



Stations, Facilities & Accessibility (SF&A)

Work and Asset Management

Presenters:

Nicole Cantwell – Sr Manager Asset Management, SF&A

Malini Das - Sr Engineer/ EAM Functional Lead

May 2023

Amtrak Connects Us

- New era in passenger railroad

Enterprise Asset Management at Amtrak

- Asset management impact at Amtrak
- Path to Transformation
- MainLine Rail Maximo solution
- Evolving EAM landscape at Amtrak

Location Hierarchy

- Founding principles
- Real Estate, Mechanical, Infrastructure hierarchy
- SF&A location hierarchy

Enterprise Asset Management and SF&A

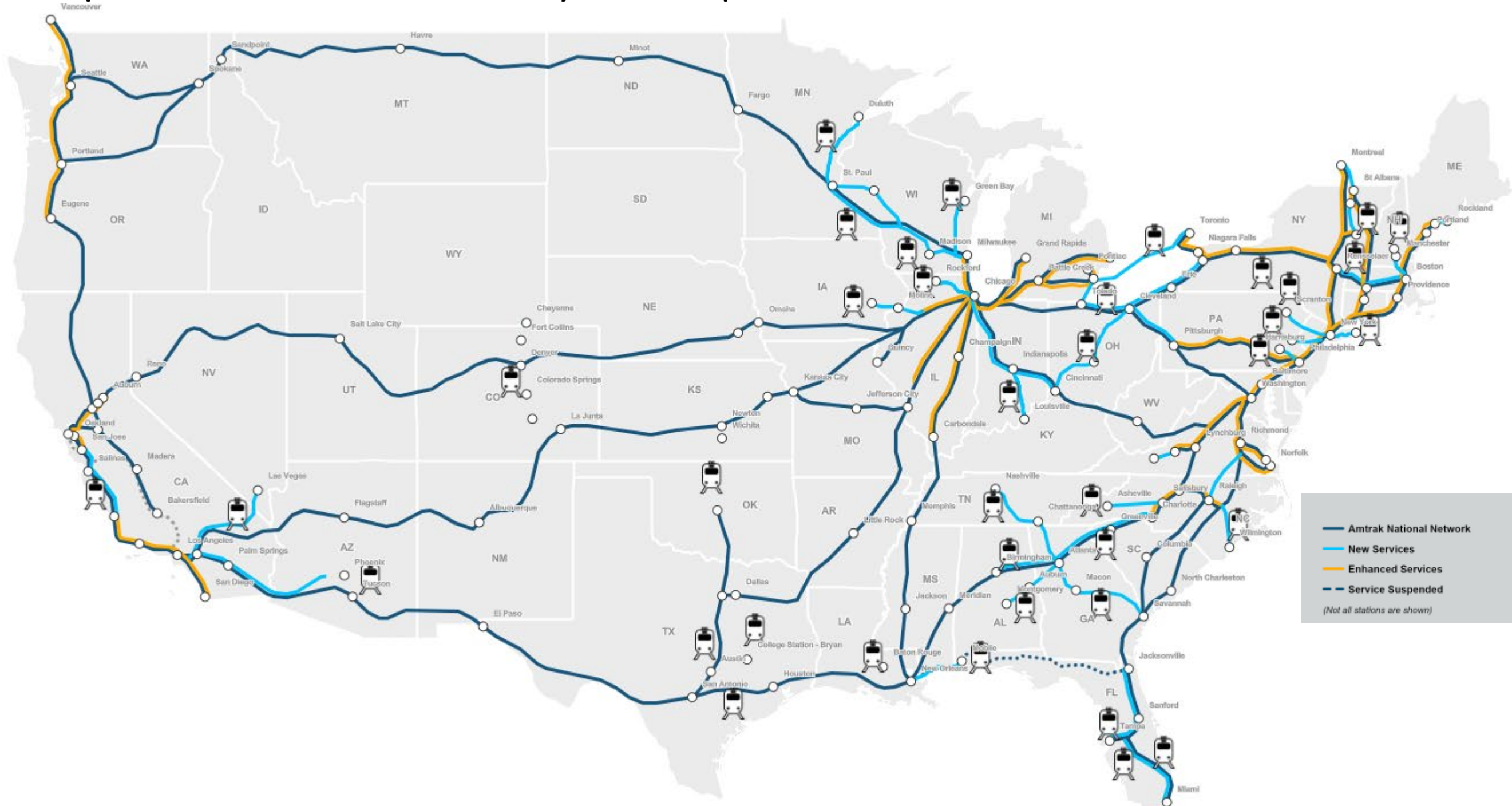
- Asset Management Goals
- Real World Scenarios

Current Status and Road Ahead

- MLR Solution Go Live
- Implementation at Baltimore Union Station
- Challenges
- Gen MWE – Mobile Work Management Application
- High Level Timeline

Amtrak Connects US

Amtrak, which began operations in 1971, is the United States' intercity passenger rail operator. With safety as the highest priority, our goal is to provide efficient and effective intercity passenger rail mobility with modern trains that offer friendly, high-quality service that is trip-time competitive with other intercity travel options.



Enterprise Asset Management (EAM) Impact On Amtrak

Impacted Physical Assets



Right of Way
Key Engineering Safety & Security Areas



Signals & Comm.



Locomotives



Passenger Cars



Bridges & Tunnels



Facilities and Stations

Asset Management Drives Outcomes That Support:

Right Of Way; Track, Signals & Communications, Electric Traction, Bridges & Tunnels:

- Implement PTC or achieve PTC-levels of safety across Amtrak's network and deploy new technology to strengthen safety performance
- Develop and execute FAST Service and Asset Line plans
- On-time performance

Locomotives & Passenger Cars:

- Achieve New Acela and new fleet goals on budget, cope, schedule and train performance

Stations, Facilities, & Accessibility:

- Achieve ADA compliance goals
- Fully implement Stations Repair & Clean Up Program and develop & implement a system-wide station and train signage and branding plan

Other:

- Train Safety Metrics:
 - No NTSB defined rail passenger accidents
 - No employee fatality or FRA serious injury
 - Lower Customer and Employee FRA Reportable injury rate
- Achieve IT security goals of zero cyber security breaches
- Operate services in accordance with Annual Operations Plan levels

Riding History Into the Future

And a Path to Transformation

Real time data is available to all users	✓
Data is used to optimize decisions	✓
Users know where to focus their efforts	✓
Reduction of tedious tasks allows users to work on value added tasks	✓
Insights now brings new collaboration amongst users	✓

Leading practice asset management processes	✓
Measurable process productivity	✓
Consistency of process across asset classes and geographies	✓
Single line of sight from front line to Exec	✓

People Process



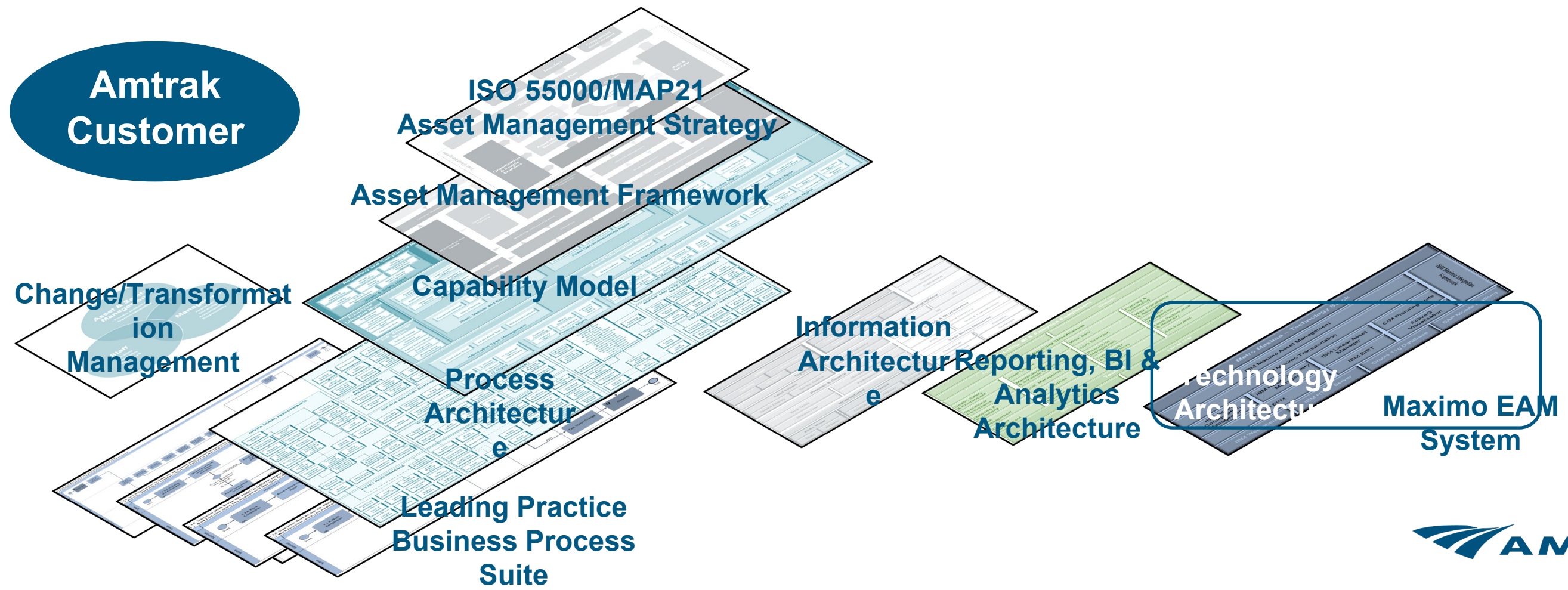
Digital Technology

Enforces data accuracy and integrity turning data into insight	✓
Optimization of maintenance regimes	✓
Optimization of opex vs capex asset investment	✓
Improved response to asset failure	✓
Capture and share life-time asset Information in the system	✓

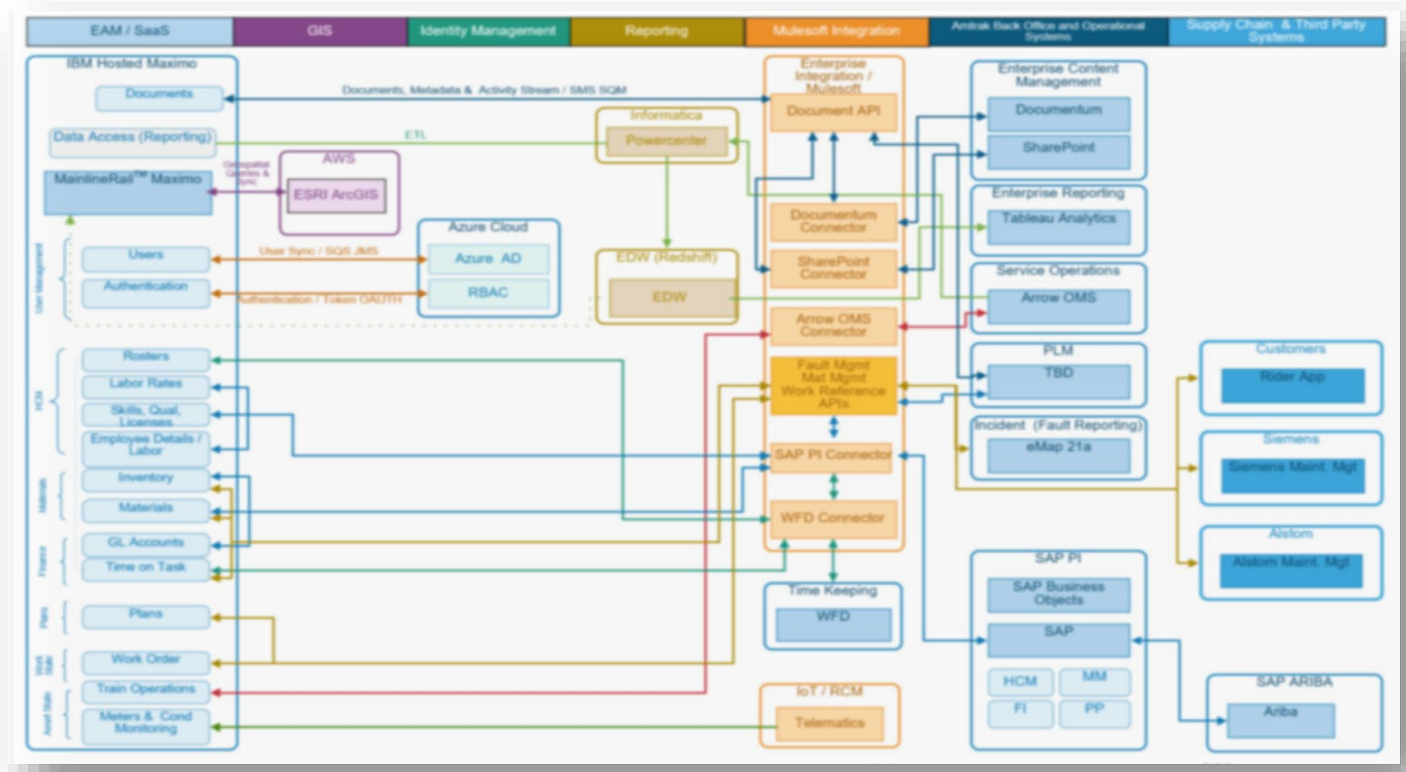
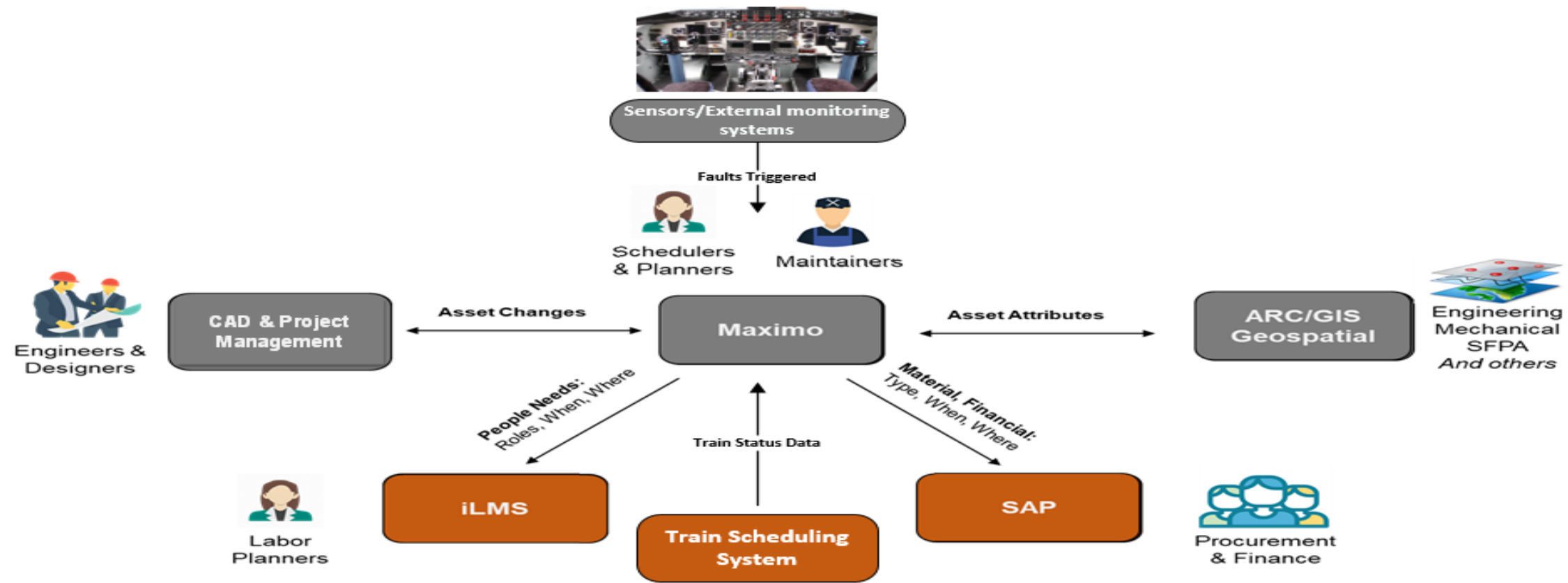
Elimination of disparate legacy systems	✓
Single Upgradable Platform for all Amtrak's assets	✓
Extension into the field via intuitive mobile	✓
Agile development enables Continuous improvement culture	✓

MainLine Rail Maximo Industry Solution

- Workflows encoded with 1000+ optimized and automated processes covering end-to-end asset and safety management leading practices
- Mobile solution providing real-time access to full asset details and maintenance history of assets-- at the job site
- Real-time access to actual or nearby hazard information that can be updated on the move, constantly improving quality of hazard data
- Maximo 7.6.1 with Industry solution MLR hosted at IBM CDS



Evolving EAM Landscape at Amtrak



- No Single Tool 'does it all'
- Unified platform approach
- Complete asset management workflows and controls
- Cloud first and mobile first platform
- Anchor for Amtrak asset management standard
- Integration with future fleet technologies for maintenance records
- FRA standard of reporting for all asset and work management

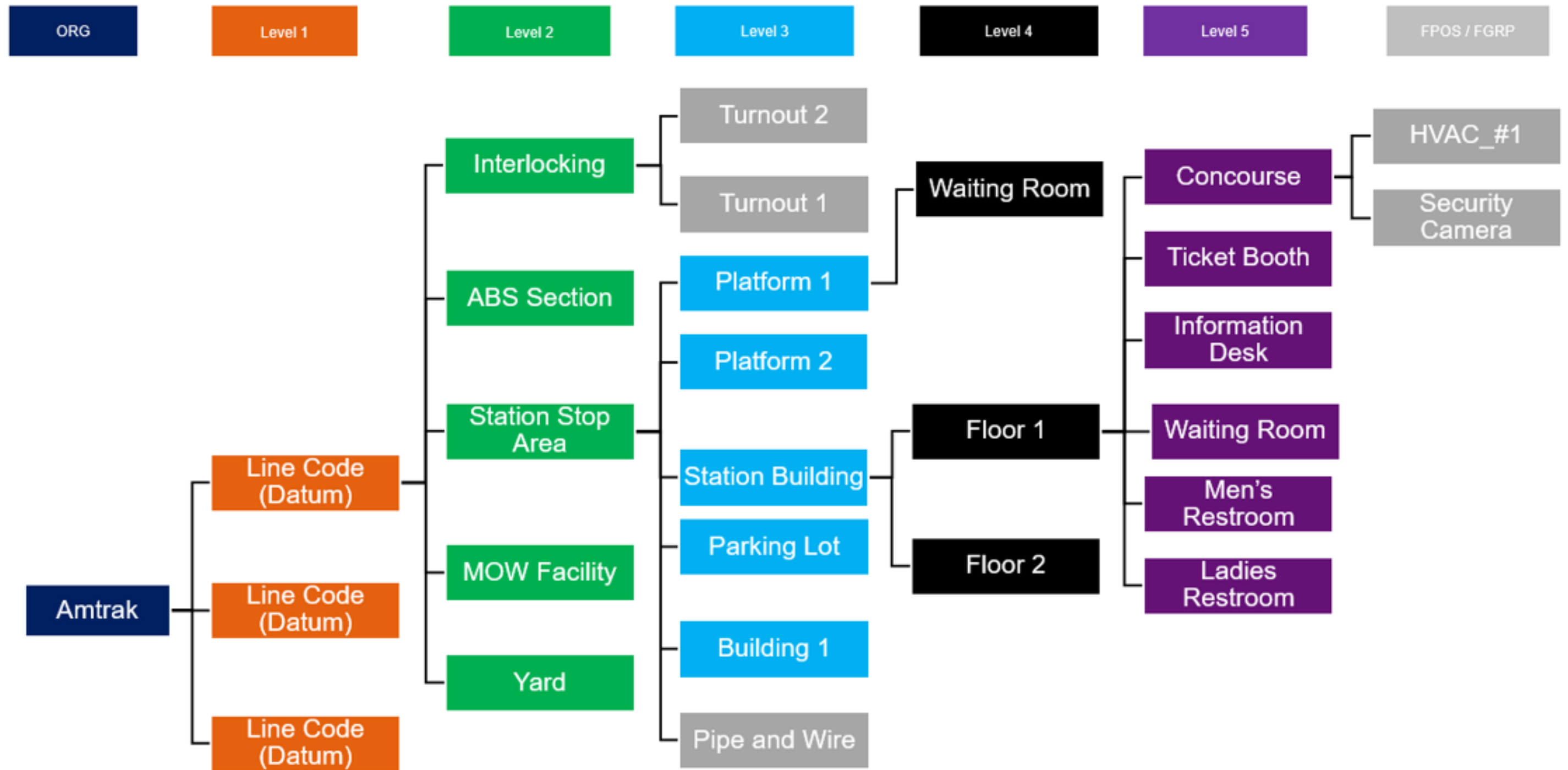
Amtrak Location Hierarchy

Various Location Levels

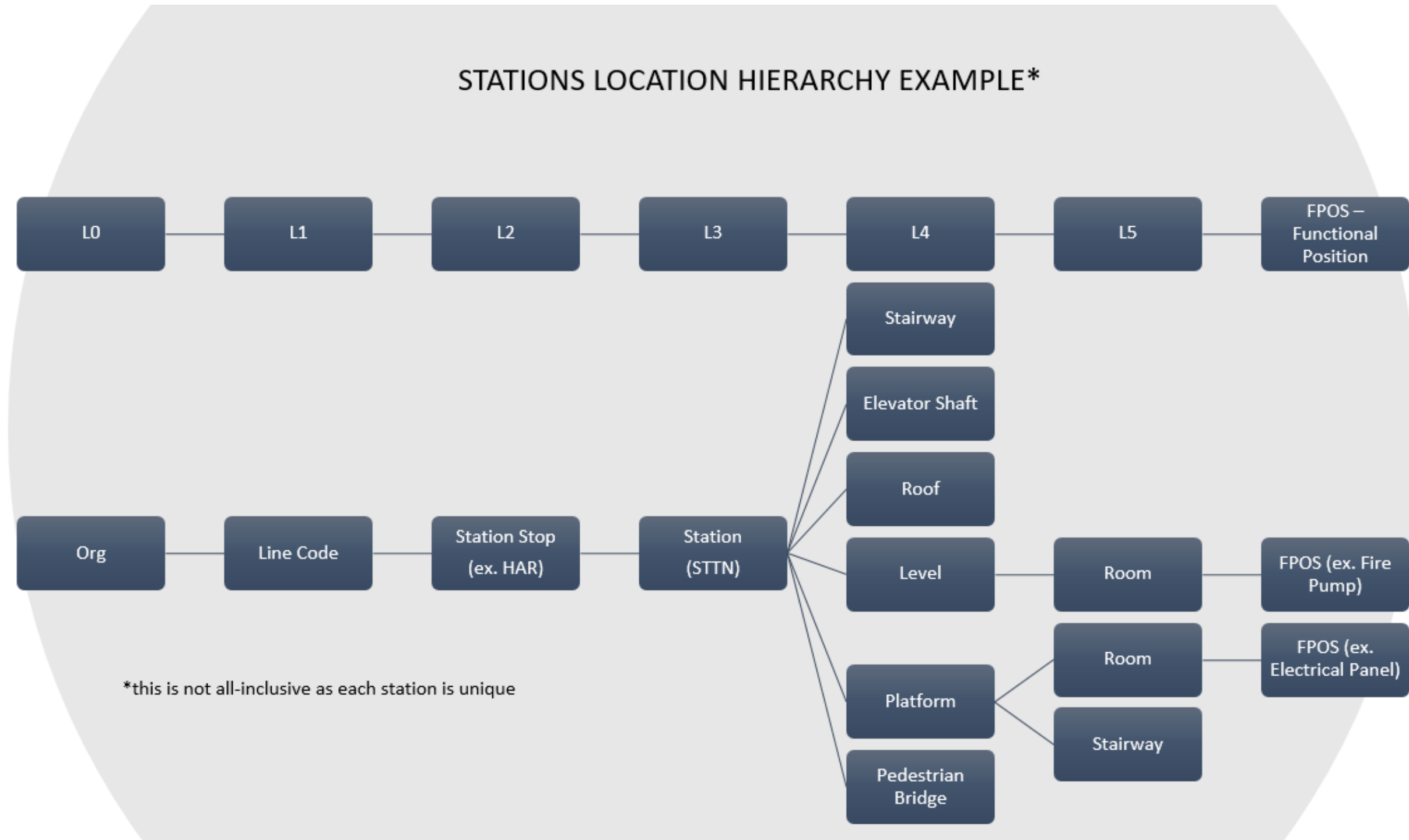
How it ties within all three departments



Amtrak (Proposed) Physical Location Hierarchy



SF&A Hierarchy



EAM Goals for SF&A

- **Single source of truth**
 - Information about our Stations and Facilities assets and their attributes is consistent, reliable, efficient, and meets federal reporting and compliance regulations
- **Advanced reporting**
 - Data driven decision making on capital investment and reduction in unplanned downtime
- **Capture data/information that is falling through the cracks**
 - Information should be in real time, not a moment in time
- **Data interoperability**
 - Develop standards to allow information to be shared across systems

Real World Scenario #1 – Single Source of Truth

The Director of Sustainability contacts us for specific station information to support her team's vulnerability assessment...



Real World Scenario #1 - Before

SOGR 5 Year Reports

Name
AR_HOP_Hope_SOGR_Final_Report_Assessment_2020.pdf
AR_WNR_Walnut Ridge_SOGR_Final_Report_Assessment_2020.pdf
AR_LRK_Little Rock_SOGR_Final_Report_Assessment_2020.pdf
AR_ARK_Arkadelphia_SOGR_Final_Report_Assessment_2020.pdf
IA_CRN_Creston_SOGR_Final_Report_Assessment_2020.pdf
IA_BRL_Burlington_SOGR_Final_Report_Assessment_2020.pdf
IA_FMD_Fort Madison_SOGR_Final_Report_Assessment_2020.pdf
IA_MTP_Mt. Pleasant_SOGR_Final_Report_Assessment_2020.pdf
IA_OSC_Osceola_SOGR_Final_Report_Assessment_2020.pdf

File Explorer: StructFacilities > Projects > X-Projects (Former) > Special > Sta. & Maint. Facilities Assessments

Name	Date modified	Type	Size
2009-2010 Nationwide facilities Assessment	8/2/2017 8:55 AM	File folder	
2017 SE. Div. Sta. & Maint. Facilities	1/8/2018 8:20 AM	File folder	
2018 Memphis, TN	2/12/2019 3:10 PM	File folder	
2018 New Campbell & Lancaster	4/12/2018 9:59 AM	File folder	
2018 Q-Tower	7/16/2018 9:12 PM	File folder	
2018 Rhinecliff & Rt. 128	4/13/2018 12:19 PM	File folder	
2018 SW Div. Sta. & Maint. Facilities	12/27/2017 11:12 AM	File folder	
2019 CNOC - MAC Assessment	12/17/2019 12:20 PM	File folder	
2019 Specific Div. Sta. & Maint. Facilities	1/13/2020 9:05 PM	File folder	
2019 Phase II. Sta. & Maint. Facilities Assessment	7/23/2019 2:44 PM	File folder	
2019 Station Facilities - Shortcut	3/24/2021 11:49 PM	File folder	
2019 Station Facilities List, 11-28-12 (G)	11/8/2021 9:47 AM	File folder	
2019 Assessments	8/12/2019 8:04 AM	File folder	
2020 Assessments	6/28/2021 12:04 PM	File folder	
2021 Assessments	4/28/2021 1:34 PM	Shortcut	
2021 Assessments	6/16/2021 5:26 PM	Microsoft Excel 97-2003	2 KB
2021 Assessments		Shortcut	858 KB
2021 Assessments		Shortcut	2 KB

Architectural Floor Plans

The floor plans show a complex building layout with various rooms, corridors, and structural elements. Labels include 'INDUSTRIAL', 'ELECTRICAL', 'MECHANICAL', 'PLUMBING', 'HVAC', 'ELEVATOR', 'STAIR', 'CORRIDOR', 'OFFICE', 'RECEPTION', 'RESTROOM', 'CLOSET', 'STORAGE', 'ELECTRICAL CONTROL PANEL', 'MECHANICAL CONTROL PANEL', 'PLUMBING CONTROL PANEL', 'HVAC CONTROL PANEL', 'ELEVATOR CONTROL PANEL', 'STAIR CONTROL PANEL', 'OFFICE CONTROL PANEL', 'RECEPTION CONTROL PANEL', 'RESTROOM CONTROL PANEL', 'CLOSET CONTROL PANEL', 'STORAGE CONTROL PANEL', 'ELECTRICAL CONTROL PANEL', 'MECHANICAL CONTROL PANEL', 'PLUMBING CONTROL PANEL', 'HVAC CONTROL PANEL', 'ELEVATOR CONTROL PANEL', 'STAIR CONTROL PANEL', 'OFFICE CONTROL PANEL', 'RECEPTION CONTROL PANEL', 'RESTROOM CONTROL PANEL', 'CLOSET CONTROL PANEL', 'STORAGE CONTROL PANEL'. A scale bar is visible at the bottom of each plan.

Real World Scenario #1 - After

The screenshot displays the AMTRAK asset management software interface. On the left, a table lists assets with columns for 'Asset' and 'Description'. The main area shows a search configuration window with various filters. Several fields are highlighted in yellow: 'Location Type', 'Classification', and 'Priority'. The 'Priority' field is set to '1'. The 'Site' field is set to '=AMTRAK'. At the bottom, there are buttons for 'Find', 'Restore Application Defaults', 'Revise', and 'Cancel'.

Asset	Description
6070016	Unit Heater
7055000	Hydraulic Elevator
7055010	Hydraulic Elevator
7055020	Escalator
7055030	Escalator
6070000	Fire Alarm system
6070003	Fire Extinguisher
6070004	Fire Extinguisher
6070005	Fire Extinguisher
6070006	Distribution Panel
6070007	Distribution Panel
6070008	Distribution Panel
6070009	Disconnect Switch
6070010	Disconnect Switch
6070012	Disconnect Switch
6070013	Unit Heater
6070014	Unit Heater
6070015	Unit Heater
7010014	Distribution Panel

More Search Fields | Current Query:

Asset: _____ > _____

Parent: _____ > _____

Search Asset Hierarchy: _____ >

Location: _____ > _____

Location Type: _____ 🔍

Search Location Hierarchy: _____ >

Location Alias: _____ 🔍

Rotating Item: _____ > _____

Meter Group: _____ > _____

Usage: _____ 🔍

Vendor: _____ > _____

Manufacturer: _____ > _____

Classification: _____ >

Service Group: _____ >

Person Group: fc >

Type: _____ 🔍

Status: _____ 🔍

Site: =AMTRAK 🔍

Priority: 1

Moved? _____ 🔍

Linear? _____ 🔍

Serial #: _____

Bin: _____

User: _____ >

Custodian: _____ >

Failure Class: _____ >

GL Account: _____ 🔍

Calendar: _____ 🔍

Service: _____ 🔍

Work Zone: _____ >

Work Zone Type: _____ 🔍

Find | Restore Application Defaults | Revise | Cancel

Real World Scenario #2 – Transparency & Advanced Reporting

The Facility Development Manager is noticing an increase in issues with the elevator...



<http://briansolomon.com/trackingthelight/tag/wilmington/>

Real World Scenario #2 - Before



Real World Scenario #2 - After

Assets (BRDA) (AMTRAK)
Amtrak Test - MXServer01

Query Find Asset Select Action

List View Asset Spare Parts Safety Meters Specifications Features Relationships Work Work Zones Service Address Asset History Map

Asset: 7009243 Hydraulic Elevator Site: AMTRAK

View Work Orders and Tickets that are open for this asset. Additional details are available in Work Details. [View Work Details](#)

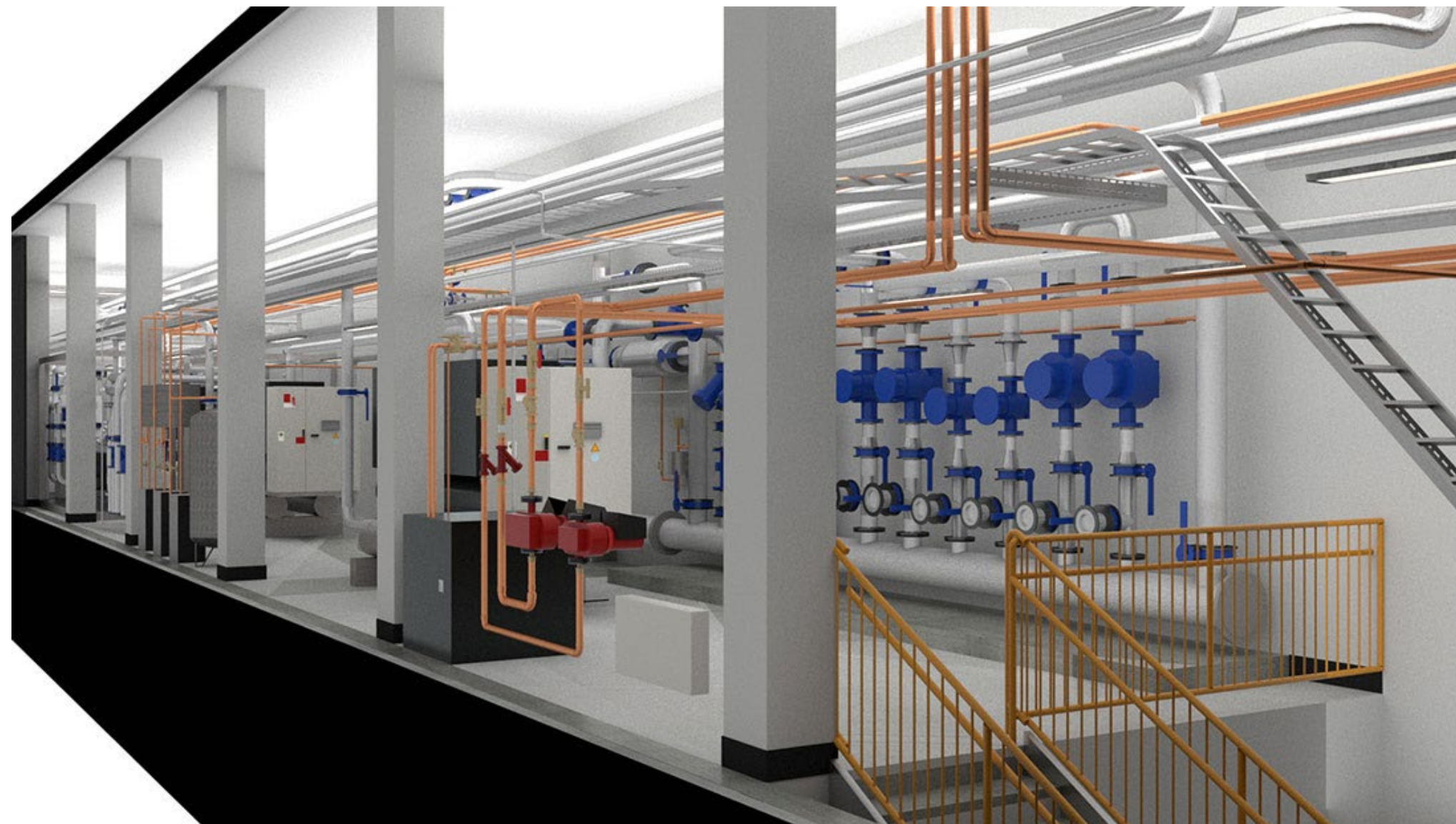
Work Orders Tickets

Work Orders Filter 1 - 3 of 3

Work Order	Description	Status	Status Date	Target Start	Target Finish	Scheduled Start	Scheduled Finish
F100098-01	Door won't open on Elevator 3	SCHEDULED	07/10/2022 6:19 PM			02/09/2022 9:29 AM	07/10/2022 7:15 PM
F100251-01	Elevator 3 Door Not Closing Properly	SCHEDULED	07/10/2022 6:18 PM			05/16/2022 3:22 PM	07/10/2022 7:18 PM
1003167	Monthly Elevator Inspection	REVIEWED	07/10/2022 6:10 PM	07/10/2022 12:00 AM	07/10/2022 12:00 AM	07/10/2022 6:15 PM	07/10/2022 7:15 PM

Real World Scenario #3 – Capture Data Falling Through the Cracks

Construction Closeout Documents include AutoCad and Building Information Models that include floor plans, asset locations and specifications



Real World Scenario #3 - Before



Real World Scenario #3 - After

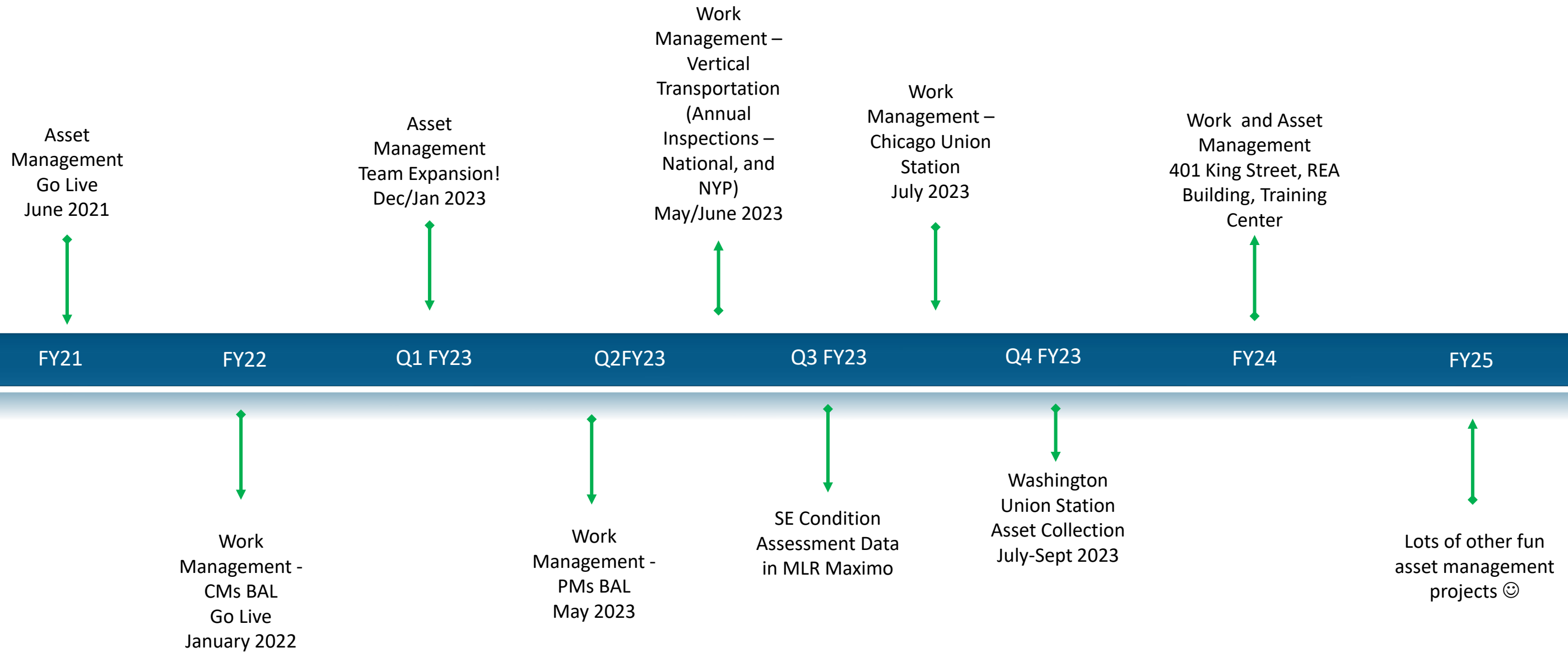


© VINCI Energies

<https://www.theagilityeffect.com/en/article/bim-set-conquer-facility-management/>

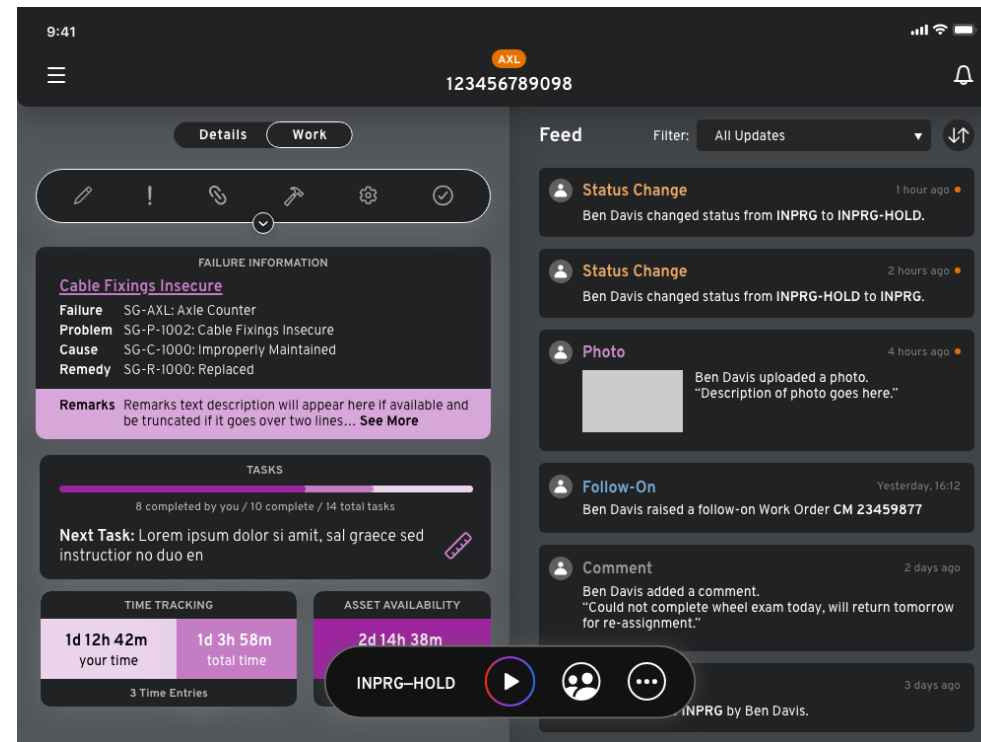
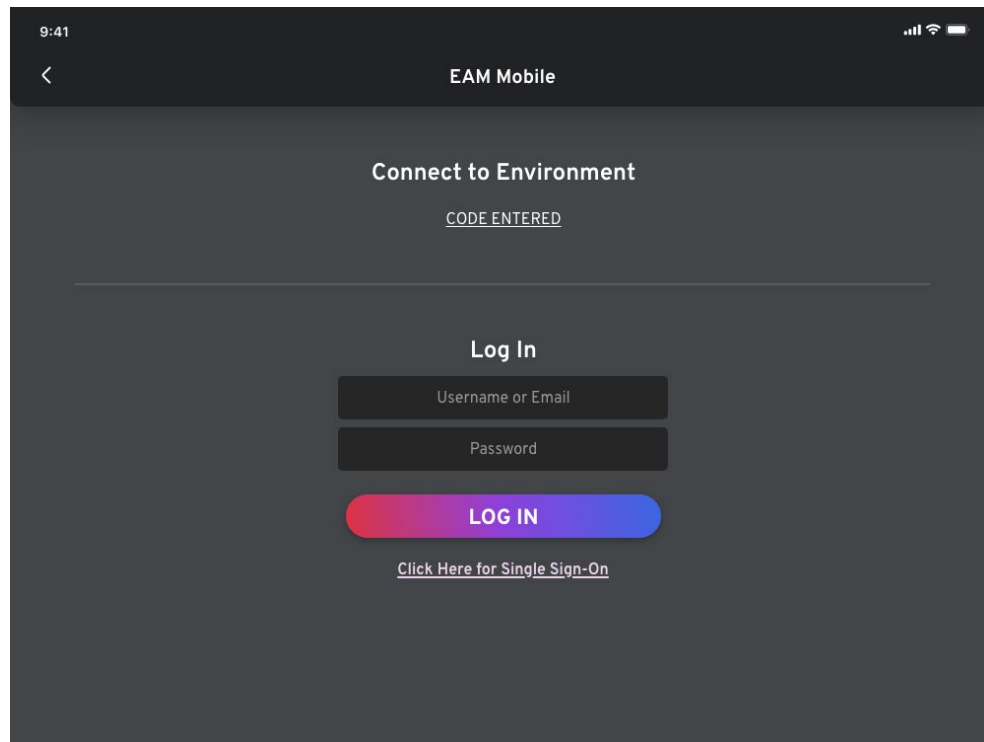
Current Status and Road Ahead

MainlineRail Maximo Stations and Facilities Timeline

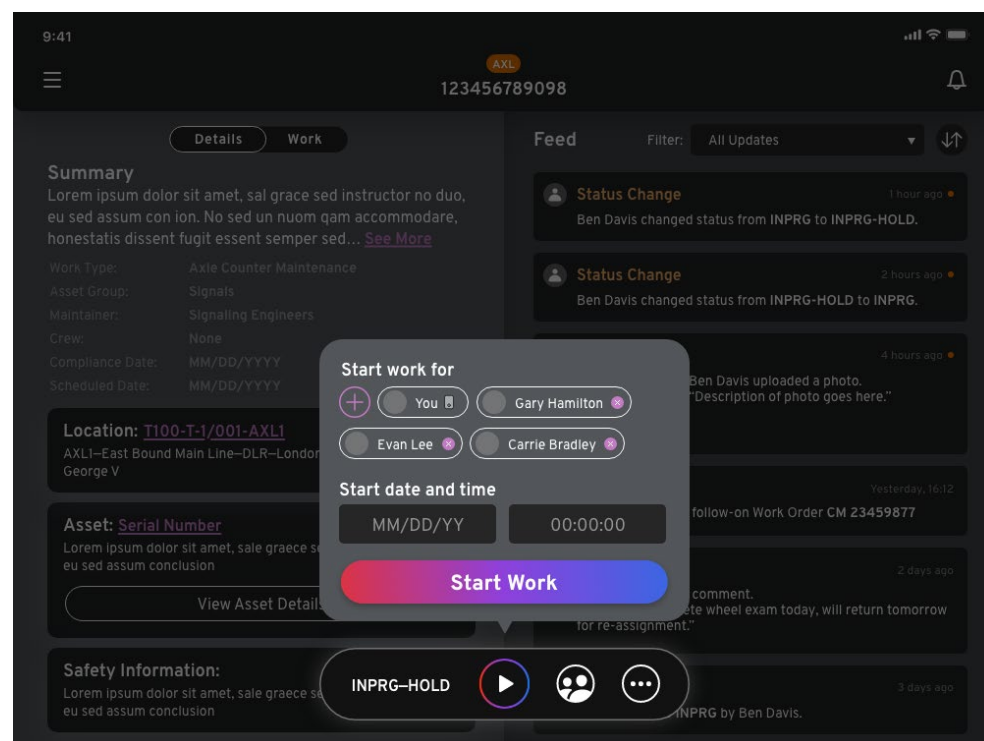


Gen MWE Mobile Application

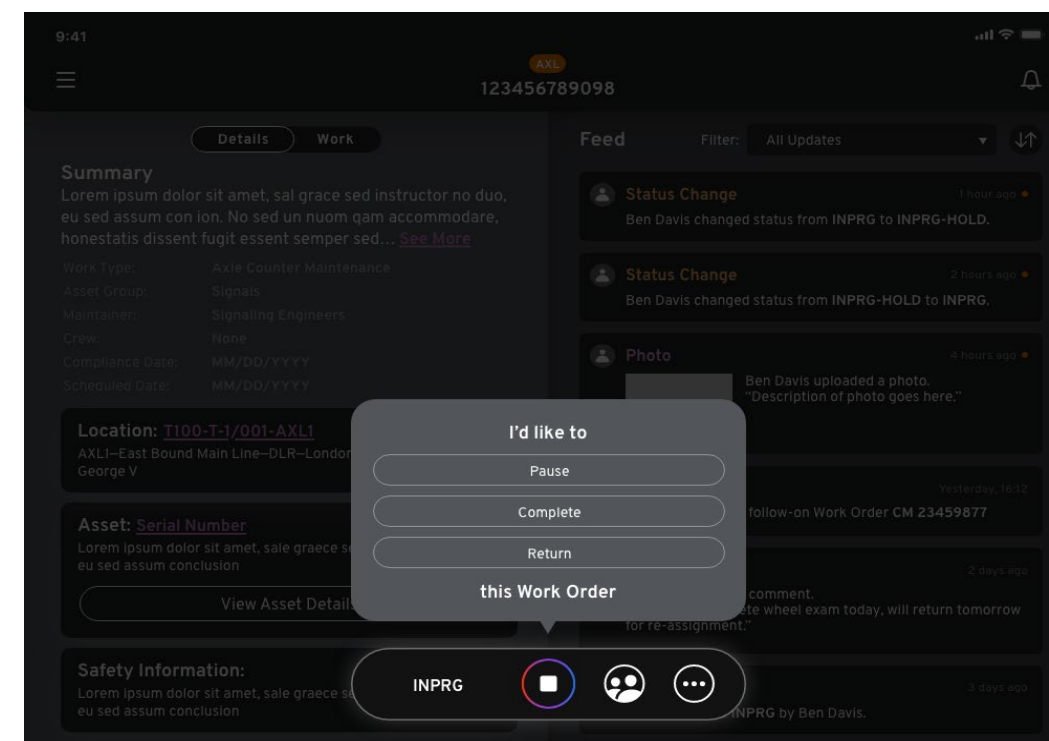
Work Order Details



Work Processing

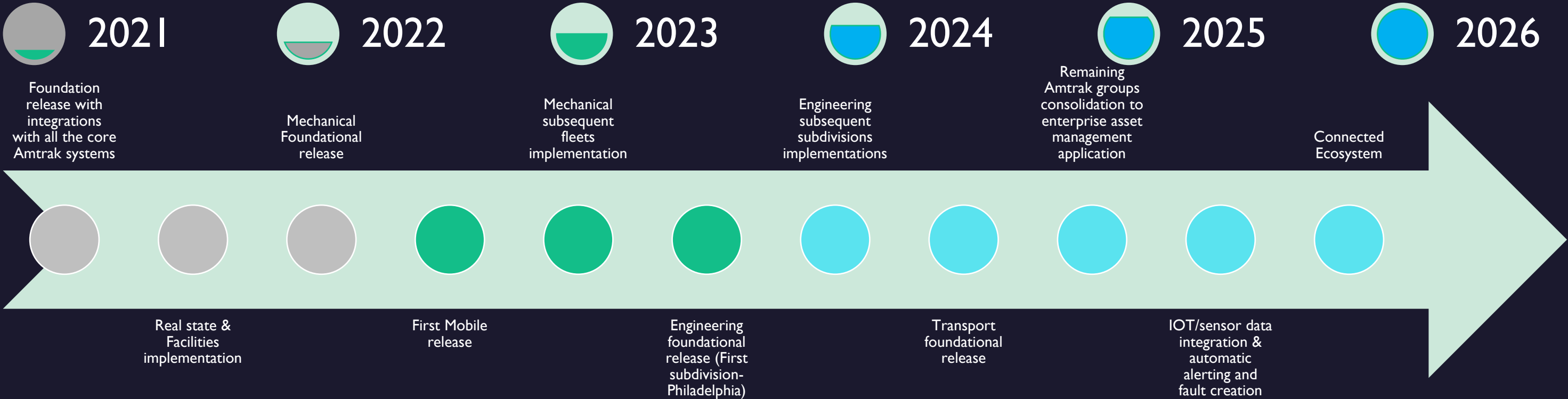


Pause/Complete/Return Work Order



EAM at Amtrak: Notional timeline

Vision to create 'Connected Ecosystem' leading to increased asset utilization, reliability & safety



Questions?

Thank you

- **Nicole Cantwell** – nicole.cantwell@amtrak.com
- **Malini Das** – dasm@amtrak.com



AMTRAK[®]