**AUDITOR
GENERAL**

TORONTO

Review of Toronto Transit Commission's (TTC) Revenue Operations: Phase Two PRESTO/TTC Fare Equipment and PRESTO Revenue

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TTC Phase 2 Audit - Agenda

Introduction

1. Complexity

2. Issues Identified
   - Equipment, Availability
     Calculation & Control gaps

3. Moving forward

Introduction

In addition to fare evasion, the following can also result in passenger revenue loss to the TTC:

1. **Malfunctioning fare** equipment
   - <u>PRESTO card readers </u>(bus, streetcar)
   - TTC subway <u>fare gates </u>(stuck in open position)
   - PRESTO <u>vending machines </u>on new streetcars (2 types)

2. Revenue transactions not captured properly by PRESTO's back-end systems

Introduction

Audit Phase 1

Focus was on:

► <u>Fare evasion</u> and the estimated loss of passenger revenue
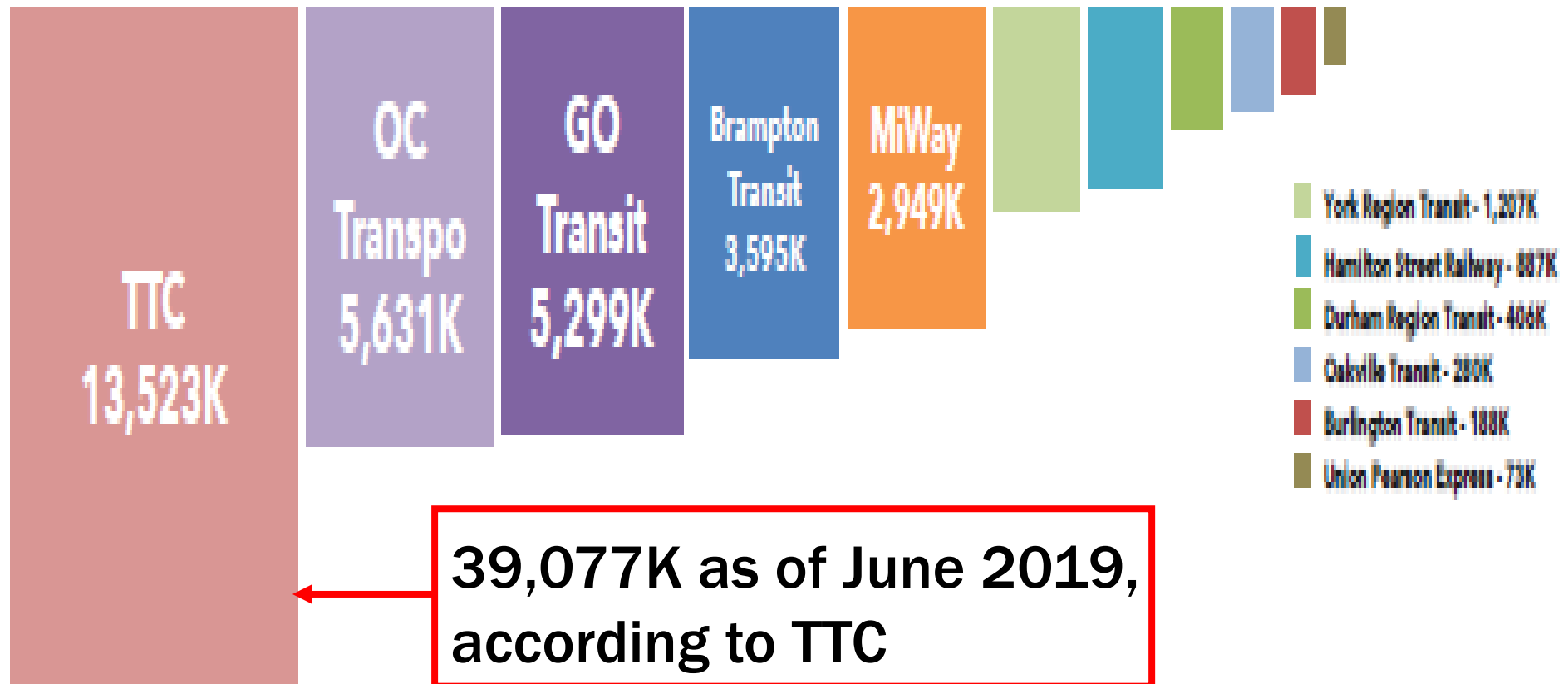► Effectiveness and efficiency of <u>fare inspection</u> program

Audit Phase 2

Focus was on whether TTC is receiving all the <u>**PRESTO revenue**</u> it should, including a review of the following:

► Functionality of PRESTO and TTC <u>fare equipment</u>
► TTC's <u>contract</u> with Metrolinx
► Capturing all <u>PRESTO revenue transactions</u> on TTC through PRESTO's back-end systems

TTC is a key client

PRESTO Boardings: June 2018

TTC 13,523K

OC Transpo 5,631K

GO Transit 5,299K

Brampton Transit 3,595K

MiWay 2,949K

York Region Transit - 1,207K

Hamilton Street Railway - 807K

Durham Region Transit - 406K

Oakville Transit - 280K

Burlington Transit - 188K

Union Pearson Express - 73K

39,077K as of June 2019, according to TTC

1. Complexity

Flow of PRESTO Revenue Transactions from Device to PRESTO's Systems to TTC's Bank Account
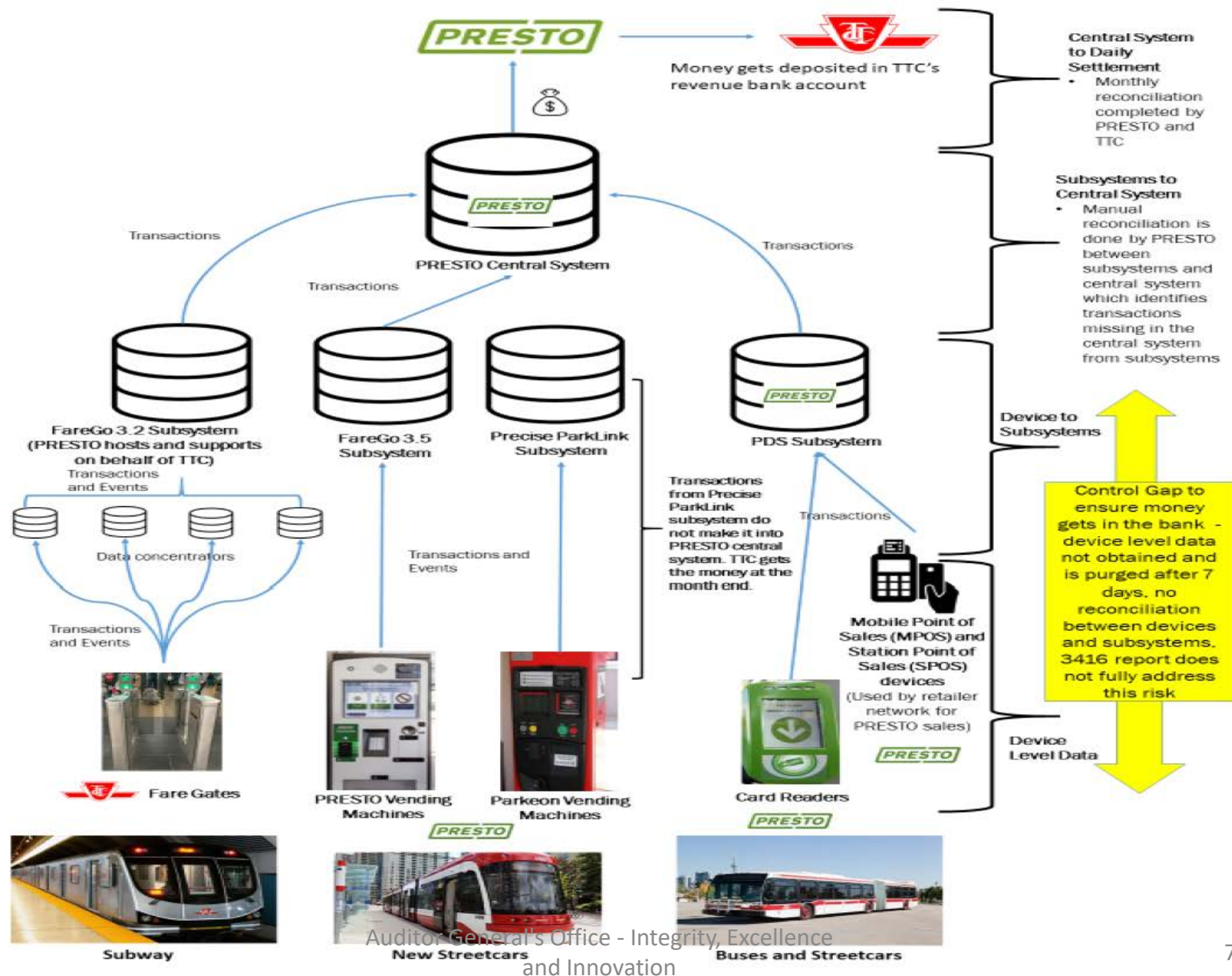
Example of complexity – one type of fare equipment (fare gates)

Fare gates are owned by TTC and TTC bought them from S&B. TTC is responsible for the first line maintenance and S&B is responsible for the second line maintenance

TTC Staff manually identify out-of-service fare gates for maintenance

Card reader is owned by TTC. The software of the card reader which calculates the fare rules are developed and managed by Accenture on behalf of PRESTO

Revenue transactions and fare gate activities are uploaded to data concentrators (hosted by Telus on behalf of Accenture) and then to FareGo subsystem (hosted and supported by PRESTO on behalf of TTC). BAI communication provide network connectivity from the device to the concentrator
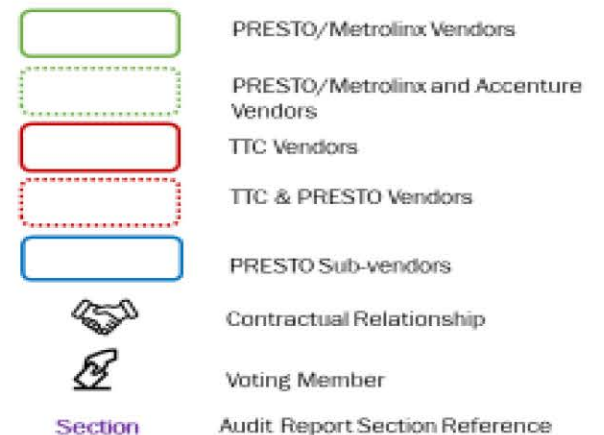
Example of Complexity

"Fare gate activities are monitored using FareGo 3.2, which is an S&B software system, currently hosted by Telus, on behalf of Accenture, a vendor of PRESTO"

(page 71 of AGO report, TTC Phase 2 Revenue Operations Audit)

Governance and Contractual Relationships
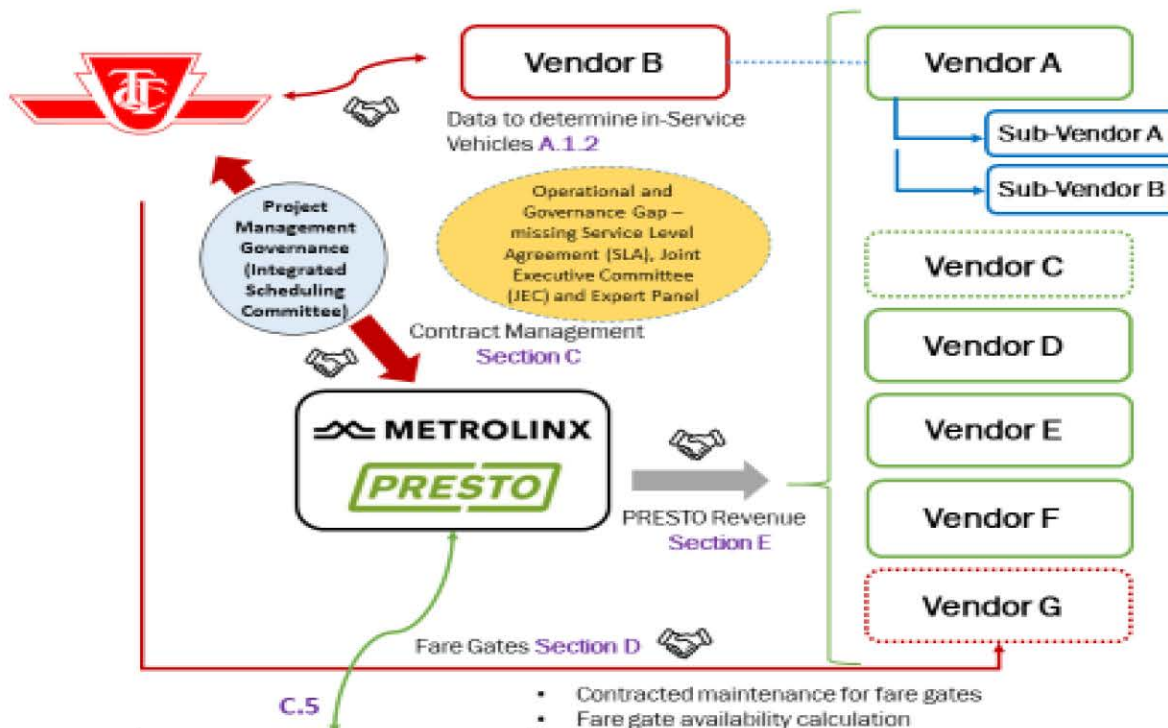
2. Issues Identified

FARE EQUIPMENT & AVAILABILITY CALCULATION

CONTROL GAPS

PRESTO Card Readers

Roles and Responsibilities:
- Devices are <u>owned by PRESTO</u>
- PRESTO bought them from Scheidt & Bachmann (S&B)
- <u>Maintenance is done by PRESTO</u>
- <u>Monitoring</u> of out-of-service instances are done by <u>PRESTO's vendor's offshore team</u>
- Revenue transactions are recorded in PDS subsystem
- Out-of-service instances are recorded in the device monitoring software tool

How availability is calculated: Using device out-of-service statuses in the device monitoring software tool

Who calculates the availability? Accenture

PRESTO Card Readers

Availability Calculation Issues Include:

- Availability calculation is only provided for Monday to Friday between 6 AM and 10 PM (A.1.1)

- <u>Frozen card readers may be captured as "in-service"</u> rather than "out-of-service" in the availability calculation (A.1.1)

- <u>Vehicles that are in-service but not recorded in NextBus</u> GPS application system (due to a number of different reasons) are excluded from the availability calculation (A.1.2)

- Vehicles that are improperly included in TTC's maintenance list and are actually in-service are excluded from the availability calculation (A.1.2)

- <u>Not all out-of-service device statuses occurring between the 15 minute pings</u> are captured in the availability calculation (A.1.3)
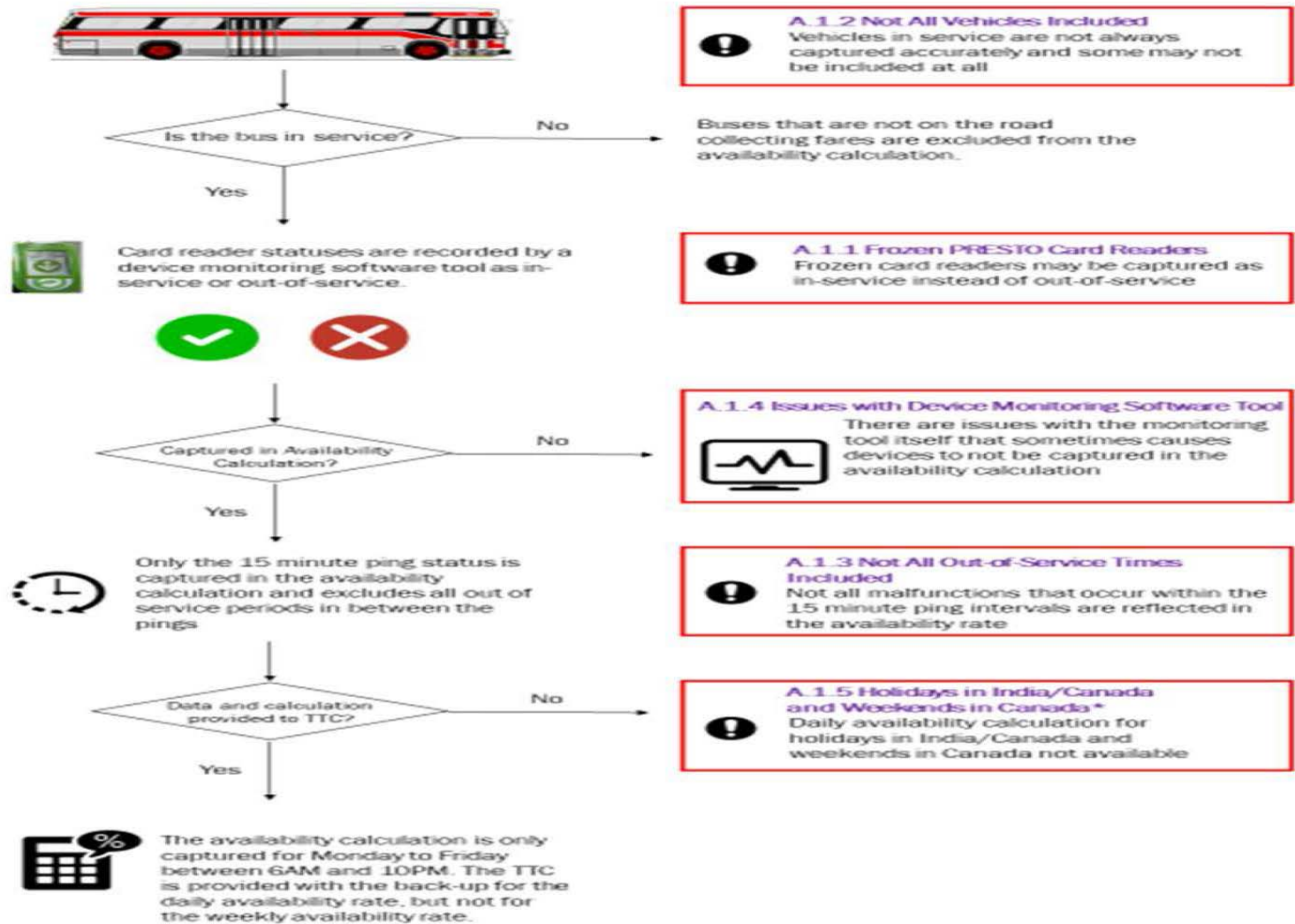
PRESTO Card Readers

Availability Calculation Issues Include (continued):

- Due to **issues with the device monitoring software tool** during our audit, some devices were not included in the availability calculation and some devices were captured with an incorrect status such as "in-service" rather than "out-of-service" (A.1.4)

- PRESTO's vendor appears to be able to make adjustments to the device statuses for the availability calculation. <u>The analysis and support for the weekly rate, including any adjustments made, is not provided to TTC</u> (A.1.4)

- TTC does not get a daily availability calculation spreadsheet for holidays in India/Canada and weekends in Canada (Note: Daily availability spreadsheet is now provided to TTC for holidays in India) (A.1.5)

- For daily spreadsheet not provided during holidays in India, PRESTO staff were not aware of the issue and back-up could not be provided to confirm that these days were included in the weekly rate (data purged after 60 days, when it is required to be kept for 7 years per contract) (A.1.5)

PRESTO Card Readers – Availability Rate Calculation

A.1.2 Not All Vehicles Included
Vehicles in service are not always captured accurately and some may not be included at all

Is the bus in service? No →
Buses that are not on the road collecting fares are excluded from the availability calculation.

Yes

Card reader statuses are recorded by a device monitoring software tool as in-service or out-of-service.

A.1.1 Frozen PRESTO Card Readers
Frozen card readers may be captured as in-service instead of out-of-service

A.1.4 Issues with Device Monitoring Software Tool
There are issues with the monitoring tool itself that sometimes causes devices to not be captured in the availability calculation

Captured in Availability Calculation? No →

Yes

Only the 15 minute ping status is captured in the availability calculation and excludes all out of service periods in between the pings

A.1.3 Not All Out-of-Service Times Included
Not all malfunctions that occur within the 15 minute ping intervals are reflected in the availability rate

Data and calculation provided to TTC? No →

A.1.5 Holidays in India/Canada and Weekends in Canada*
Daily availability calculation for holidays in India/Canada and weekends in Canada not available

Yes

The availability calculation is only captured for Monday to Friday between 6AM and 10PM. The TTC is provided with the back-up for the daily availability rate, but not for the weekly availability rate.

*Per PRESTO's vendor's staff, holidays in India were originally not included in the daily availability reporting, but were reflected as part of the weekly rate. However, we did not receive the back-up of the weekly rate for these days to verify if they were added back.

PRESTO Card Readers

Monitoring for out-of-service instances is done by PRESTO's vendor's offshore monitoring team 24/7

Incident Management Issues Include:

- **Monitoring team did not always open a service ticket in the incident** management system (called ServiceNow) for out-of-service devices (B.1.1)

- Device monitoring software tool used by PRESTO's vendor **does not have reporting/extracting capability available** for the TTC and the data in the device monitoring software tool is **purged after 60 days** (B.1.2)

- PRESTO does not maintain a running log of swapped devices, contrary to the Master Agreement (B.1.3)

- **TTC staff need to improve the accuracy of the bus maintenance list** provided to PRESTO (B.1.4)

- TTC staff did not always report and raise service tickets in PRESTO's incident management system for malfunctioning devices (B.1.5)

PRESTO Vending Machines on New Streetcars

Roles and Responsibilities:

- Machines are <u>owned by PRESTO</u>

- PRESTO bought them <u>from **S&B**</u>

- <u>**Maintenance is done by S&B**</u>

- <u>**Monitoring of out-of-service instances are done by S&B**</u>

- Revenue transactions and out-of-service instances are recorded in FareGo subsystem

How availability is calculated: Based on repair time (calculated from the time the issue was raised in the incident management system to the time it was fixed)

Who calculates the availability? Scheidt & Bachmann (S&B)

PRESTO Vending Machines on New Streetcars

Availability Calculation Issues Include:

- <u>Out-of-service machines as a result of **"coin box full"** are excluded from the availability calculation</u> because it is technically not broken so it is not the vendor's responsibility (A.2)

- Out-of-service machines as a result of network connectivity issues are excluded from the availability calculation because connectivity is the responsibility of another vendor (A.2)

- Prior to July 2019, PRESTO was responsible for the first line maintenance but this repair time was not included in the availability calculation (A.2)

- Not all out-of-service machines were included in the availability calculation as being "not available" but should have been, according to the definition between PRESTO and its vendor (A.2)

PRESTO Vending Machines on New Streetcars

Incident Management Process:

- S&B staff monitor the out-of-service instances in their back-end system (FareGo)

- TTC also raises out-of-service incidents to PRESTO's incident management system

- S&B is responsible to fix hardware and software issues, Garda is responsible for coin collection, and Telus is responsible for network connectivity issues

PRESTO Vending Machines on New Streetcars – e.g. coin box full

The new TTC streetcars have two vending machines on board, which take both tokens and coins. The coin boxes inside the streetcars are emptied nightly at the garage

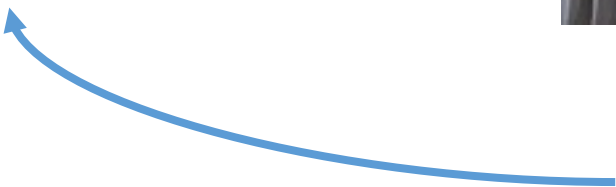If a coin box inside the vending machine is full, the vending machine will show as out of service

System will generate a warning message run by **Vendor A**

PRESTO should ideally notify **TTC** to make the streetcar available at night for coin collection by **Vendor B**

Vendor A ideally should notify **PRESTO** that the coin box is full

TTC Subway Fare Gates

Roles and Responsibilities:

- Fare Gates are <u>owned by TTC</u>

- TTC bought them from S&B

- <u>Maintenance is done by TTC and S&B</u>

- <u>Manual identification of out-of-service instances are done by TTC</u>

- Revenue transactions are recorded in FareGo subsystem

How availability is calculated: Using fare gate out-of-service status in the FareGo subsystem

Who calculates the availability? TTC

TTC Subway Fare Gates

- The identification of broken fare gates is <u>currently a manual process, requiring TTC staff to identify and report issues</u>

- TTC staff advised us that the next version of software that TTC plans to purchase will provide automatic identification – this information will help TTC to address issues with fare gates in a more timely way

TTC Subway Fare Gates
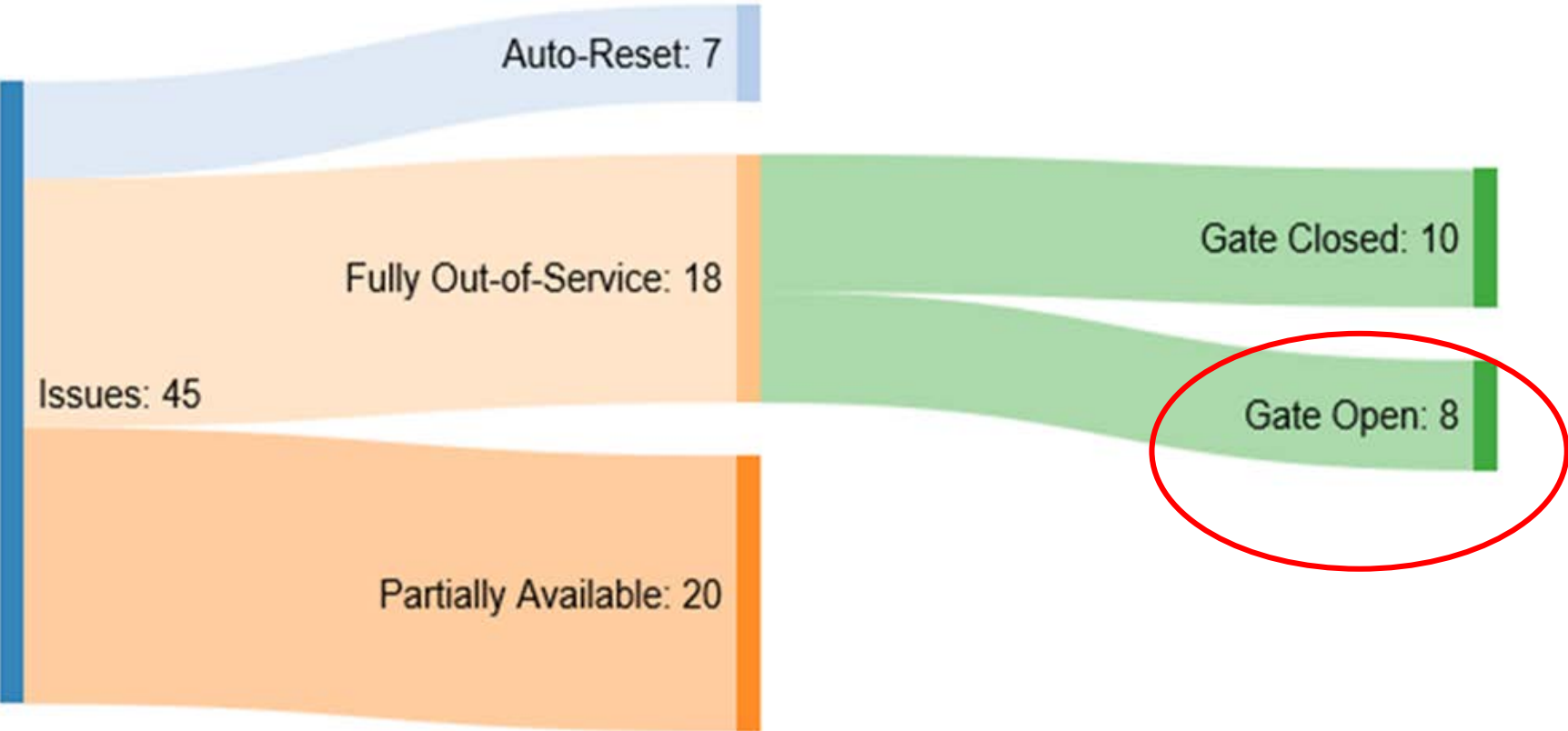
TTC Subway Fare Gates

Incident Management Process Issues Include:

- Not all out-of-service gates that are stuck in an open position are barricaded to prevent customers from passing through, which could result in revenue loss to TTC (D.1)

- TTC does not receive automatic alerts from the current FareGo subsystem when the fare gate goes out of service (D.2)

- TTC staff currently have to manually identify the out-of-service gates (D.2)

- At the automatic entrances where there is no TTC Staff presence, the gate could potentially stay out of service for a long time (D.2)

- **Escalated issues to TTC's vendor to fix fare gates were not completed within the targeted timeline as per the SLA** (D.3)

- TTC gets compensated up to a maximum of 25 per cent of the service charge if the availability and maintenance targets are not met by its vendor (D.3)

2. Issues Identified

FARE EQUIPMENT & AVAILABILITY CALCULATION

CONTROL GAPS

Controls and Assurance Provided by PRESTO Need Strengthening

- Audited 3416 report
- 12 control gaps
  - Some key controls not included or not specified in the 3416 report
    - Risk exists between the device level and subsystem level – controls need strengthening
    - 3416 report does not specifically include TTC fare gates, data concentrators and Farego subsystem
  - Operational controls not included in report require another mechanism to address them, such as an SLA (e.g. availability of card readers)
- Retailer network controls
  - No reconciliation controls (cash, debit/credit) for retailer network
  - Metrolinx should receive cash reconciliations and request separate 3416 report from vendor

Controls and Assurance Provided by PRESTO Need Strengthening

- A manual reconciliation is done by PRESTO staff, but only between the subsystem and PRESTO's central system. The manual reconciliation identifies transactions missing in PRESTO's central system from the subsystem, but could be prone to human error and may not identify all items (E.1)

- There is no reconciliation between the device level (where the transaction starts) and the subsystems and PRESTO's central system. This creates a higher risk if there are any missing transactions from the device level to the subsystems and to PRESTO's central system, as they may not be identified and pushed through (E.1)

- TTC has not been provided with device level data from PRESTO (data is encrypted and purged after seven days) (E.2)

- PRESTO is not provided with a cash and debit/credit card reconciliation from PRESTO's third party retailer network for sales transactions of TTC's monthly passes and single-use tickets (E.4)

- <u>TTC is not compensated for sales of TTC's monthly passes and single-use tickets that do not get into PRESTO's central system</u> (E.4)

Flow of PRESTO Revenue Transactions from Device to PRESTO's Systems to TTC's Bank Account
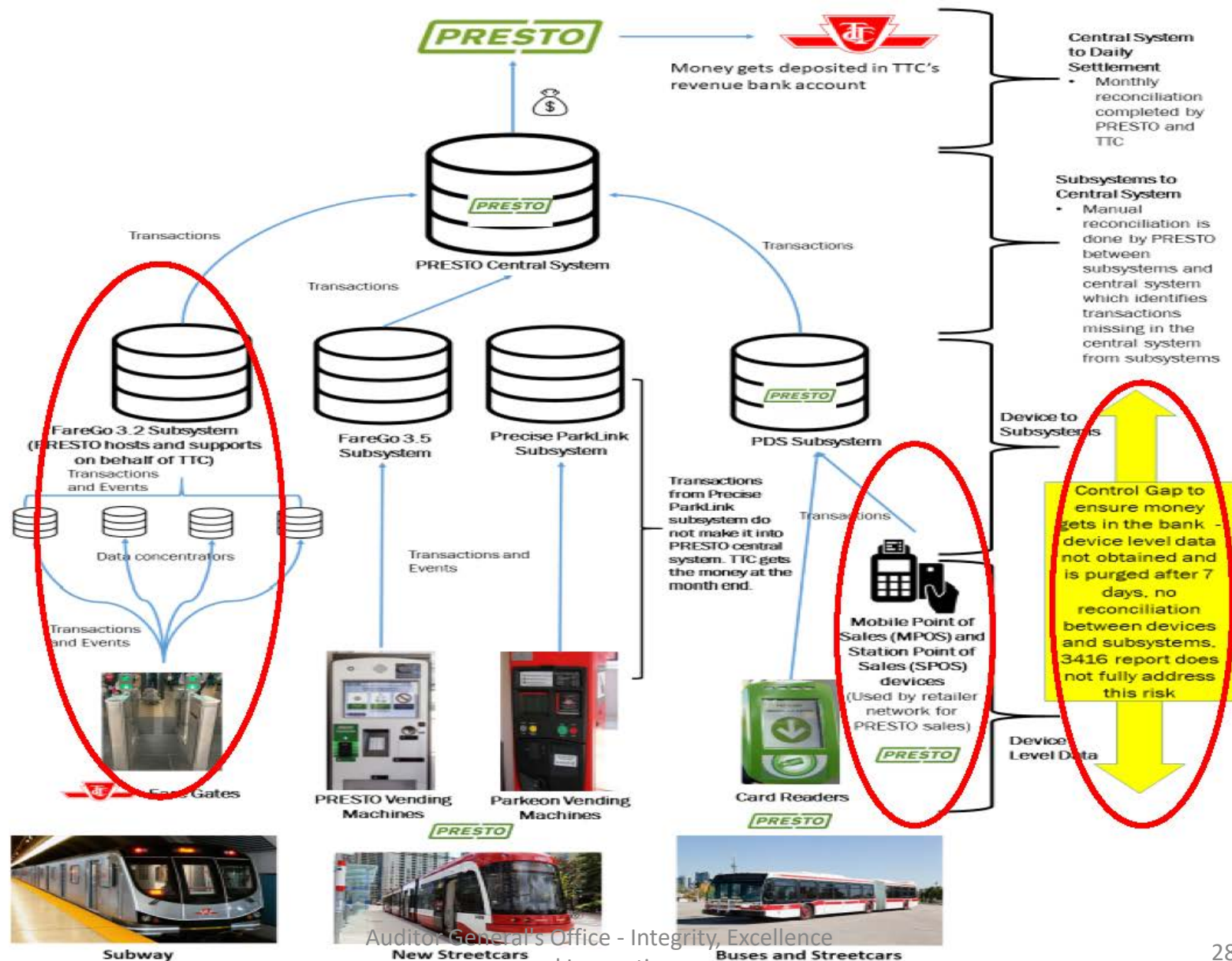
3. Moving Forward Together

Moving Forward

1. It is not uncommon to have issues arise in large, complex outsourcing deals –
   - Focus on how to resolve the issues

2. Seek a win/win for everyone to win...including customers
   - Acknowledge individual and shared accountabilities and responsibilities in this arrangement – move from blame

3. Keep moving forward
   - Obtain the information to diagnose the root cause
   - Put Strategies in place with key deliverables to address the issue

FORESIGHT

- ## Vision for the rest of this contract and the next – strategically -
  - What matters most? Improving customer experience and maximizing revenue?– Is everyone aligned to achieve success?

- ## Identify options to bring the deal the next level, including for:
  - Metrolinx - How and when it will complete strategic deliverables, such as open payment

  - TTC, What does it visualises for the citizens of Toronto
    - define what is important,
    - determine the information and the service levels it needs to achieve these goals for Torontonians

INSIGHT

Both TTC and Metrolinx need better information to identify, diagnose, and resolve issues

1. Define clear, agreed upon, and formalized outcomes and **Service Level Agreement** (SLA) targets – set interim targets if necessary

2. Data sets are missing (e.g. device level data) & analytics need improving
   - What do the percentages mean?
   - Unpack the numbers and definitions

3. Improve Communication

Examples of Points of view that need to be reconciled

Example	Metrolinx	TTC
SLAs	Not defined	Not defined
Presto Adoption	66%	81%
Debit /Credit card functionality	Permanent Removal	Temporary Removal
Contracted Deliverables Outstanding	Approx. 20% (mainly Open Payment)	At least 40% outstanding
Presto Card Reader availability target	No SLA in place	> 99.99% per contract
Revenue Loss Claim	$ 0	$7.5 M for 3 years ended Dec 31, 2018
Withdrawals – other than PRESTO commissions	...basically feel it is authorized	Feel it is unauthorized...

OVERSIGHT

1. Need:
   - the <u>right people</u>
   - at the <u>right table</u>
   - with the <u>right information</u>

   To:
   - Verify <u>right things are getting done /</u> targets are met
   - Unpack issues if necessary
   - make decisions to move the parties forward

2. **Governance gap** may have resulted in issues being needlessly escalated

3. **Gap needs closing** by <u>reinstating Joint Executive Committee</u> and <u>operationalizing the Expert Panel</u> to helps set up <u>SLAs</u> when needed

Governance and Contractual Relationships

36
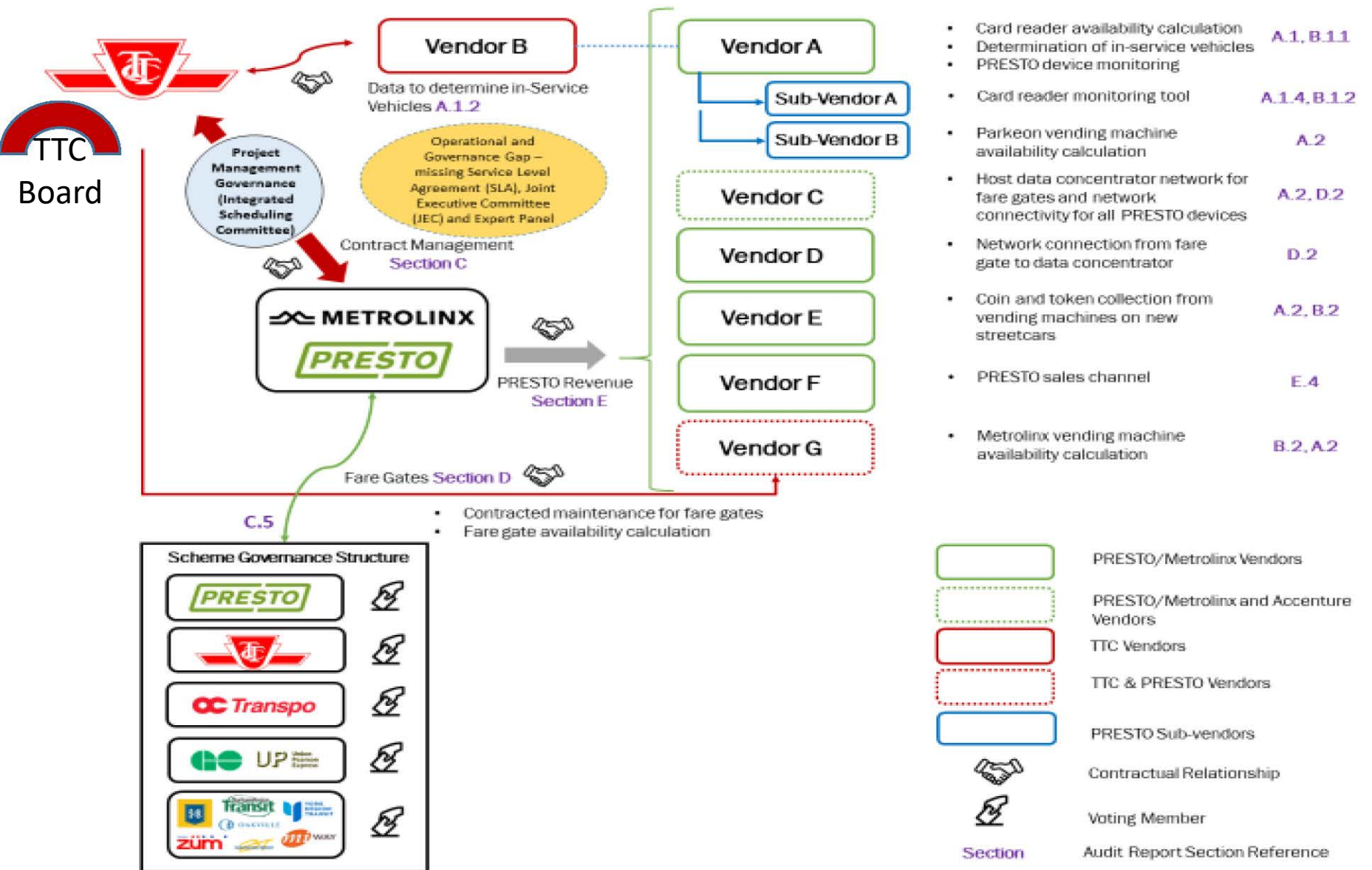
Concrete Steps to Move Forward in a Big Way... some starting examples

1. Reinstitute the Joint Executive Committee

2. Set up the Expert Panel and provide information to define and set key SLAs

3. List all deliverables yet to be complete
   - which ones will be delivered
   - target timelines for delivery

4. Address 'laundry list' of issues identified in the AG report to help resolve matters

5. Align data reports to support root cause analysis

6. Communication the parties differ – bring impasses to the Board

34 Recommendations to Move Forward

The Executive Leadership Teams of both TTC and Metrolinx conveyed their support for this audit and found that it brought new insight and perspectives. They have shared a renewed commitment to achieving the vision contemplated in the business arrangement for the benefit of citizens and to putting the pillars in place to make this happen.