IOS app is available on the Apple App Store	» app use » reduced card reader issuance	IDIM
2.4.1	refreshing workstations early 2018 to provide ministries with the opportunity to increase the number of laptops in the workforce	» refresh started	» increased choice of devices offered	DEVICE
2.4.1	renewing cellular service plans and investigating broader use of smartphones across government	» renewed Bell and Rogers contracts	» % increase of mobile devices enrolled	AO TSMA / DEVICE
2.4.2	moving to next generation office productivity software	» privacy assessment complete » strategy and business case complete	» analysis complete	ASPB
2.4.3	implementing Lync conferencing making collaboration tools, like video conferencing, voice-over IP, team project management available to government staff	» 8,000 users/lines migrated to UC and /or cellular options	» increased adoption of Lync and a reduction in conferencing spend	NCCS
2.4.5	facilitating a mobility forum	» 2 mobility forum meetings	» mobility forum established	DEVICE, SPPB
2.4.6	developing a plan for the adoption of mobility enabled OCIO services	» develop an inventory of services to be mobile enabled	» plan in place	DEVOPS

OCIO Mobility Strategy

MEASURES

Strategic Actions		Targets 17/18	Key Performance Indicators	Lead, Support
3.2.3	implementing a Mobile Management Service (MMS) to optimize voice and data plans (usage/consumption reporting) to drive better use of devices and financial savings	» Workforce mobility roadmap developed with ministry engagement » Establish an employee satisfaction baseline with MDM Service » Implement work/personal segregation capability on mobile devices	» # of Ministries using service	DEVICE / NCCS
3.3.3	working with cellphone carriers to improve service quality within government buildings (contingent on funding)	» opportunities are identified for planning	» # of sites improved	NCCS
3.3.3	migrating majority of legacy voice lines by 2021 to the VOIP or cellular services (contingent on funding)	» Lync conferencing installed	» % legacy voice lines migrated	NCCS
3.3.3	expanding Wi-Fi to support mobility to enable LWS and mobile workers	» opportunities are identified for planning	» increased # of wireless locations	NCCS
3.3.3	increasing connectivity access across the province, cellular and broadband network by working with private sector, First Nations organizations and all levels of government	» Provincial Connectivity access at 97%	» # of households in B.C. are within high speed coverage	AO TSMA
3.4.2	implementing a governance practice	» develop terms of reference	» # of governance meetings (baseline)	SPPB
4.4.1	identifying opportunities for Wi-Fi, cellular, LAN, WAN to connect Smart Buildings	» plan developed for "connecting" smart buildings » areas needing improvement are identified	» # of opportunities	NCCS

CONCLUSION

Arriving at a modern, digital government will require maximizing mobility and the opportunities mobility provides. Our enablers, telecommunications, devices, policy and a mobile app platform and framework will allow us to deliver high value, convenient and flexible services to citizens and to BC Public Service employees. Mobility will change the way we work, creating possibilities for innovative new ways of working using greater technological capabilities. Policy will support new ways of working, and allow for choice and flexibility and address the many ways we connect to government services. Mobile apps, used on smart devices with their integrated functions connected through expanded networks into smart buildings, will provide us with a greater and easier experience of delivering and receiving government services.

Maximizing mobility means greater capability and greater choice. We will work in locations that provide the best possible outcome for the task, through increased connection points and with tools that provide freedom to work and access information and services anywhere, anytime and on any device.

Our success requires us to focus on how all of these components work together and on the interactions between all of the OCIO`s strategic pillars, GCPE's user-centric service design and ministry service delivery.

This strategy was co-created through a series of workshops connecting OCIO employees and stakeholder groups across government to inform our future direction for mobility.

GLOSSARY

5G Cellular Networks: are the 5th generation of wireless mobile networks (abbreviated 5G), telecommunications standards beyond the current standards.

BC Developers' Exchange: a community-based approach to enabling an ecosystem of co-creation, commercialization and rapid adoption of innovation between the B.C. Technology Industry and the BC Public Sector.

BC Services Card: an identity card that will provide citizens access to government services - starting with provincial health care services for eligible residents.

Bring Your Own Device (BYOD): the ability for employees to securely use their own mobile devices on the provincial government network.

Core Policy: government standards for sound management and financial administration.

Continuous Service Improvement (CSI) Lab: BC Government teams who demonstrate how to make continuous improvements to government digital services.

Digital Government: the use of digital technologies as an integrated part of governments' modernization strategies to create public value.

Government Communications and Public Engagement (GCPE): GCPE's primary role is to inform the public about government programs, services, policies and priorities through traditional communication practices and, increasingly, through direct engagement and online services.

Internet of Things (IoT): the network of physical devices embedded with sensors, software, and network connectivity which enable these objects to collect and exchange data.

LAN: is an acronym for Local Area Network where computers and peripherals are connected to a server within a small geographic area such as an office or building.

Leading Workplace Strategies (LWS): the Leading Workplace Strategies initiative allows thousands of BC Public Service employees to work in more flexible and collaborative ways, taking advantage of mobile technology.

Lync: Microsoft's system for unified communications for organizations. It includes instant messaging (IM), voice-over IP (VoIP) and web conferencing both within the organization and externally.

Mobile Device Management (MDM): is an industry term for the administration of mobile devices, such as smartphones, tablet computers, laptops and desktop computers.

Mobile Management Service (MMS): coordinates ministry cellular admin activities and manage devices over their lifecycle, while optimizing voice and data plans (usage/consumption reporting) to drive better use of devices and financial savings.

Office 365: the brand name used by Microsoft for a group of software and services subscriptions, which together provide productivity software and related services to subscribers.

Pathfinder: an agile approach being driven by the CSI Innovation Lab used to apply modern tools and methodologies to create IT service solutions.

Security Threat and Risk Assessment (STRA): a component of a risk analysis specifically aimed at identifying security exposures.

Smart Buildings: a structure that uses automated processes to automatically control the building's operations including heating, ventilation, air conditioning, lighting, security and other systems.

Smart Buildings Initiative: Smart Buildings Initiative will examine how to utilize systems that collect information so that buildings can operate more efficiently.

Software as a Service (SaaS): is a software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted (in the "cloud"). It is sometimes referred to as "on-demand software".

Unified Communications (UC): is a term that is used to describe the integration of communication services such as instant messaging (chat), presence information, voice (including IP telephony), mobility features, audio, web and video conferencing.

User-centric/user-centered: used to describe products and systems whose design is based on the ways that people will use them and what they will do with them.

User Experience: the overall experience of a person using a product such as a website or computer application, especially in terms of how easy or pleasing it is to use.

VoIP: is an acronym for Voice-Over Internet Protocol. A set of standards, technologies and services which provide for the transmission of digitized voice in packets over Internet Protocol based networks such as the public Internet.

WAN: is an acronym for Wide Area Network, a computer network in which computers and peripherals are connected across distances.