Smart Buildings

June 13, 2019

Security Day: Smart Cities

BRITISH COLUMBIA | Ministry of Citizens' Services

Agenda

1. Introductions

2. Overview and Background

3. Key Learnings

4. Next Steps

CIRMO   CSD   ES   ICT   OCIO   PSD   RPD   SBC

Introductions

Overview and Background
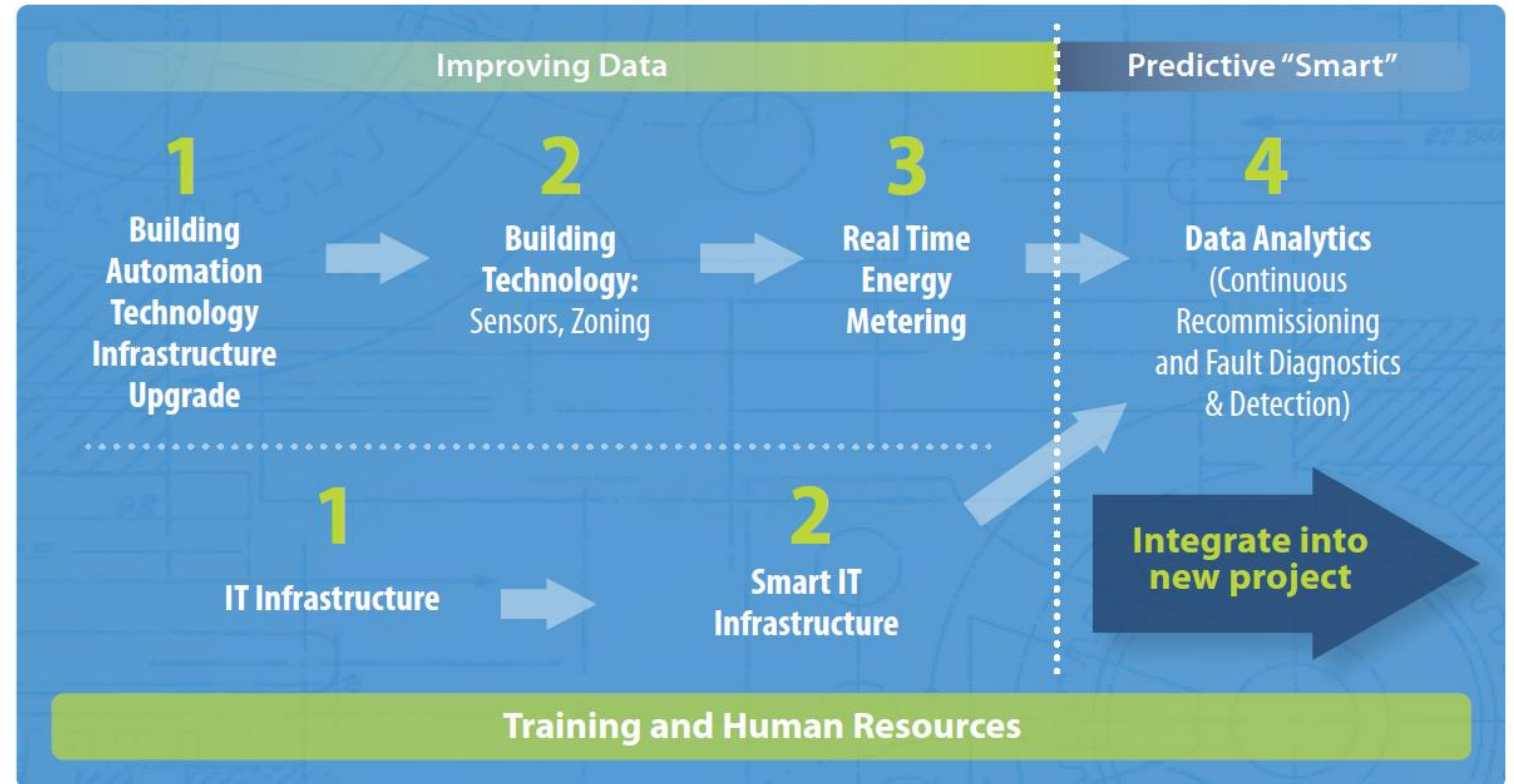
Smart Milestones

- Standards

- Procurement

- Proof of Concepts

- Leased Spaces

- Devices

SMART TECHNOLOGY INVESTMENTS

Improving Data | Predictive "Smart"

1 Building Automation Technology Infrastructure Upgrade → **2** Building Technology: Sensors, Zoning → **3** Real Time Energy Metering → **4** Data Analytics (Continuous Recommissioning and Fault Diagnostics & Detection)

1 IT Infrastructure → **2** Smart IT Infrastructure

Integrate into new project

Training and Human Resources

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Smart Milestones

Standards (2018 / 2019)

Establish the open standards and protocols to ensure data from all new equipment and systems can be integrated with other systems

Initial focus on lighting and HVAC systems

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Smart Milestones
Procurement (2018 / 2019)

Improve access to products and services in industry, reduce barriers for vendors to partner with government, including a market readiness assessment

Establish program for product reviews, including communications to vendors and involving building occupants

Establish investment criteria for new products and for moving past proof of concept to wider adoption

Establish strategic vendor list and partner with vendors

Smart Milestones

Proof of Concepts (2018 – 2023)

In 2018/19, with completion by 2022/23, work with ministry clients to create a showcase smart building, including IT infrastructure, building infrastructure, and analytics

From 2018/19, annually identify and study two proof-of-concept projects per year for individual smart products

From 2018/19, study the impact of projects through measurement and verification at a systems level

In 2019/20 to 2022/23, in 10 buildings implement direct digital controls (DDC) systems upgrades/ real time metering, and fault diagnostics and detection (FDD), and continue the focus on retro/re-commissioning

Smart Milestones

Leased Spaces (2019 / 2020)

Work with landlords in leased spaces to complete an inventory of direct digital control (DDC) systems in leased buildings, establishing protocols and best practices for installing, maintaining or removing DDC systems

Smart Milestones

Devices (2019 / 2020)

Increase the weighting for new workplace devices to be selected based on energy savings

Continue to report on: enhance network infrastructure (PoE), reduce the number of data network hubs, combine voice and data network infrastructure to reduce volume of circuits used, fully enable wireless access and provide full coverage within two years, track the number of video and audio conferencing meetings and percentage increase in employees participating in online meetings

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Energy Smart Year 1 Achievements

PATHWAYS

Building Energy Retrofits & New Construction	Smart Building Technology	Leading Workplace Strategies (LWS)	Adaptation for Resilient Buildings	Electric Vehicle Charging Equipment	Clean Energy Supply
9 complete 2 deferred	10 complete 5 deferred	3 complete	3 complete	2 complete	3 complete
Highlights include: Implementing 25+ retrofits, completing energy audits, green assessments, Technical Standards, and investments processes.	**Highlights include:** Completing and implementing proof of concept projects, privacy & security assessments, joint processes, VPN, Wi-Fi, Unified Communications.	**Highlights include:** Completed 16 projects in 8 communities, assessed Share/Space concept & Node pilot.	**Highlights include:** Completed assessment of 3 assets for climate risks, delivered webinar, scope definition for larger risk analysis.	**Highlights include:** Completed 20 installations for EV charging, and created joint planning processes.	**Highlights include:** Completed 3 business cases for electrification, plans for renewable natural gas, and replacing propane.

30 milestones implemented
7 deferred

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Projects Summary 2018 / 2019

Completed

Fault Detection and Diagnostics (CopperTree) at Robson Square

Underway

Wifi enabled HVAC controls (Sensible Buildings) at 1810 Blanshard

Fault Detection and Diagnostics (CopperTree) at 1810 Blanshard

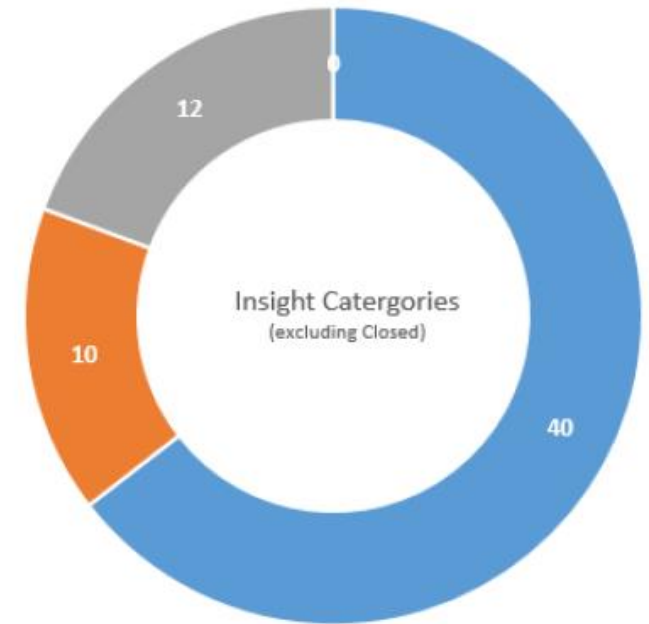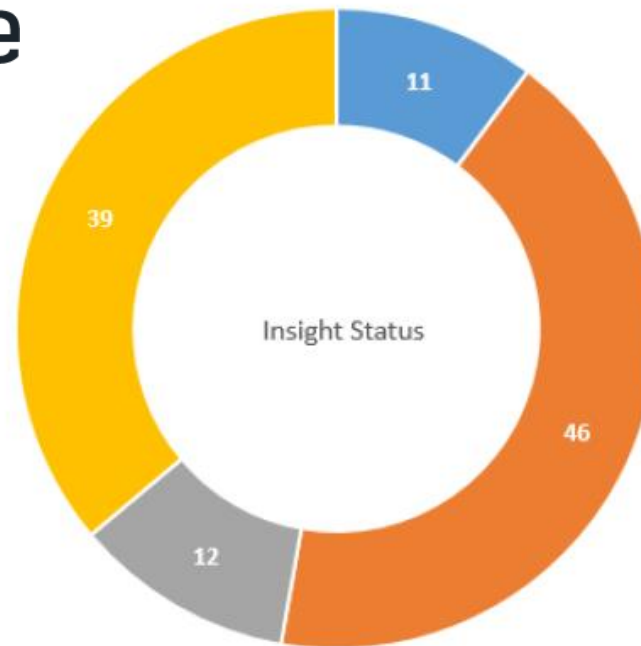Cellular enabled temperature control (Telus/mCloud) multi-site

FDD at Robson Square (CopperTree)

Avoidable Cost Impact: $22,582

Insight Status

- New: 11
- Closed: 46
- In Progress: 12
- Review Req: 39

Insight Catergories (excluding Closed)

- Energy Impact: 40
- Thermal Comfort: 10
- Life Cycle: 12

Legend — Insight Status: ■ New ■ Closed ■ In Progress ■ Review Req

Legend — Insight Categories: ■ Energy Impact ■ Thermal Comfort ■ Life Cycle ■ Other

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Summary of Vendor Proposals

Wifi enabled temperature control (BGIS/SBC) multi-site

Integrated smart buildings (BGIS/Cisco/Compucom) at Queen's Printer
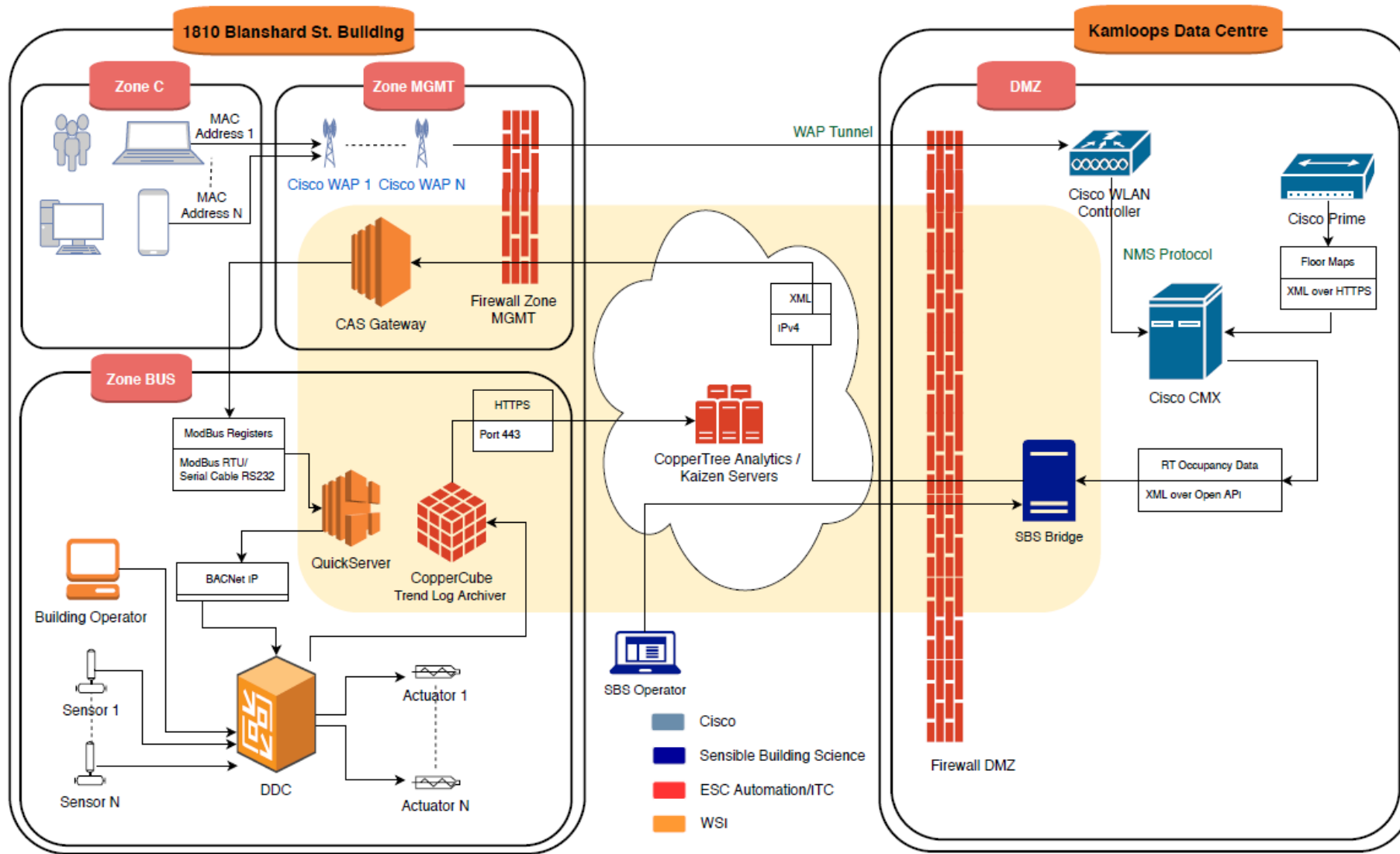
IBM integrated building

CGI integrated building

1810 Blanshard PoC - Technical Architecture Diagram v1.6

Telus SIF

TELUS and mCloud can offer optional services to RPD to enable various levels of smart building technology under this proposal:
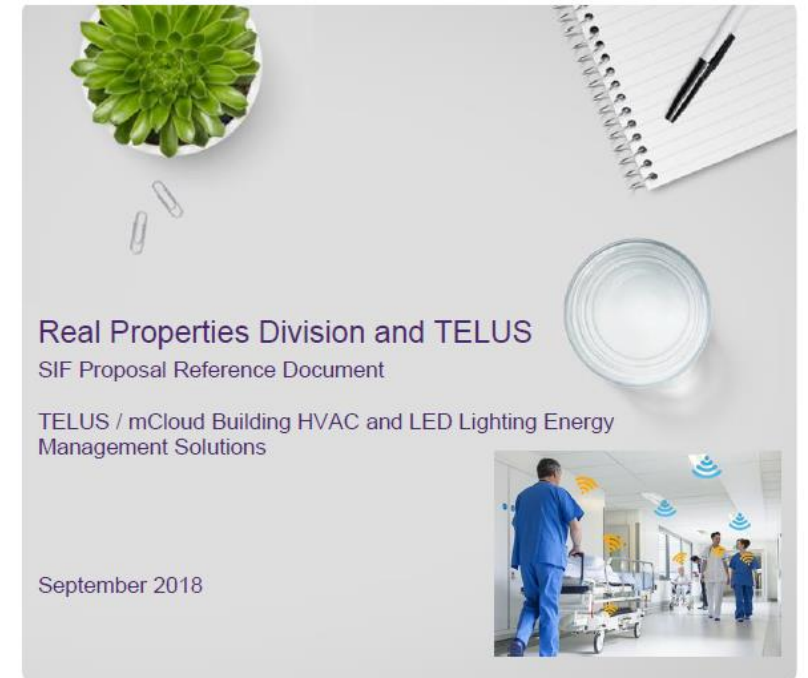
Big Data Analysis to identify opportunities
Smart Thermostat upgrades
LED Lighting upgrades
Occupancy Sensing Smart LED lighting
MCloud AssetCare of the IoT infrastructure

Real Properties Division and TELUS
SIF Proposal Reference Document

TELUS / mCloud Building HVAC and LED Lighting Energy Management Solutions

September 2018

Telus SIF Sites

Municipality	Building Occupant

KAMLOOPS
1259 Dalhousie Dr
	ENV
	    BC Parks
	    Environmental Protection
	    Regional Admin Support

VERNON
3001 27th St.
	AG
	    Court Services
	    Criminal Justice
	Vernon's Women Transition House

WILLIAMS LAKE *540 Borland St.*	Multiple Ministries Service BC
KAMLOOPS *1165 Battle St.*	MCFD

POWELL RIVER
7077 Duncan St.
	FLNR
	    Front Counter BC
	    Sunshine Coast Forest District

SAANICH
1150 McKenzie Ave.
	CITZ, Logistics and Business Supply
	    BC Mail Plus Regional Office
	    Driver Licence Card Production

Key Learnings

Key Learnings

The role of the "BUS" in safely using "Internet of Things" devices

Clarifying how RPD connects to IMB and OCIO

Vendor-Neutral

Changes to FM Service Delivery

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Next Steps

Questions?