

Real-time Passenger Information for Rail Transit: Lessons from Three System Implementations



2017 Rail Conference

Samuel Hickey, Transit Data Specialist, IBI Group

June 13, 2017





Agenda

Introduction

RTPI for Rail Overview

RTPI for Rail System Components

Strategy for RTPI for Rail

Case Studies



Multi-disciplinary professional services firm

2,500+ staff / 75+ offices including Seattle & Boston

Core expertise in transit / rail service planning and operations analysis

Extensive experience in Transit Technology

Increasing focus on Transit Data



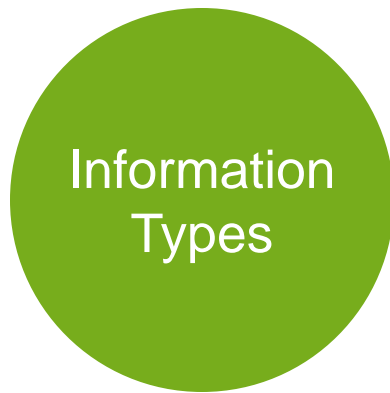
IBI's Transit Data practice focuses on helping transit agencies:

Manage their data end-to-end

Provide high-quality information to passengers

Analyze and measure the quality of service provided to and experienced by customers

RTPI for Rail Overview



Locations

Predictions

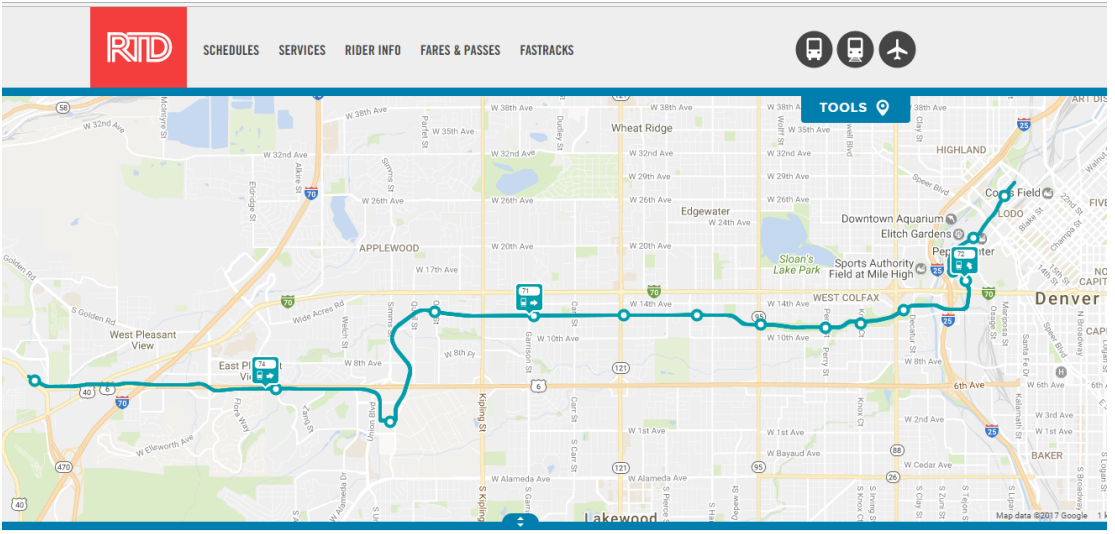
Service Alerts

Agency Website

The image displays a screenshot of the SunRail website. At the top, the SunRail logo is centered, with navigation links for "SCHEDULES", "MAP", and "STATIONS". Below the logo, a sidebar on the left contains icons for home, train, parking, and location. The main content area is titled "TRAINS" and lists four train services:

- Train P325**
South
Next: Sand Lake Road
Arrival: 5:02 pm
- Train P327**
South
Next: Winter Park
Arrival: 5:04 pm
- Train P324**
North
Next: LYNX Central
Arrival: 4:58 pm
- Train P322**
North
Next: Lake Mary
Arrival: 5:02 pm

To the right of the schedule is a map of the Orlando region, showing the SunRail route with various station locations marked by icons. The map includes labels for cities like Deltona, Sanford, Lake Mary, and Orlando, as well as major roads and landmarks like Lake Monroe and Orlando International Airport.



W LINE

Union Station to Jefferson County Government Center-Golden Station

Direction: Eastbound Westbound

Destination: W-Line Union Station

- Light Rail #72 (EASTBOUND) Destination: W-Line Union Station
Last updated at 6:33pm (2 minutes ago)
- Light Rail #71 (EASTBOUND) Destination: W-Line Union Station
Last updated at 6:34pm (a minute ago)

Agency Website

T Massachusetts Bay Transportation Authority

06 Tuesday June 2017

Schedules & Maps | Fares & Gifts | **Rider Tools** | Riding the T | About the MBTA | Customer Support | Safety | Transit Police

Rider Tools

Rider Tools » Realtime Info

[Trip Planner](#)
[Service Nearby](#)
[Service Updates](#)
[T-Alerts](#)
[T-Alerts FAQ](#)
[App Showcase](#)
[Developers](#)
[Realtime Info](#)

[Realtime Subway](#) | [Realtime Bus](#) | [Realtime Rail](#) | [Green Line Live Map](#)

RED LINE South Station ▼
MATTAPAN Select a Station ▼
ORANGE LINE Select a Station ▼
BLUE LINE Select a Station ▼
GREEN LINE Subway ▼ Select a Station ▼

SOUTH STATION

Train Arrivals as of 9:39 AM

Northbound

Destination	Predicted	Alerts
Alewife	3 min	3
Alewife	10 min	3
Alewife	25 min	3

Southbound

Destination	Predicted	Alerts
Ashmont	1 min	3
Braintree	7 min	3
Ashmont	14 min	3

Service Alerts
 Subway | **Bus** | Rail | Boat | Elev/Esc
 Blue Regular Service
 Green 2 upcoming 1 ongoing
 Mattapan Regular Service
 Orange 3 ongoing
 Red 2 upcoming 1 ongoing
 Silver 1 current 1 upcoming
[View Subway Status](#)
[Sign up for T-Alerts!](#)
 Receive T-Alerts for specific routes at your email or cell phone



Developer Portal

Home Documents Download Support MBTA.com

Register Log in

Available Documents

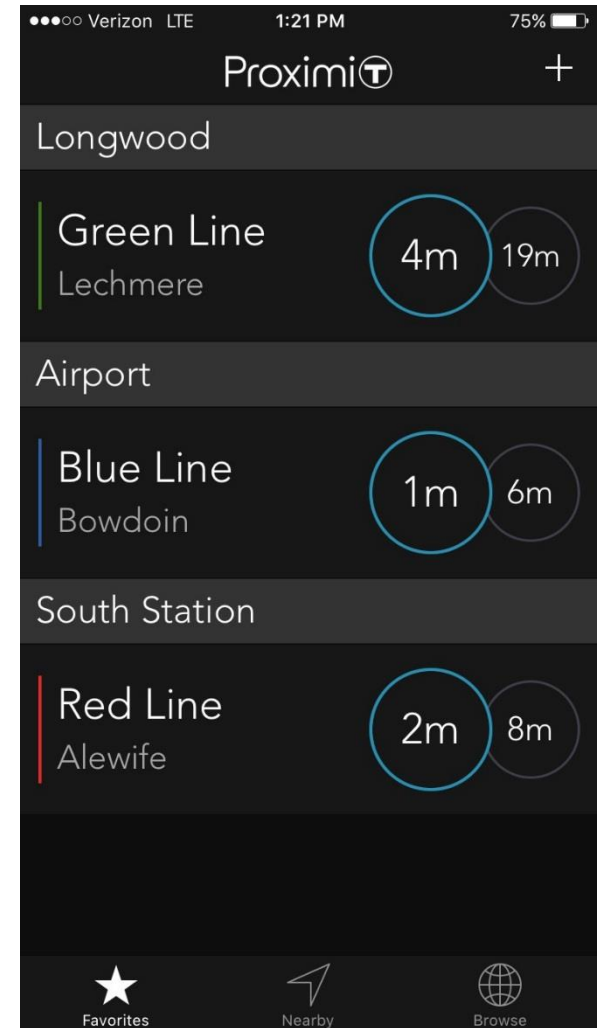
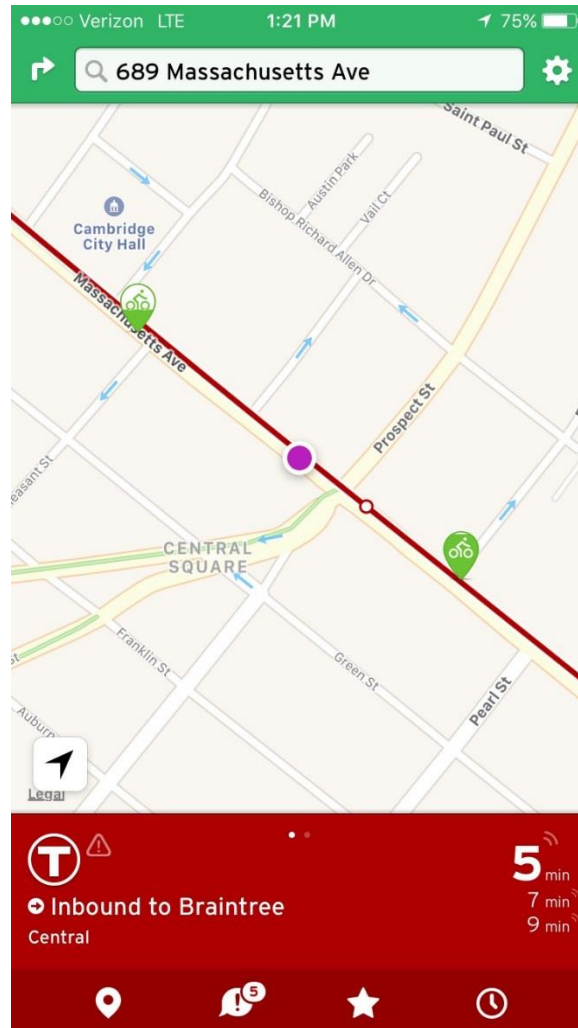
Available documents

- Terms and Conditions: MBTA-realtime is governed by the "Terms and Conditions of Use" and the "MassDOT and Developer's Relationship Principles" available on the [MassDOT Developers page](#).
- [MBTA-realtime API Quick Start Guide](#) helps you start using the API immediately.
- [MBTA-realtime API v2 Documentation](#) covers all aspects of the API. [This document](#) provides background and context for the data that the performance API calls are returning.
- [MBTA-realtime API for Performance Data Documentation](#) covers performance data aspects of the API.
- [MBTA-realtime GTFS-realtime Documentation](#) covers the GTFS-realtime feeds.
- [MBTA-realtime RSS Documentation](#) covers the RSS feeds.
- [MBTA-realtime API v1 Documentation](#) (previous version). Developers using MBTA-realtime API v1 should transition to v2. MBTA-realtime API v1 will be discontinued at the end of 2014.
- [MBTA GTFS Documentation](#) covers the MBTA's GTFS data.

Links

- [MBTA.com](#)
- [MBTA Developers Page](#)
- [MBTA App Showcase](#)
- [MassDOT Developers Page](#)
- [MassDOT/MBTA Google Group](#)

Apps



Signs





Rider Tools → Transit Updates

- Trip Planner
- Service Nearby
- Service Updates
- T-Alerts
- T-Alerts FAQ
- App Showcase
- Developers
- Realtime Info

Service Alerts

MBTA Services are constantly updated through our operations center. Please check here regularly for up-to-the-minute updates on every transit service as well as elevators and escalators.

SUBWAY [Back to Service Updates](#)

Subway Service Alerts

Orange Line: Current

Orange Line trains will experience minor delays between Oak Grove and Malden Stations today, Monday June 5, due to earlier weekend track work

Due to a speed restriction resulting from earlier weekend track work, Orange Line trains may experience delays between Oak Grove and Malden Stations.

The speed restriction is expected to clear in a few days with normal service resuming at that time. Please allow additional travel time.

Affected stops:
Oak Grove
Malden Center

Last Updated: 6/5/2017 7:28:46 AM

KEY

- Delay
- Cancellation
- Detour
- Snow Route
- Shuttle Bus
- Station/Stop Closure
- No Service
- Extra Service
- Schedule Change
- Access Issue
- Other



Overview

Passengers expect RTPI

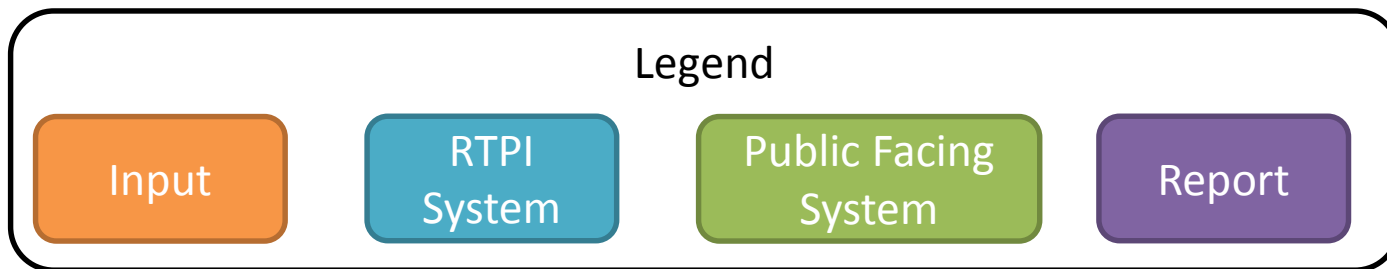
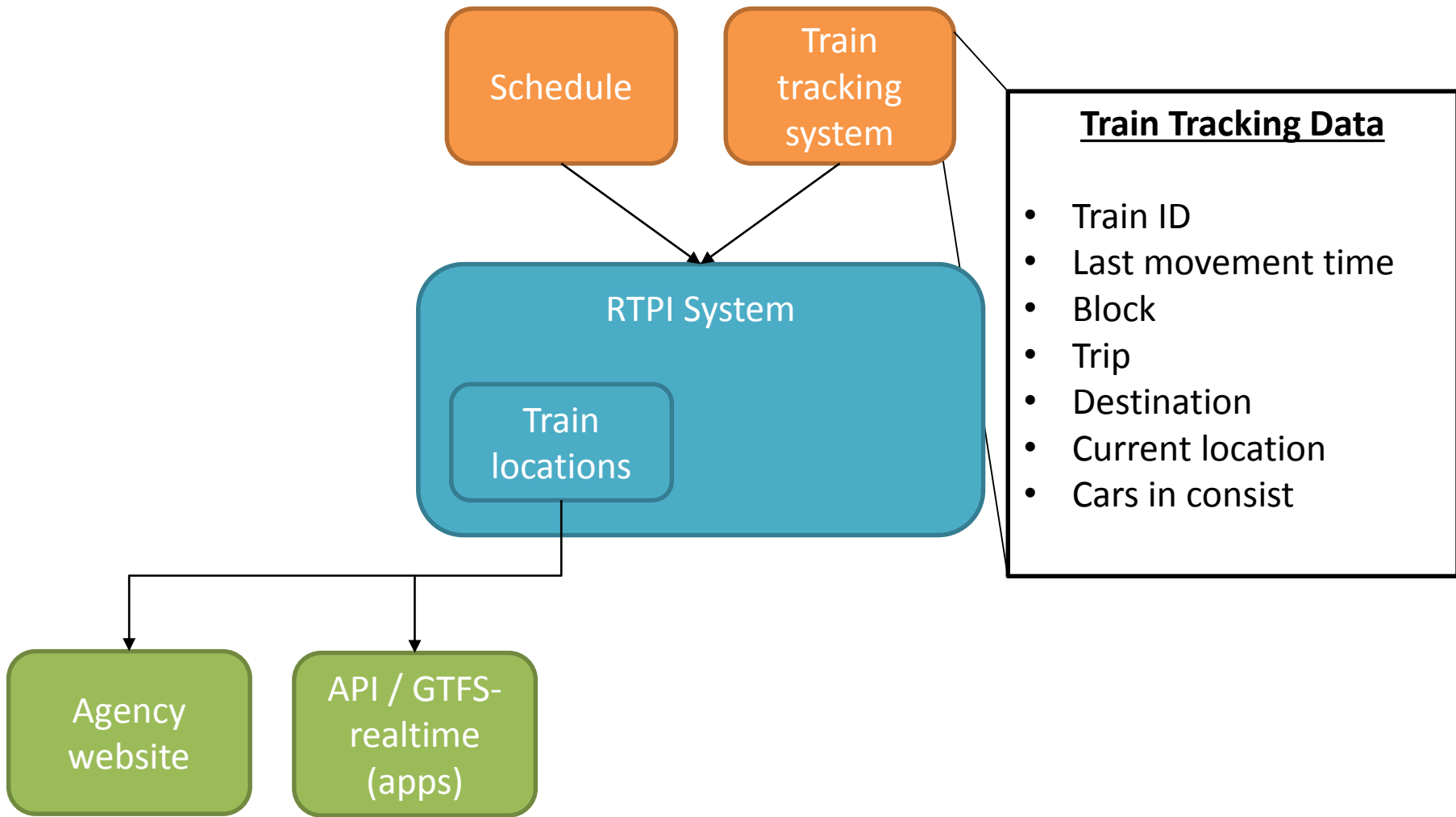
RTPI for bus is fairly standardized

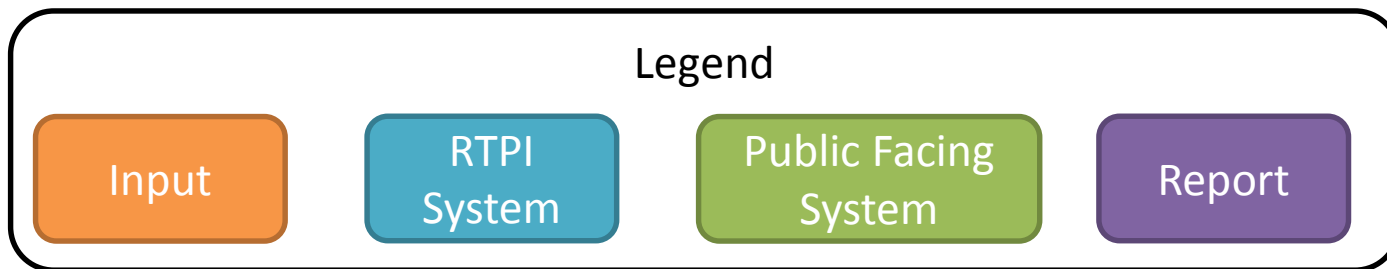
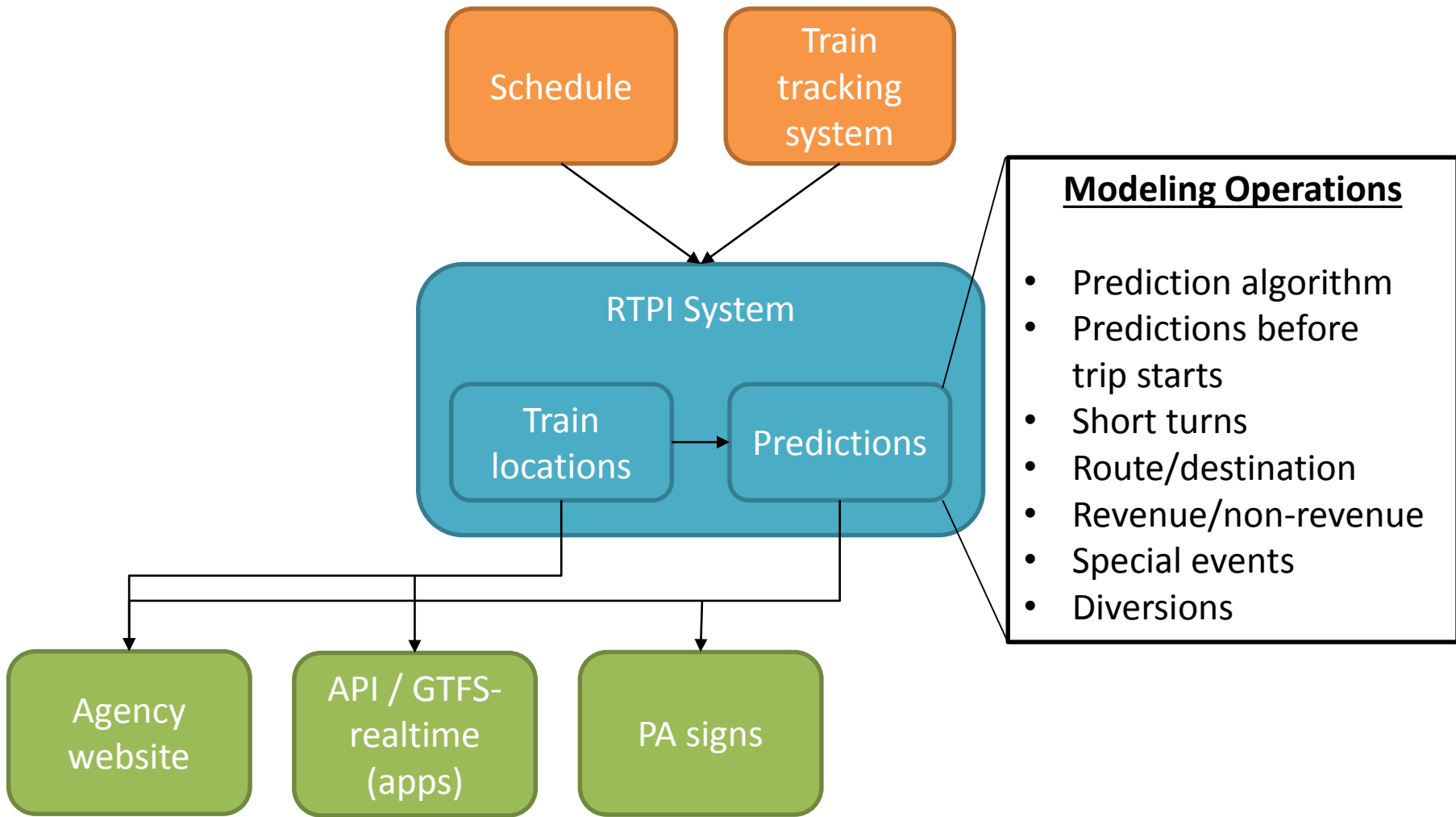
Every rail system is unique

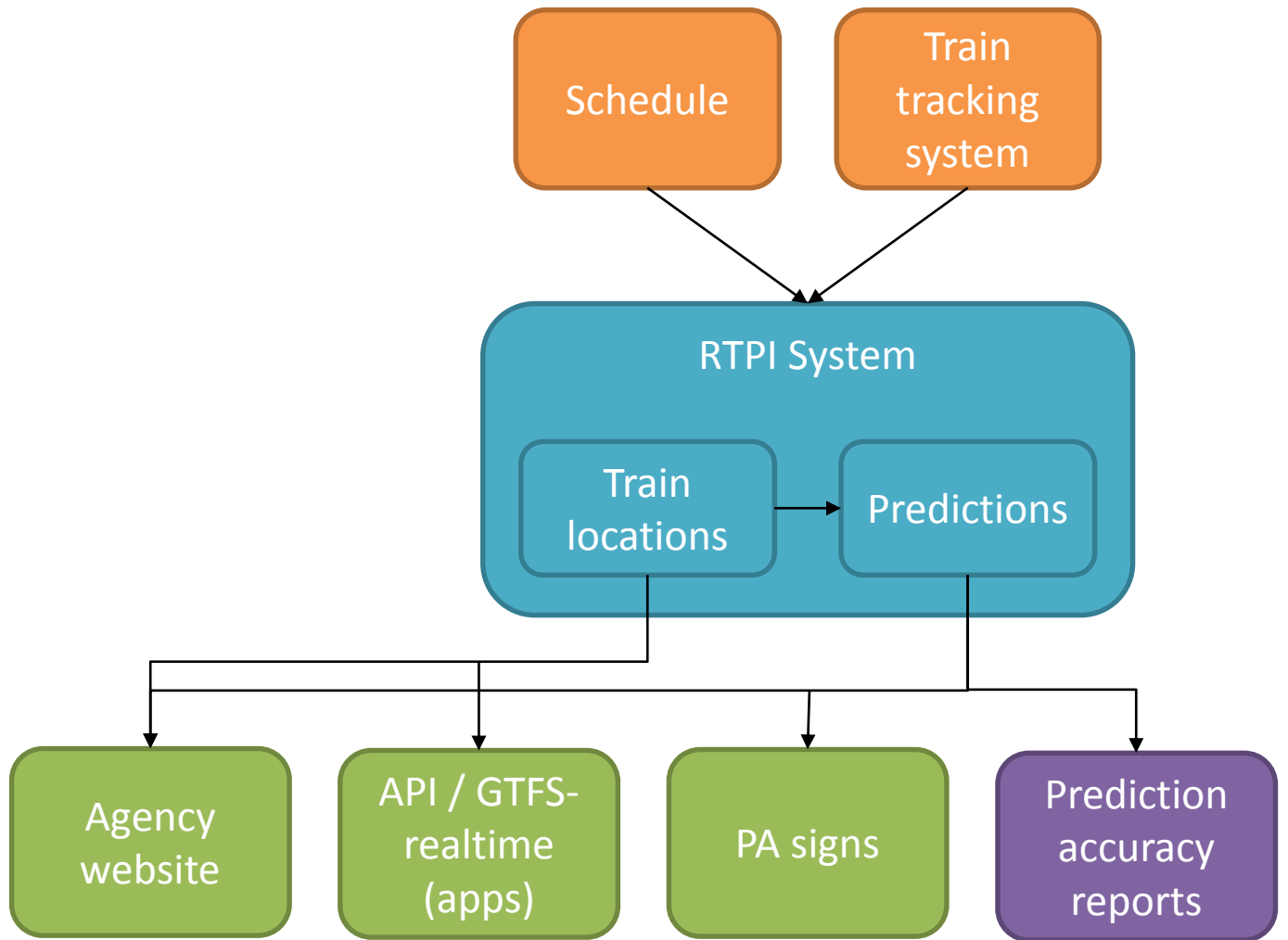
Good rail operations doesn't equal good RTPI

RTPI for rail challenges and opportunities

RTPI for Rail System Components



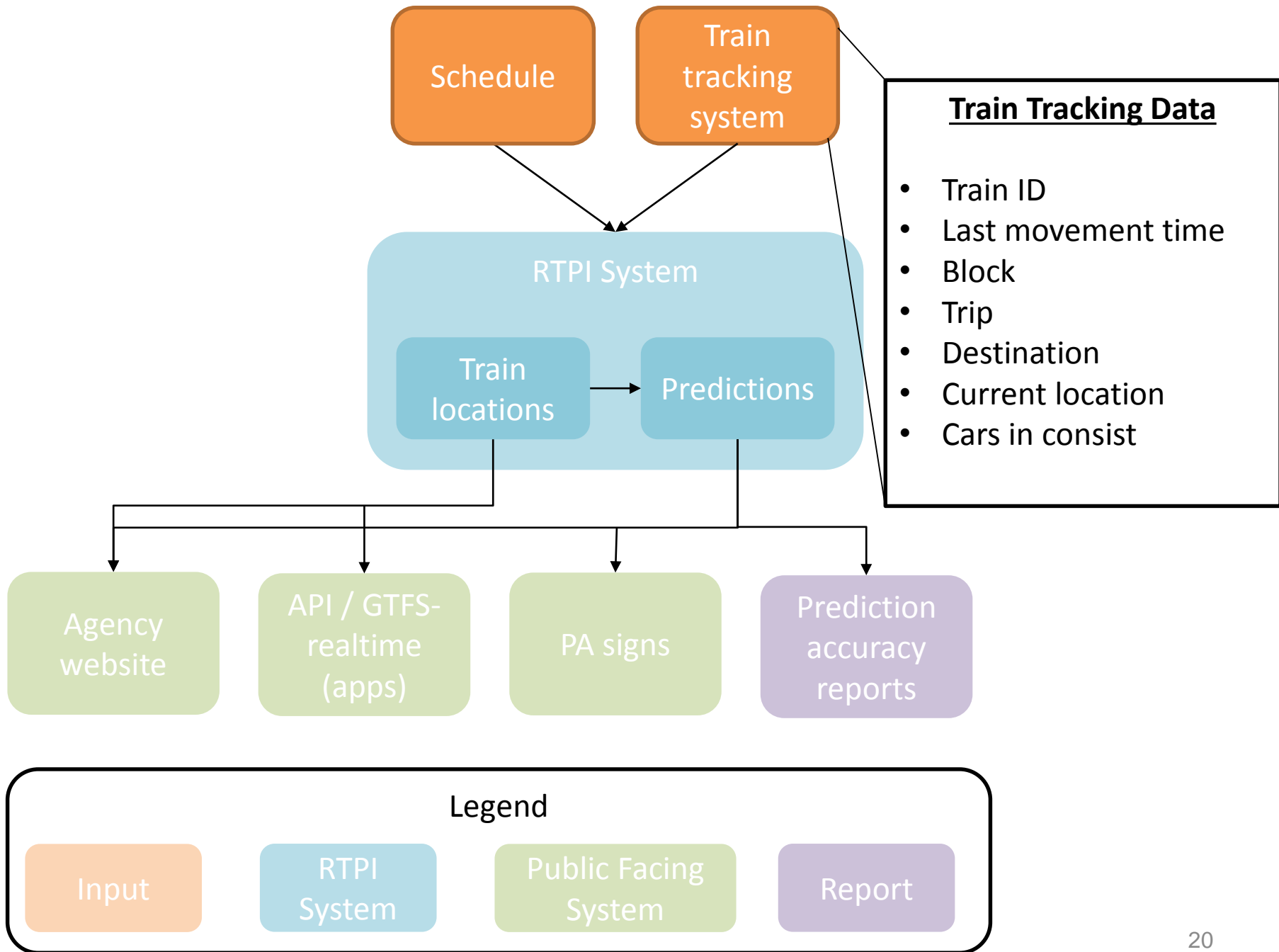


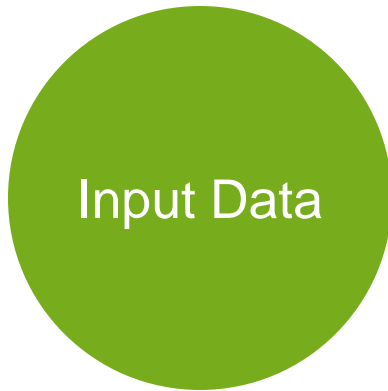


Legend




Strategy for RTPI for Rail





High quality input data is imperative

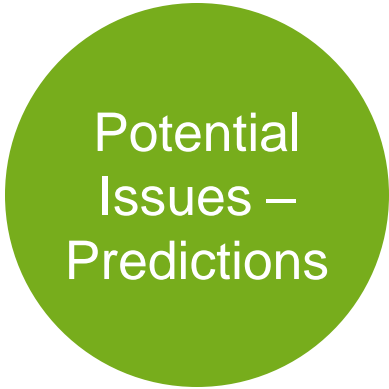
Internal vs. external users



Potential
Issues –
Locations

Trains consistently track incorrectly in certain parts of the system

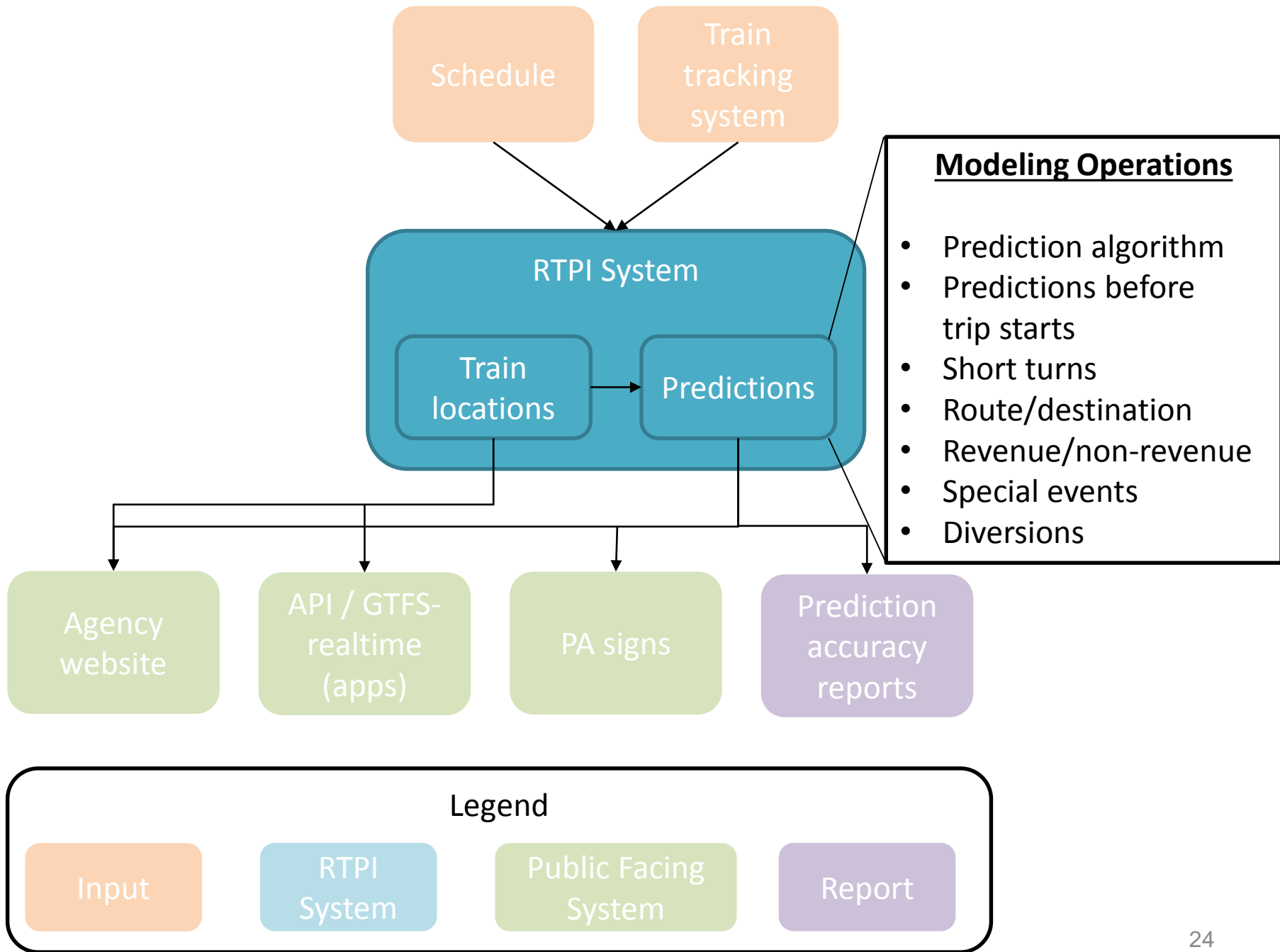
Trains move without an identifier assigned in the train tracking system



Potential
Issues –
Predictions

Operations control decisions not entered in any system

Train tracking system clock times out of sync with reference clock





Rail-
Specific
Predictions

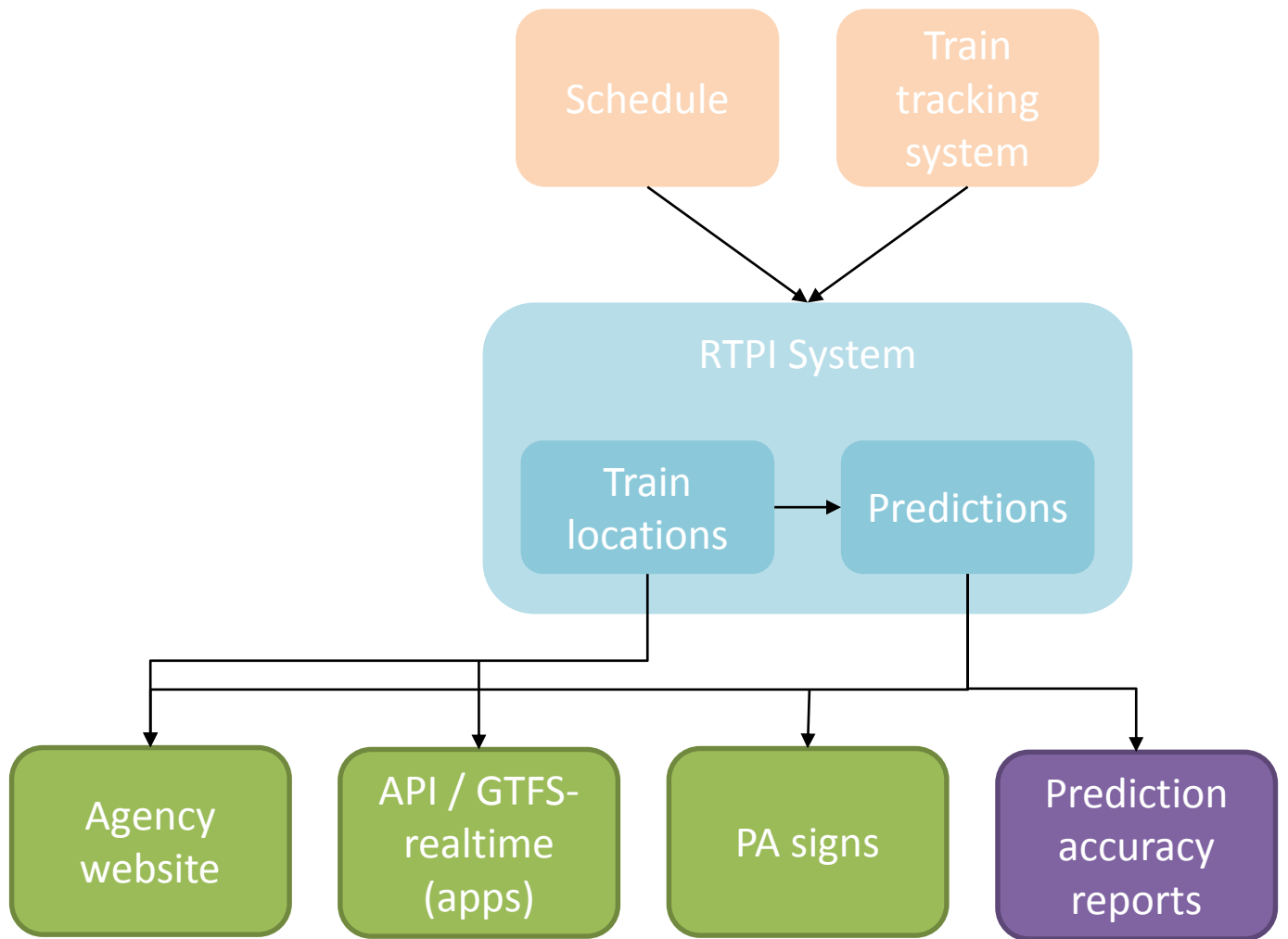
Trains (usually) can't pass each other

Two trains (usually) can't be at the same station at the same time

Short turns/reroutes/bus bridges

Terminal operations

Single track segments



Legend



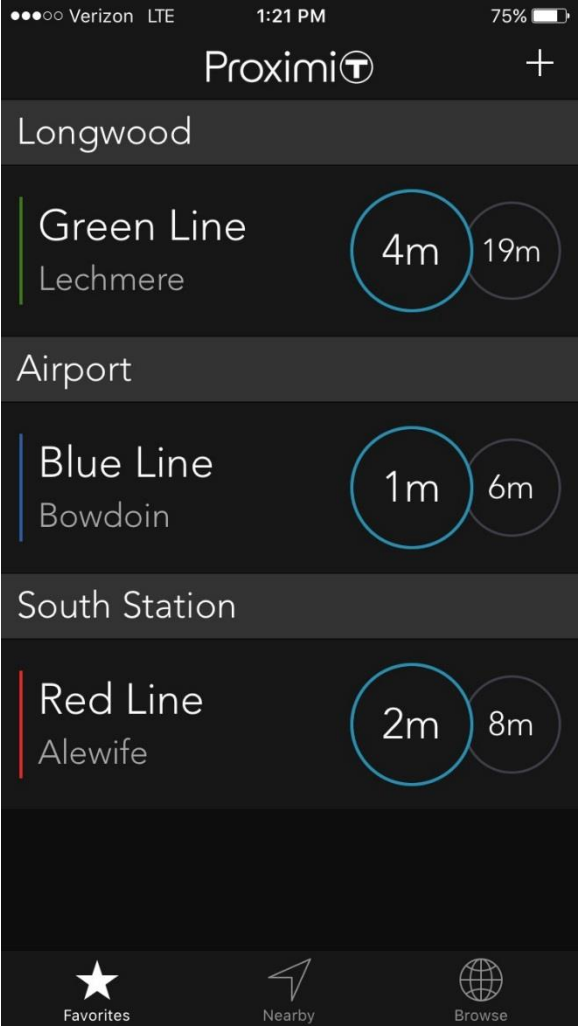


Release
Strategy

Think incrementally

Test, test, test

Measuring Customer Experience



Case Studies



Case
Studies

RTD (Denver)

MBTA (Boston)

SunRail (Orlando)

NFTA (Buffalo)

Thank You

Questions?



sam.hickey@ibigroup.com | 425.652.9642