AVINEON
Visualize IT. See IT Through.

GEOSPATIAL WORLD FORUM

23-25 January, 2017 Hyderabad International Convention Centre, Hyderabad, India

GIS Technology for SMART Utilities

AVINEON®
Visualize IT. See IT Through.

★ 25 Years of Excellence

About Avineon Inc.

AVINEON
Visualize IT. See IT Through.

An ISO 9001:2008, ISO 27001:2013, ISO 14001:2004, OHSAS 18001: 2007 & SEI CMMi Level 3 Certified Company

- Information Technology Firm, Founded In 1992
- Subsidiaries located in Europe and India
- Over 1200 + employees Worldwide
- Headquartered In McLean, VA With U.S. Operating Locations In DC, AL, & FL
- DoD Secret Facility Clearance
- 100% Project Success Rate

*Avineon is a **global technology company***
specializing in IT, Geospatial, and Engineering Services for Government and private

Our Locations

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Services Overview

Geospatial Services

- Consulting
- Solutions Engineering
- Data Engineering
- Photogrammetry & 3D

Engineering Services

- Design and Detail Engineering
- Plant Design Automation

IT Services

- Geospatial Applications
- Emergency Management Solution - Avineonics®

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Geospatial Solutions

Consulting

- Requirement understanding
- Enterprise GIS road map development
- EGIS Solution Architecture
- Technology and user application specifications
- Business process engineering
- RFP / Proof of Concept development

Solutions Engineering

- Spatial Data Infrastructure(SDI)
- Web GIS applications
- Mobile GIS Applications
- Spatial Data Analytics
- Enterprise application integration with GIS
- Software testing

Data Engineering

- Data modeling
- Data conversion/migration
- Data conflation
- Data acceptance testing
- Data maintenance/update

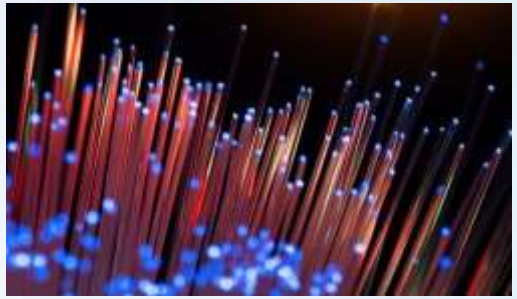
Photogrammetry & 3D

- Ortho Image production
- DEM/DTM/DSM creation
- Remote sensing
- LIDAR data processing
- 3D building & 3D City modeling
- Infrastructure visualization
- BIM and 3D applications

GSS Resource Pool

Geospatial Service verticals

Utilities



- Electric
- Water & Waste water
- Gas

Telecom

- Mobile/Wire line Operators
- Cable Operators
- Broadband providers

Government

- State/Federal
- Transportation departments
- Land administration departments

Oil & Gas

- Pipeline operators
- Exploration/ Production companies

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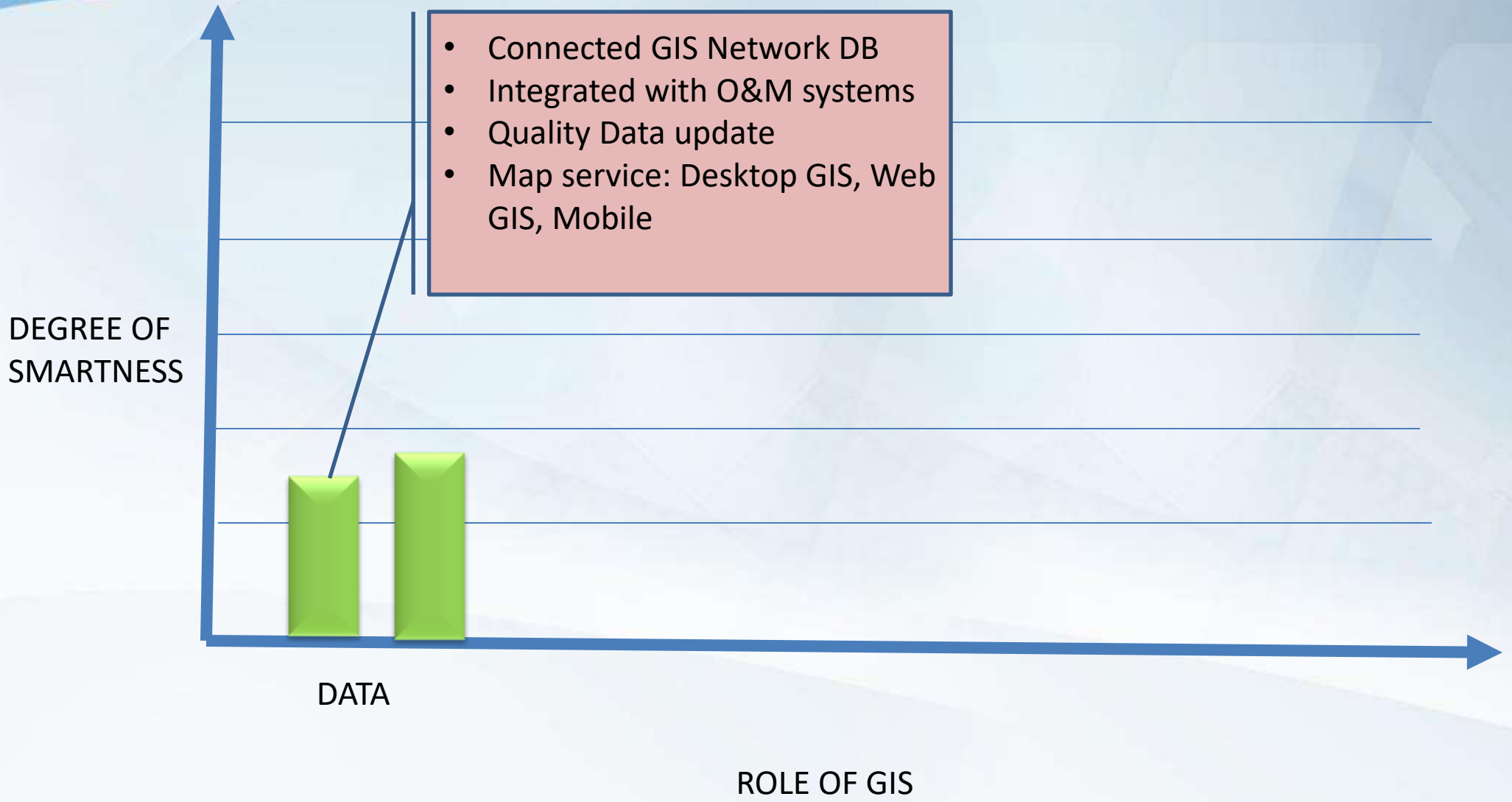
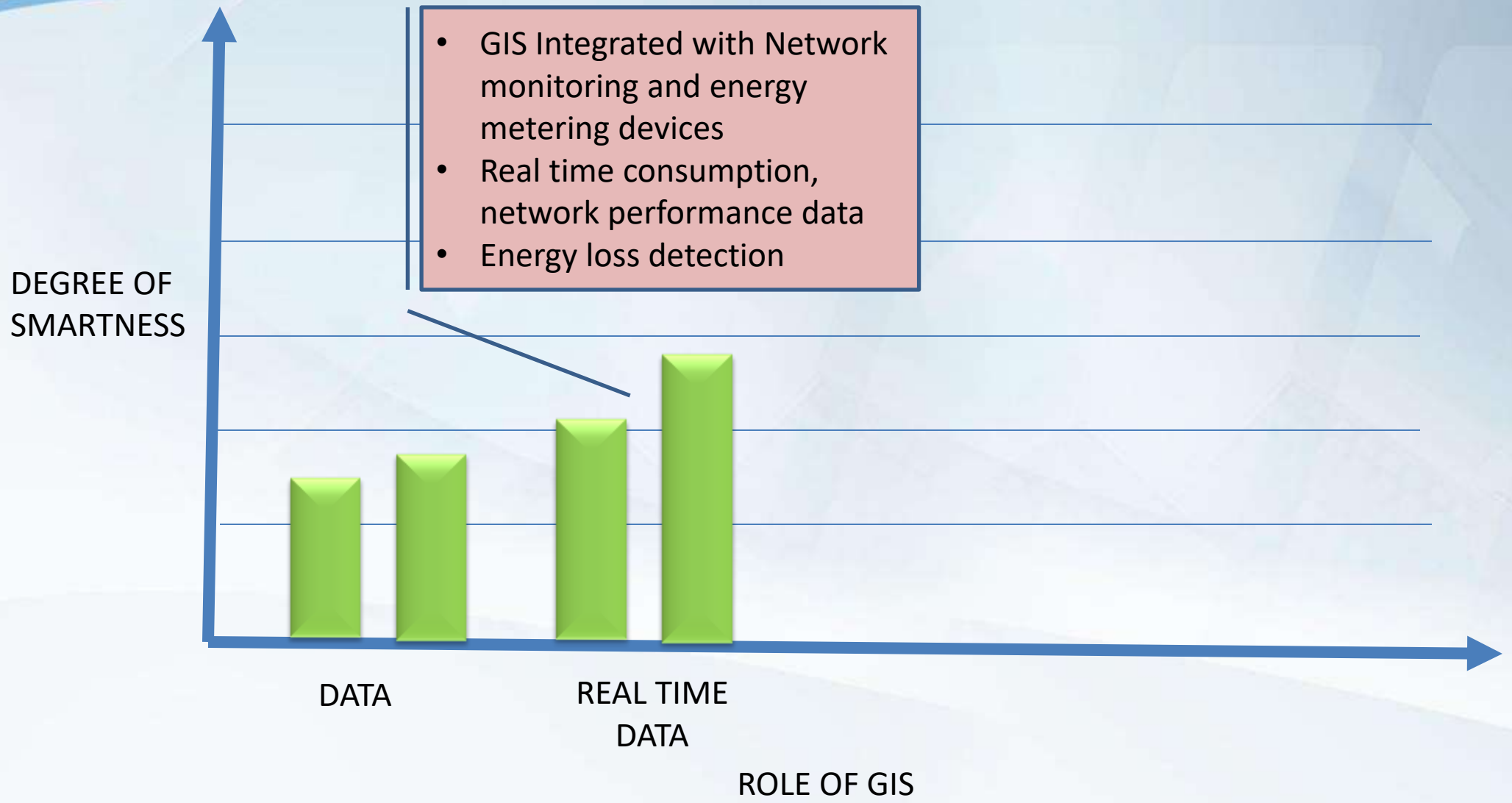
GIS Technology – SMART UTILITIES

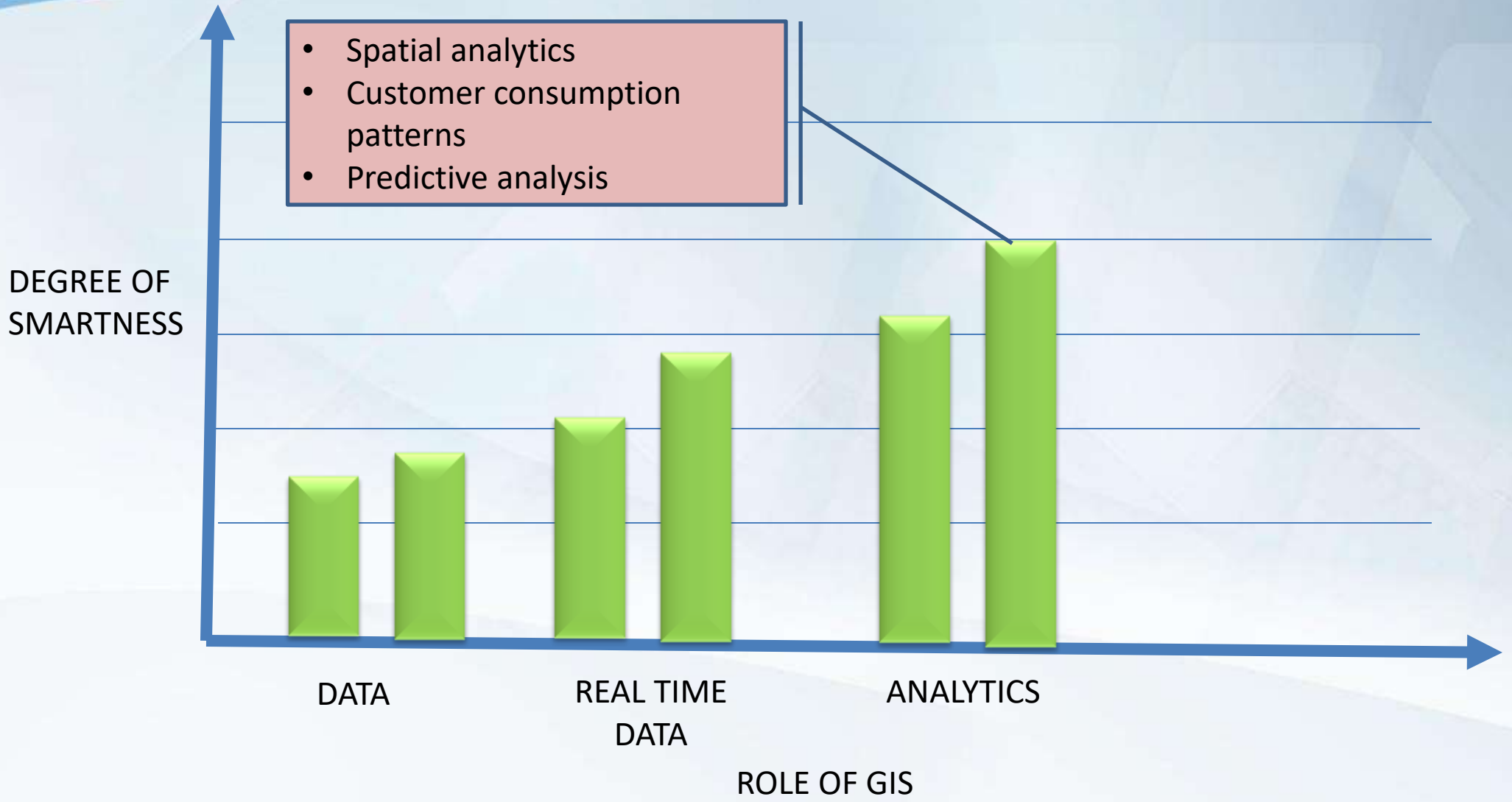
SMART UTILITY PROGRESSION



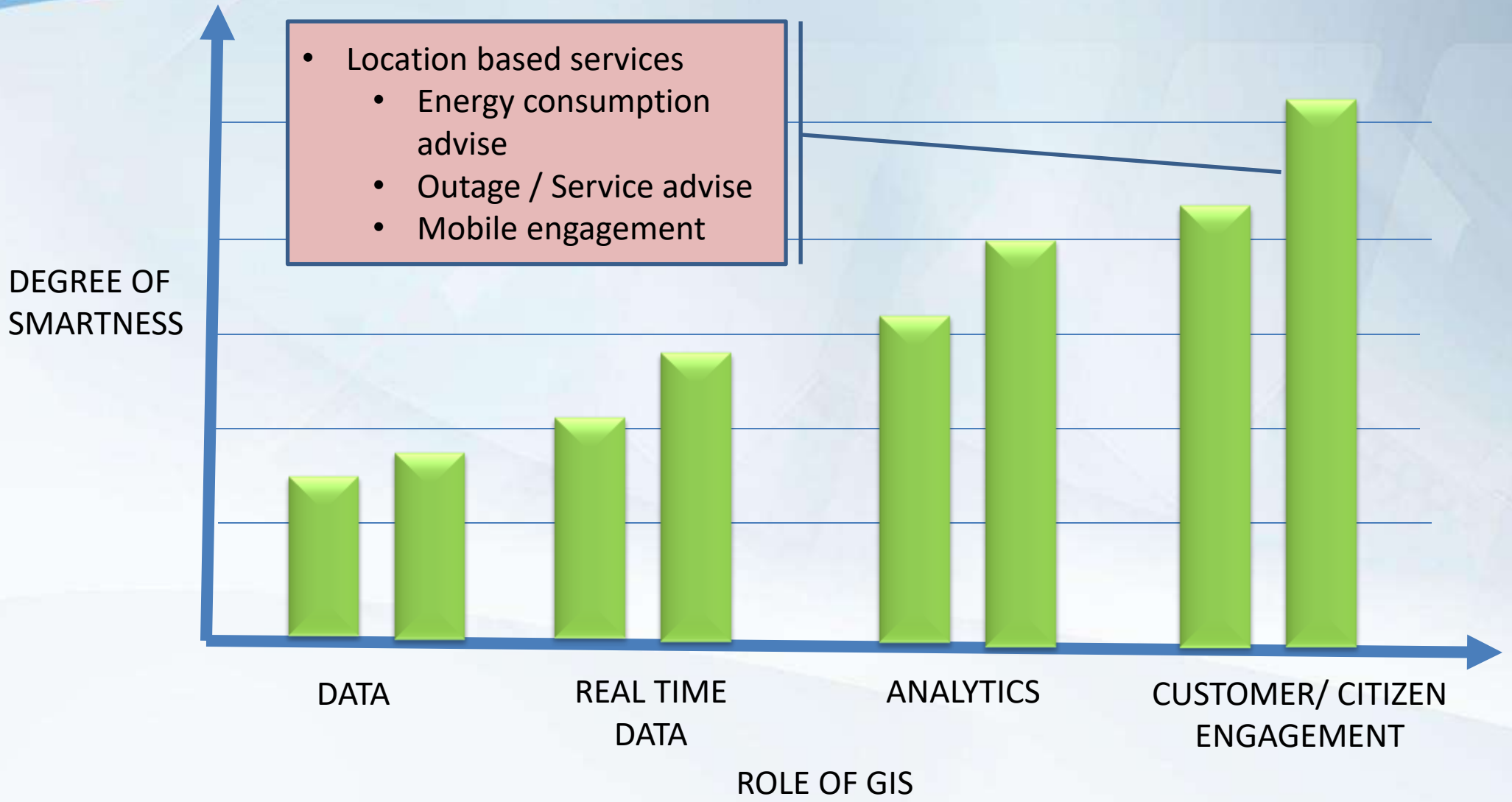
SMART UTILITY PROGRESSION



SMART UTILITY PROGRESSION

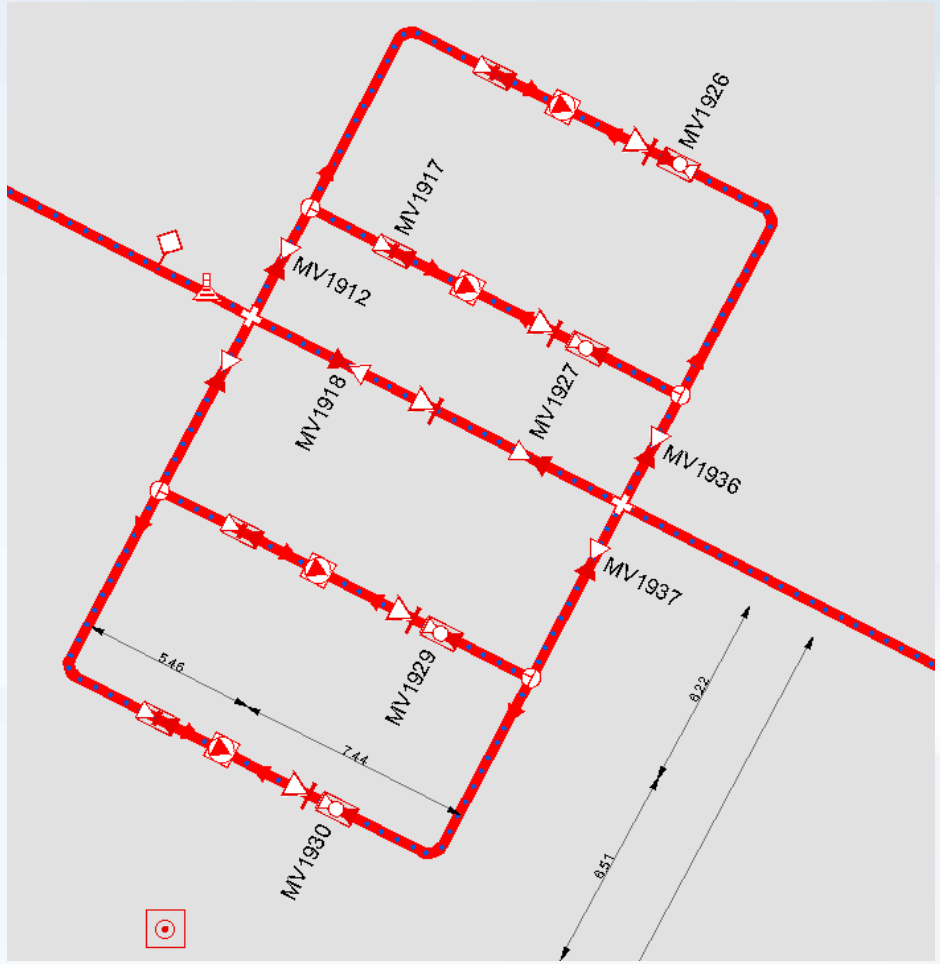


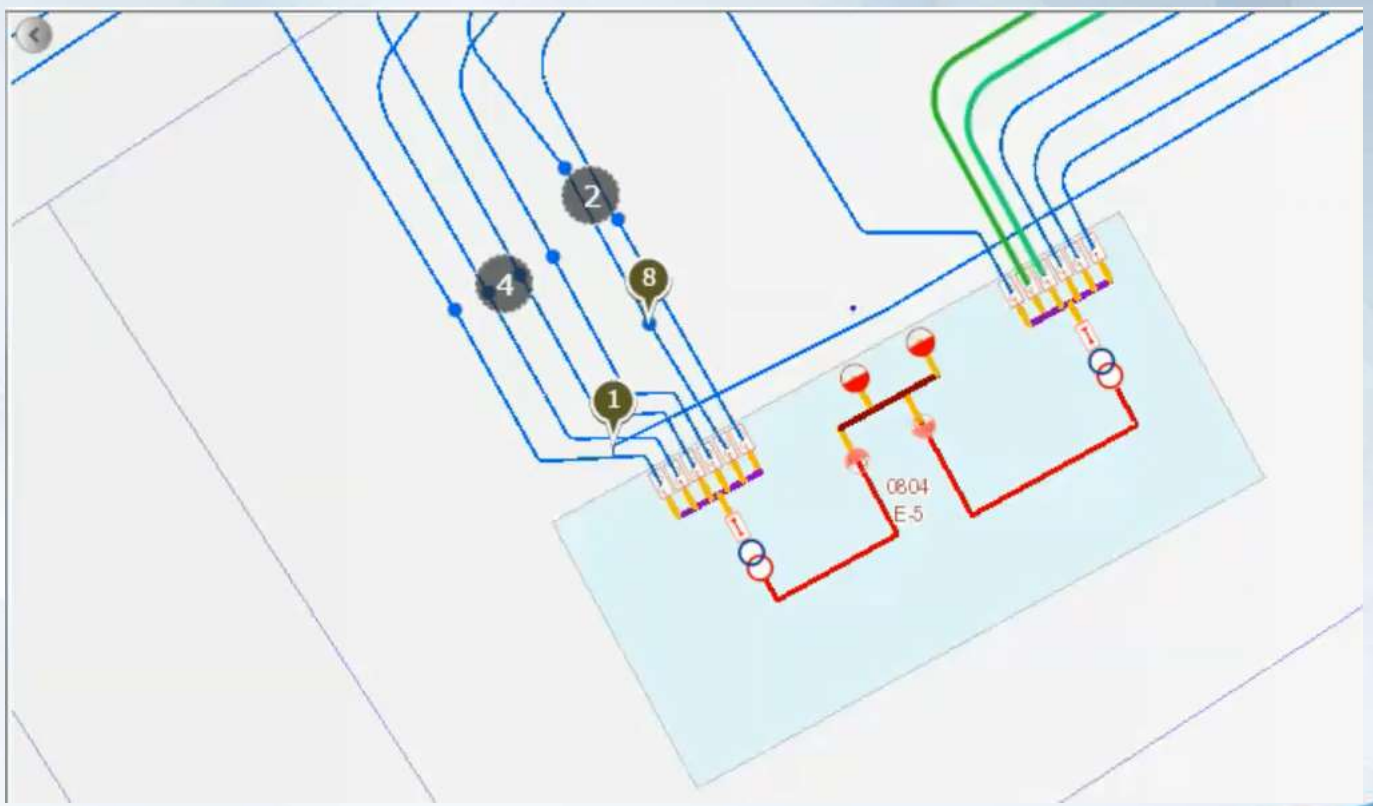
SMART UTILITY PROGRESSION



Key success factors

- Relevantly modeled & fully connected GIS network data is critical

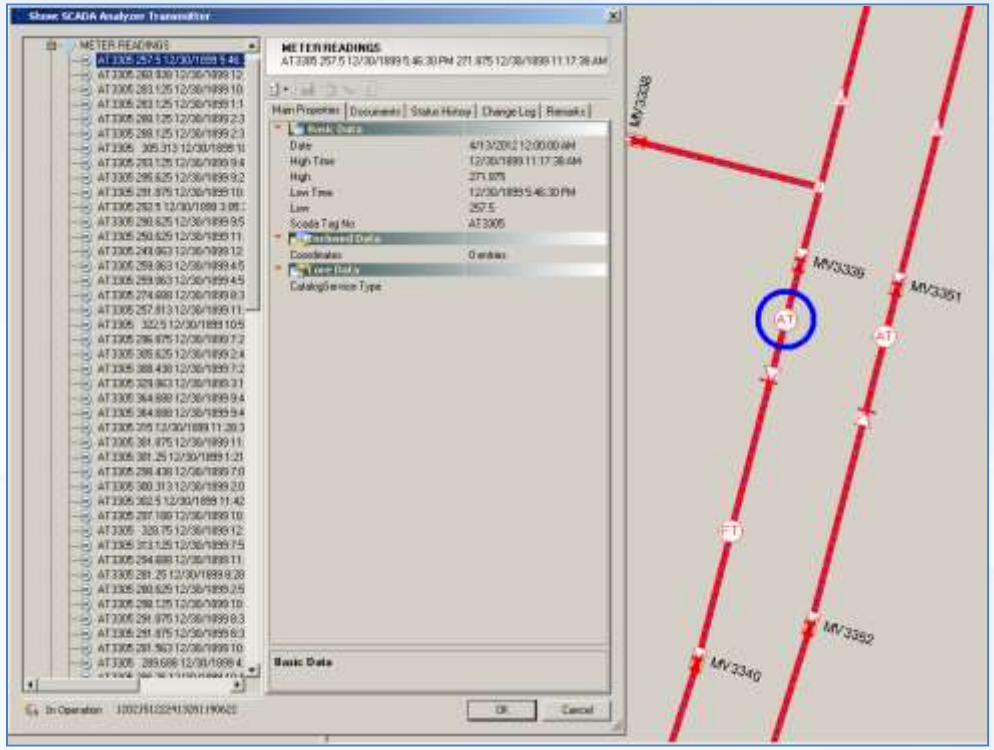




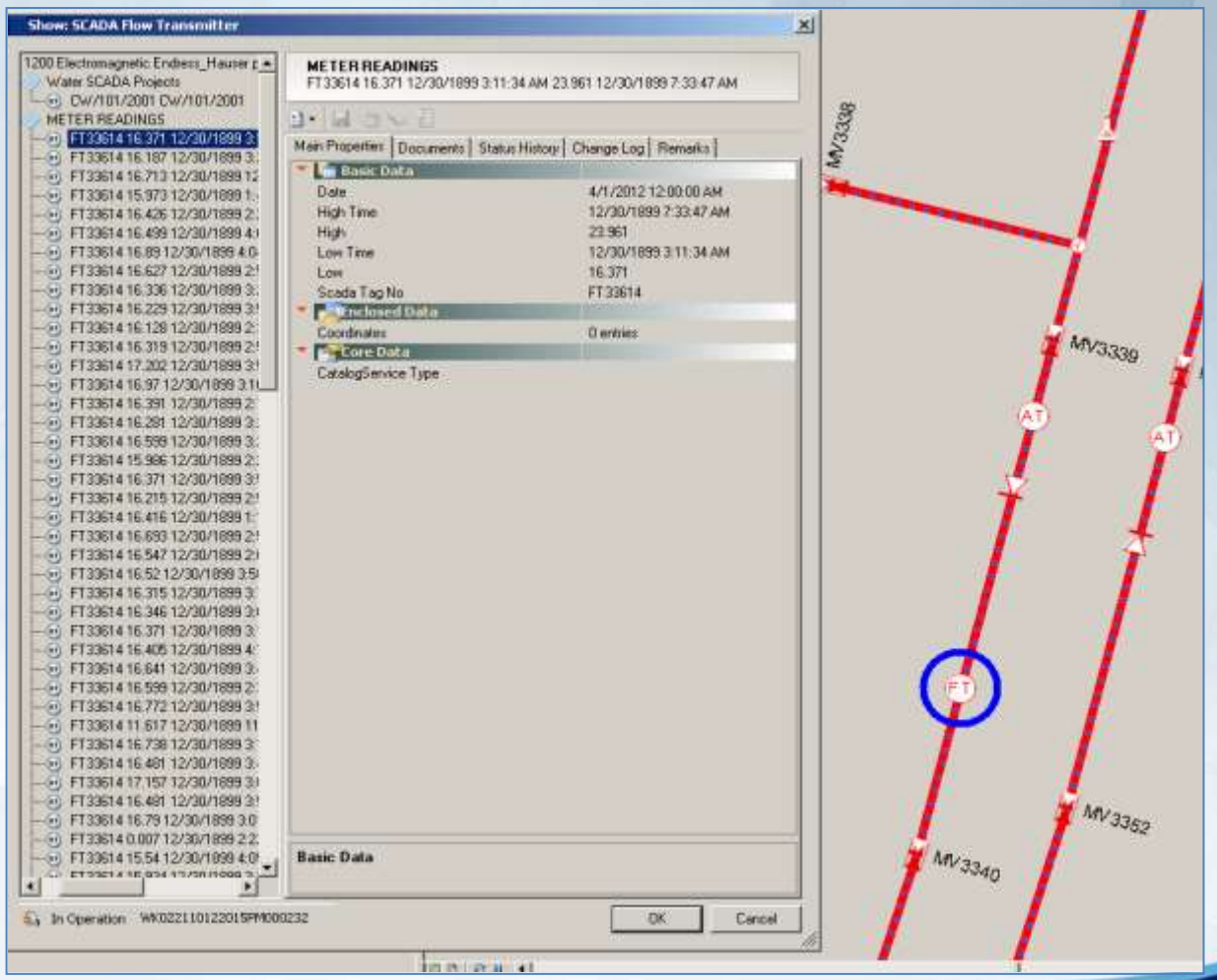
Key success factors

- Linking sensor data real time

Reading data linked with SCADA Analyzer Transmitter



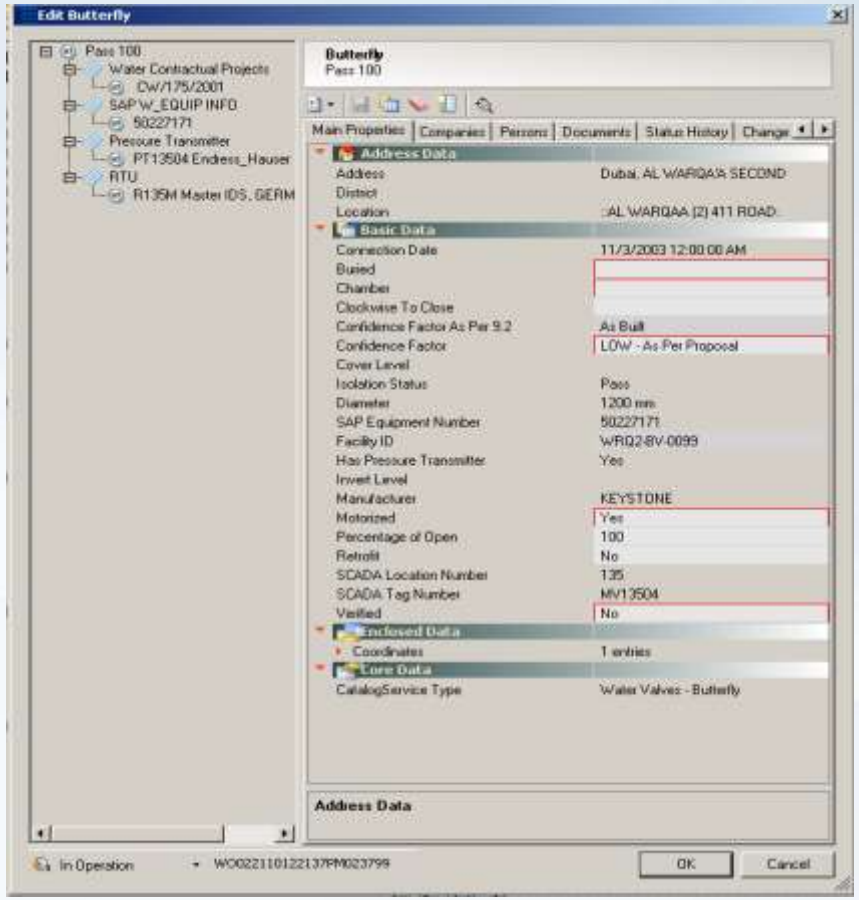
Reading linked with SCADA Flow Transmitter

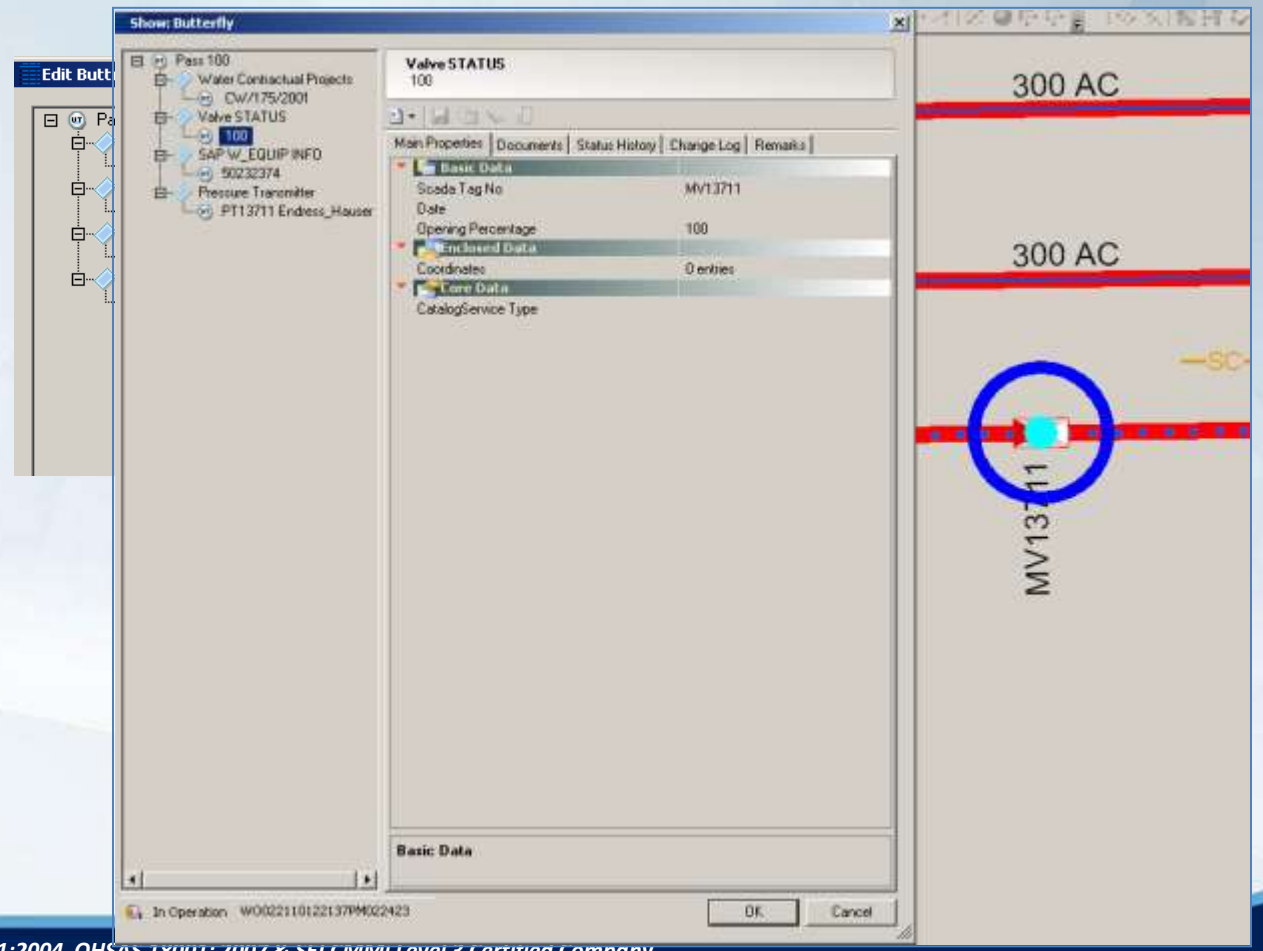


Key success factors

- Linking sensor data

Pressure Transmitter data linked LIVE to corresponding valve

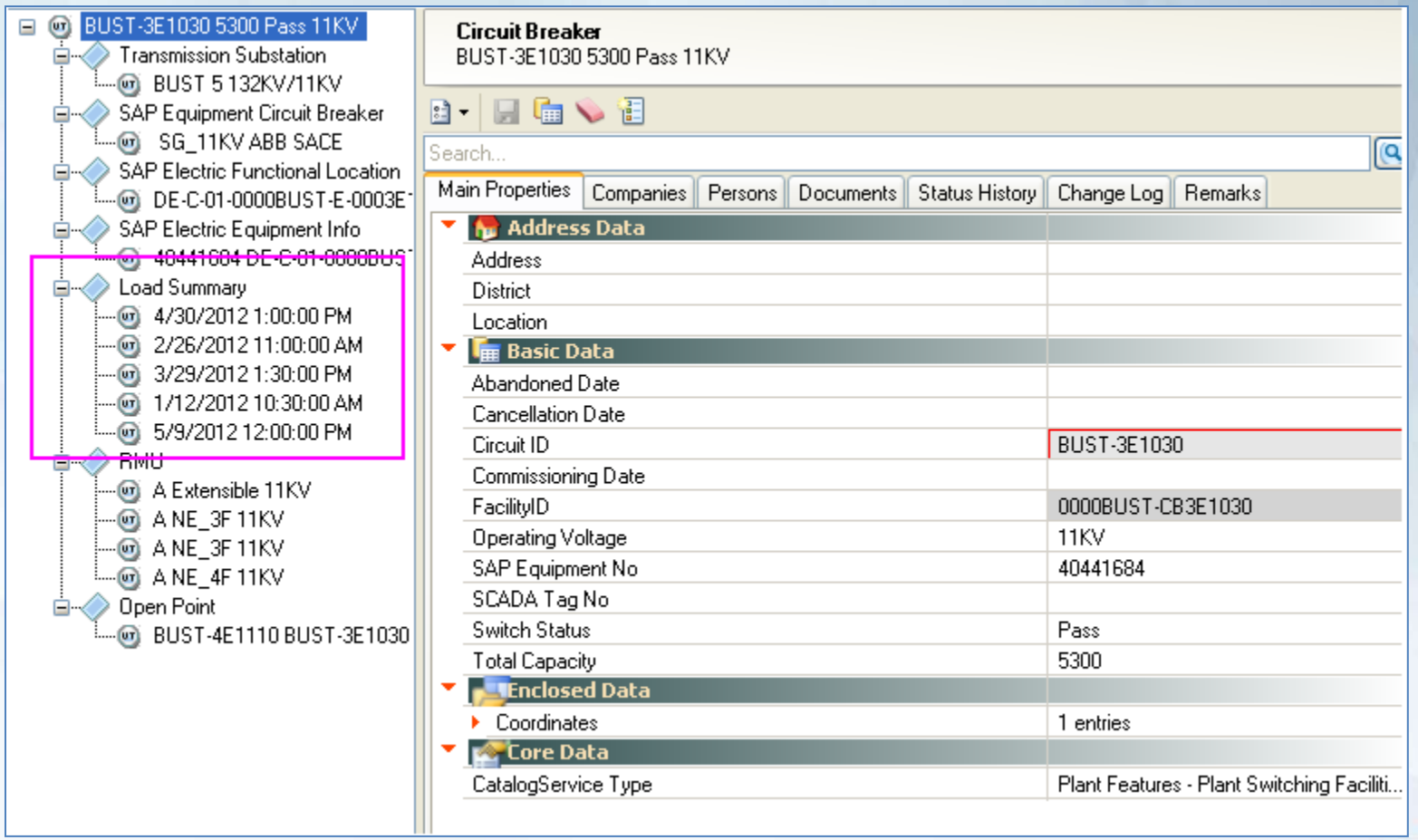




Key success factors

- Linking sensor data

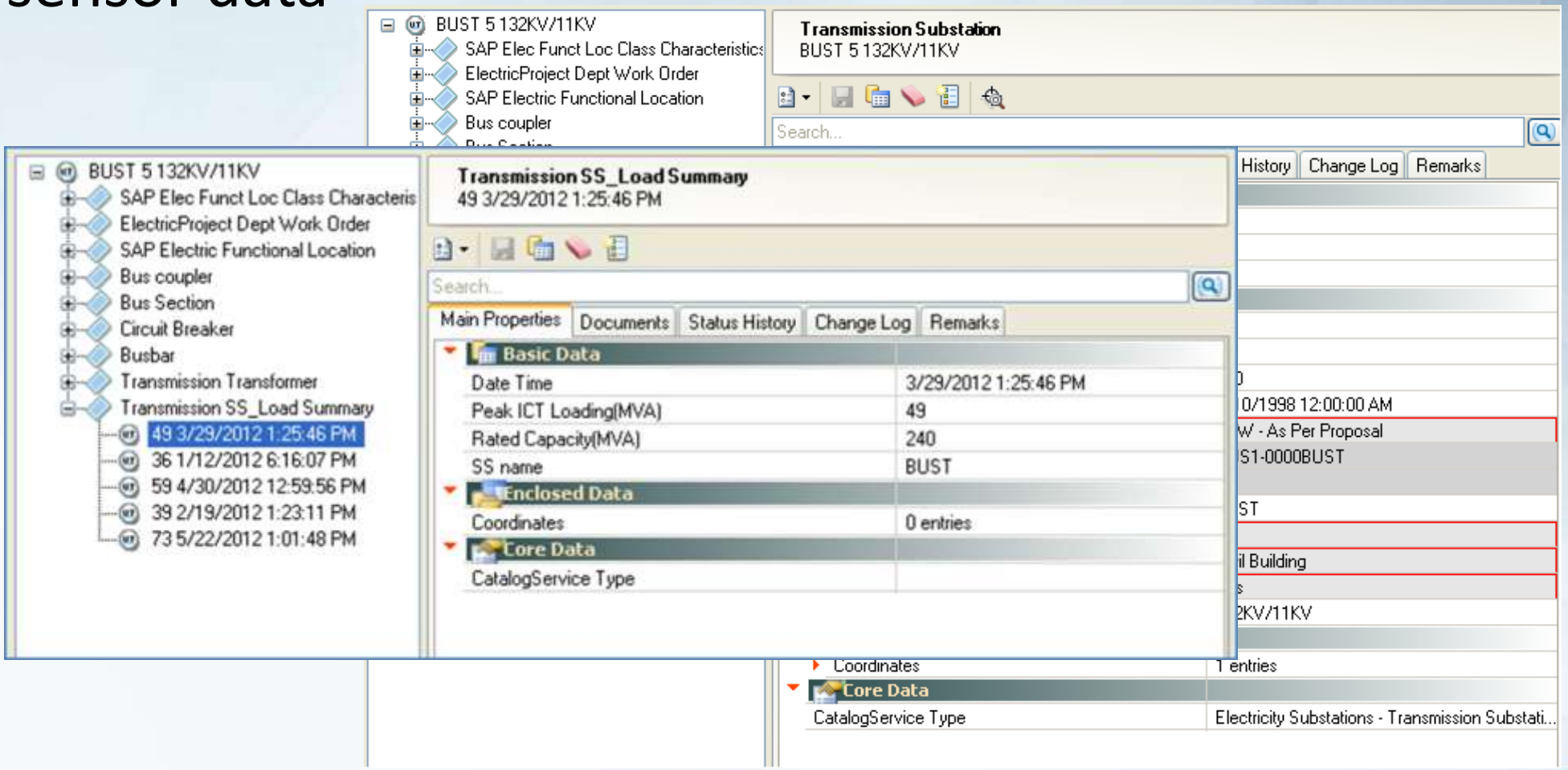
Feeder load data linked to circuit breaker



Key success factors

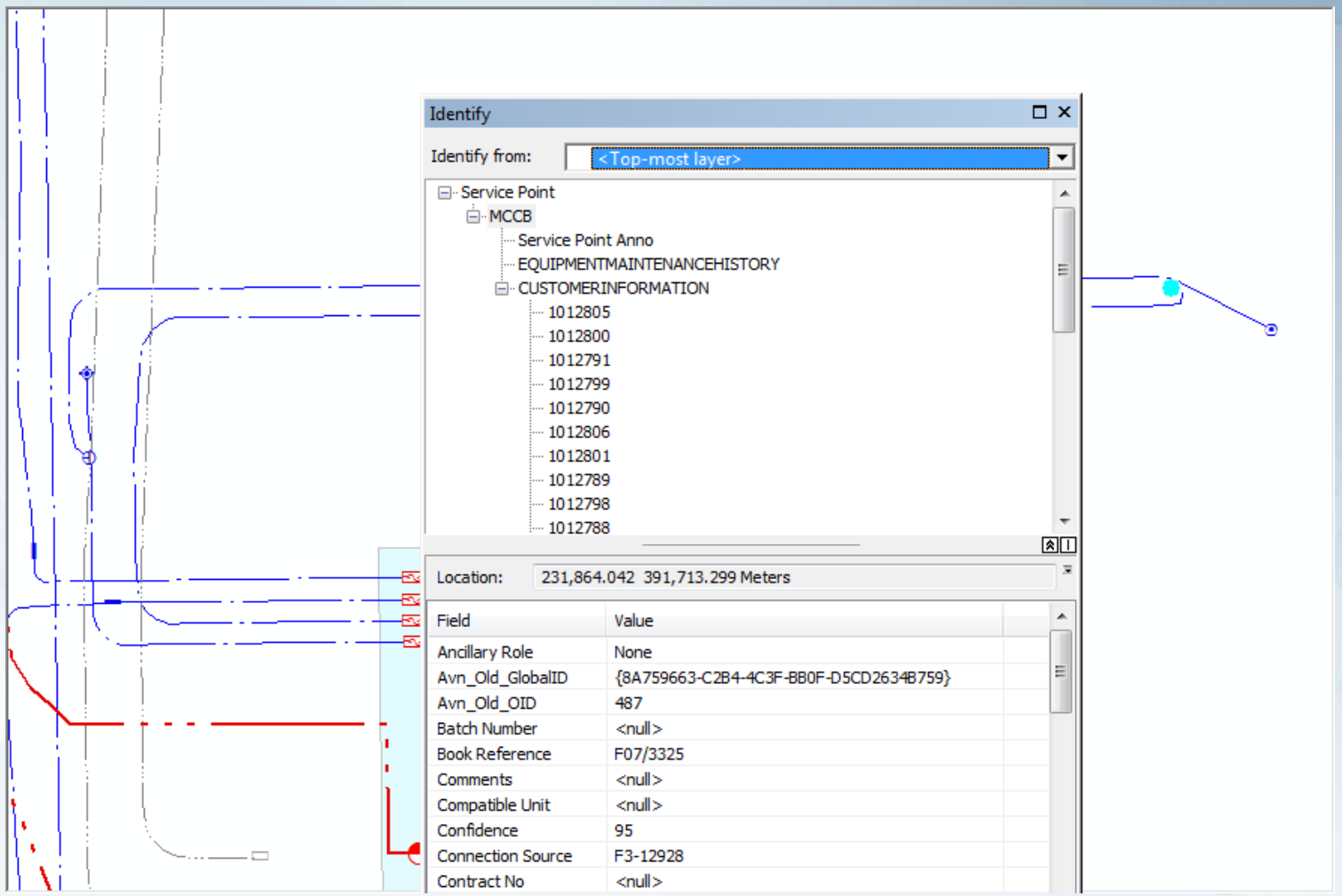
- Linking sensor data

Feeder load summary linked to circuit breaker



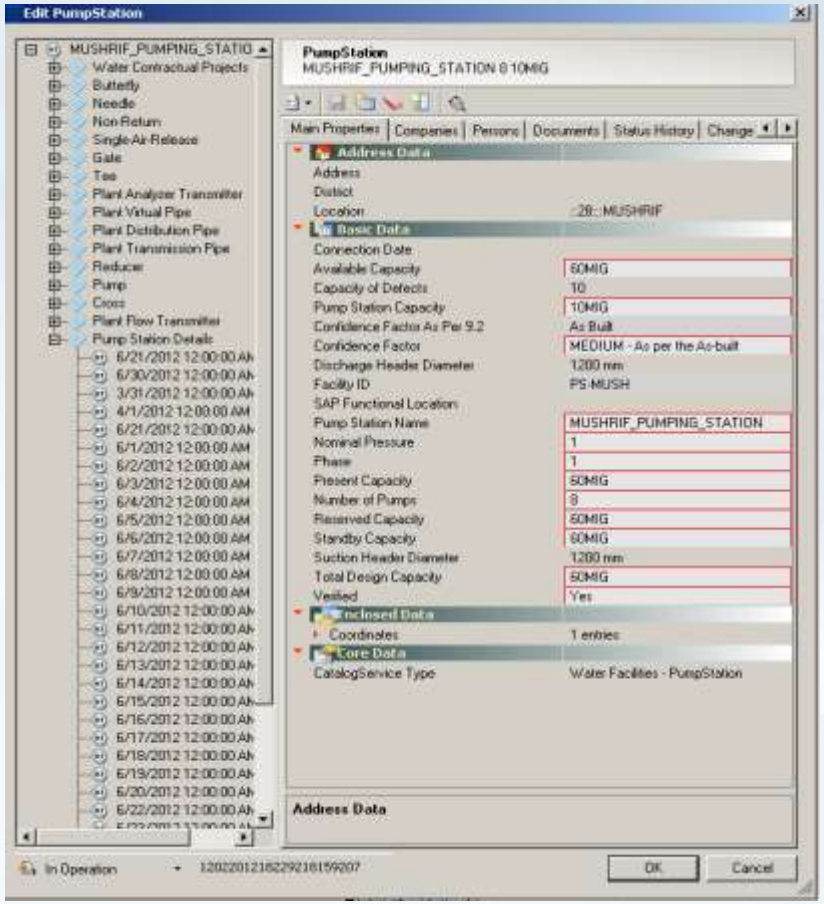
Key success factors

- Linking customer data

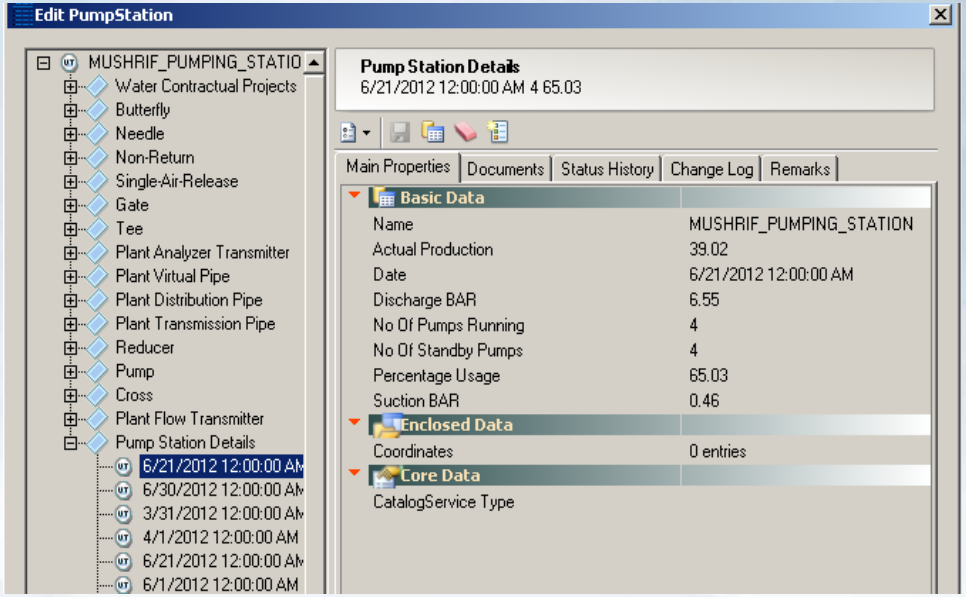


Key success factors

- Linking consumption data real time

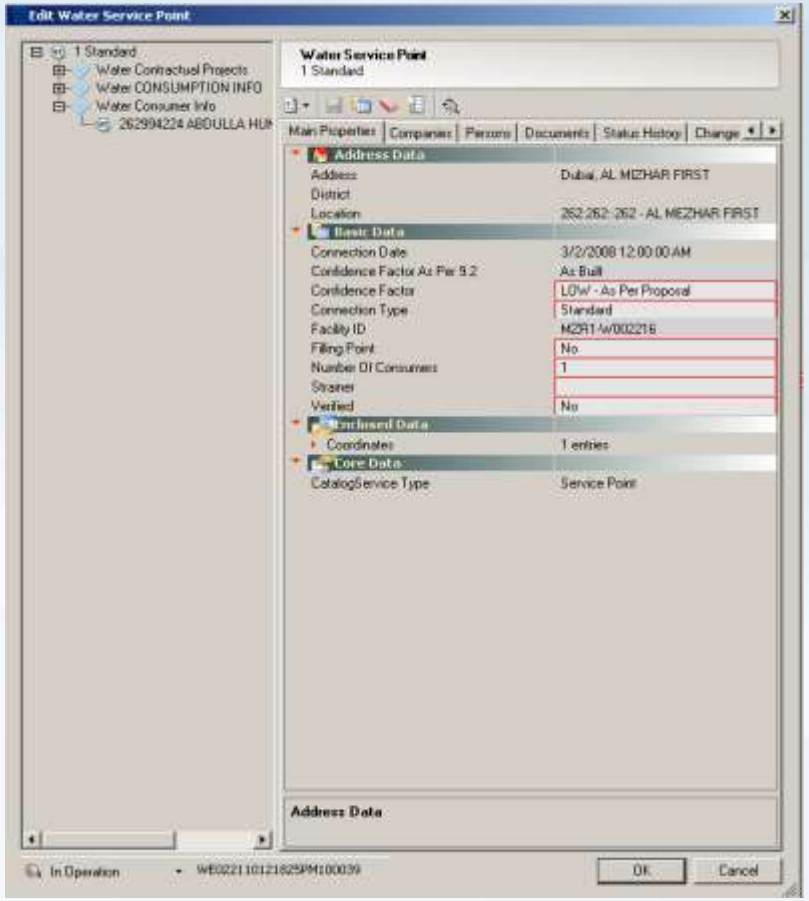


Pump Station daily usage Linked to pump

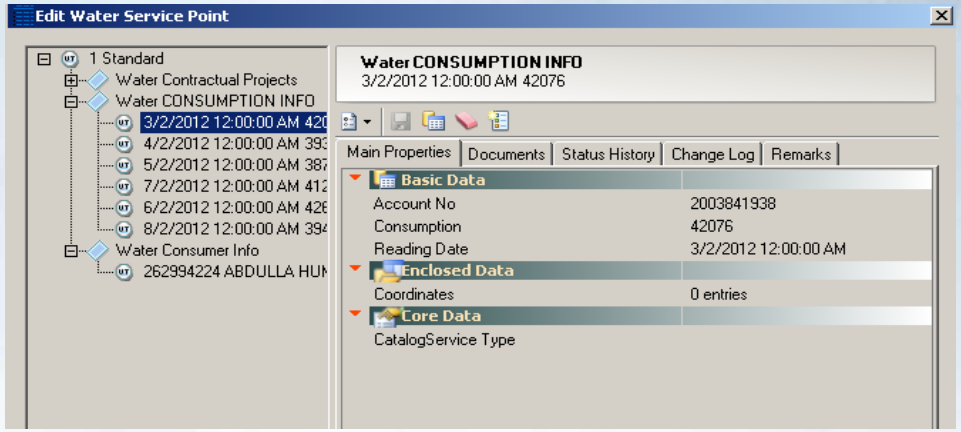


Key success factors

- Linking consumption data real time

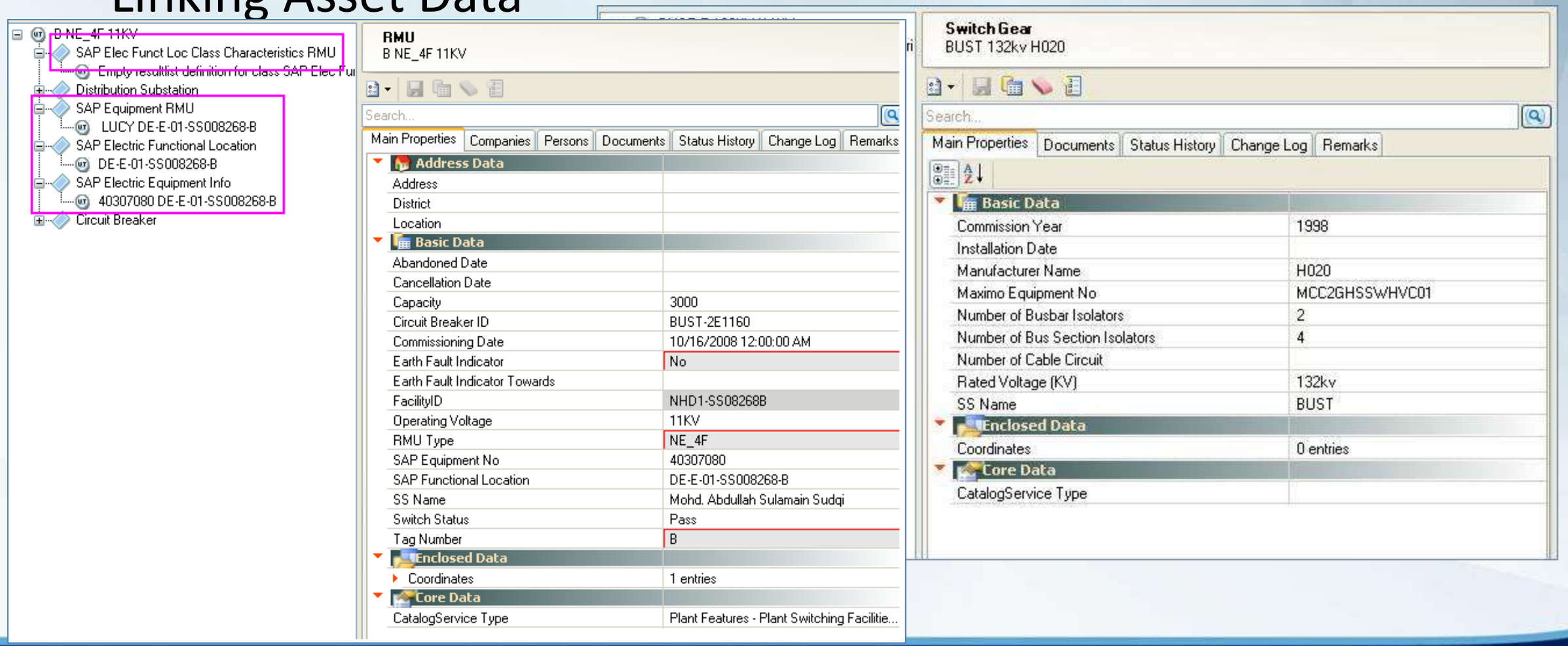


Daily Water Consumption for each service is linked



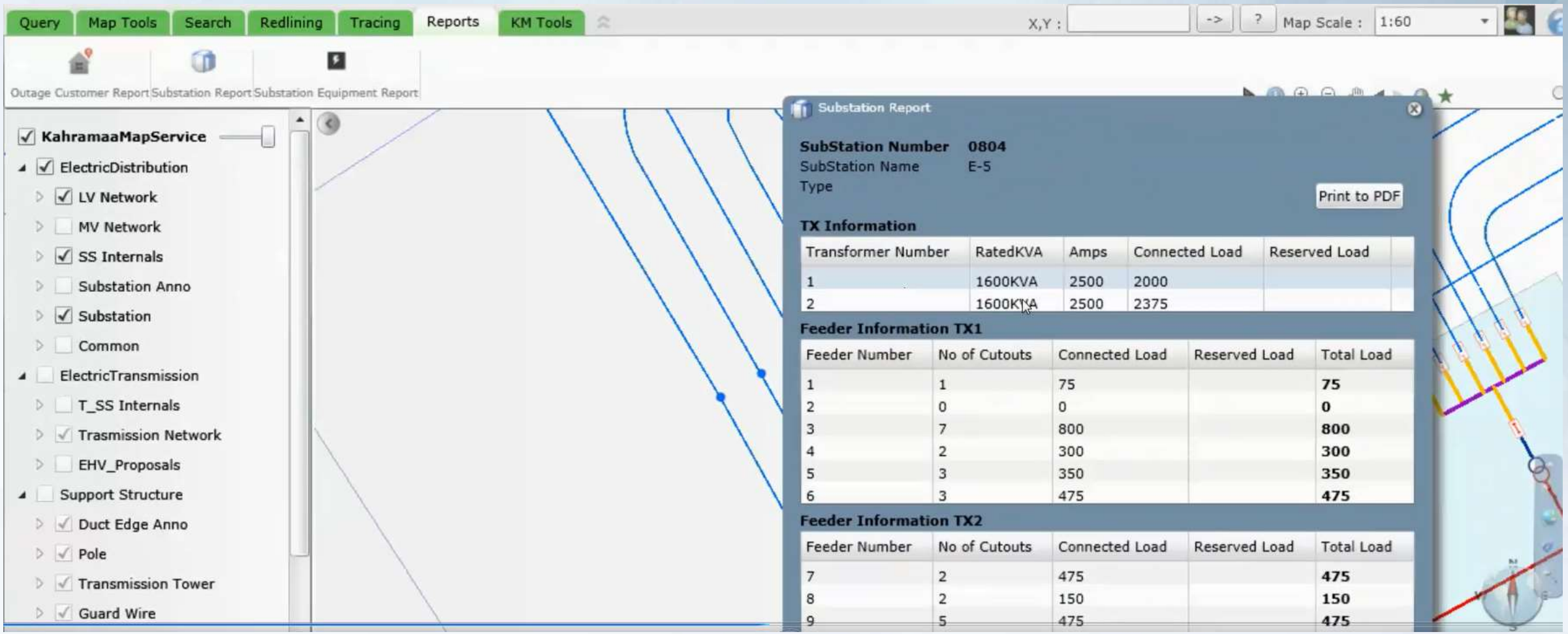
Key success factors

- Linking Asset Data



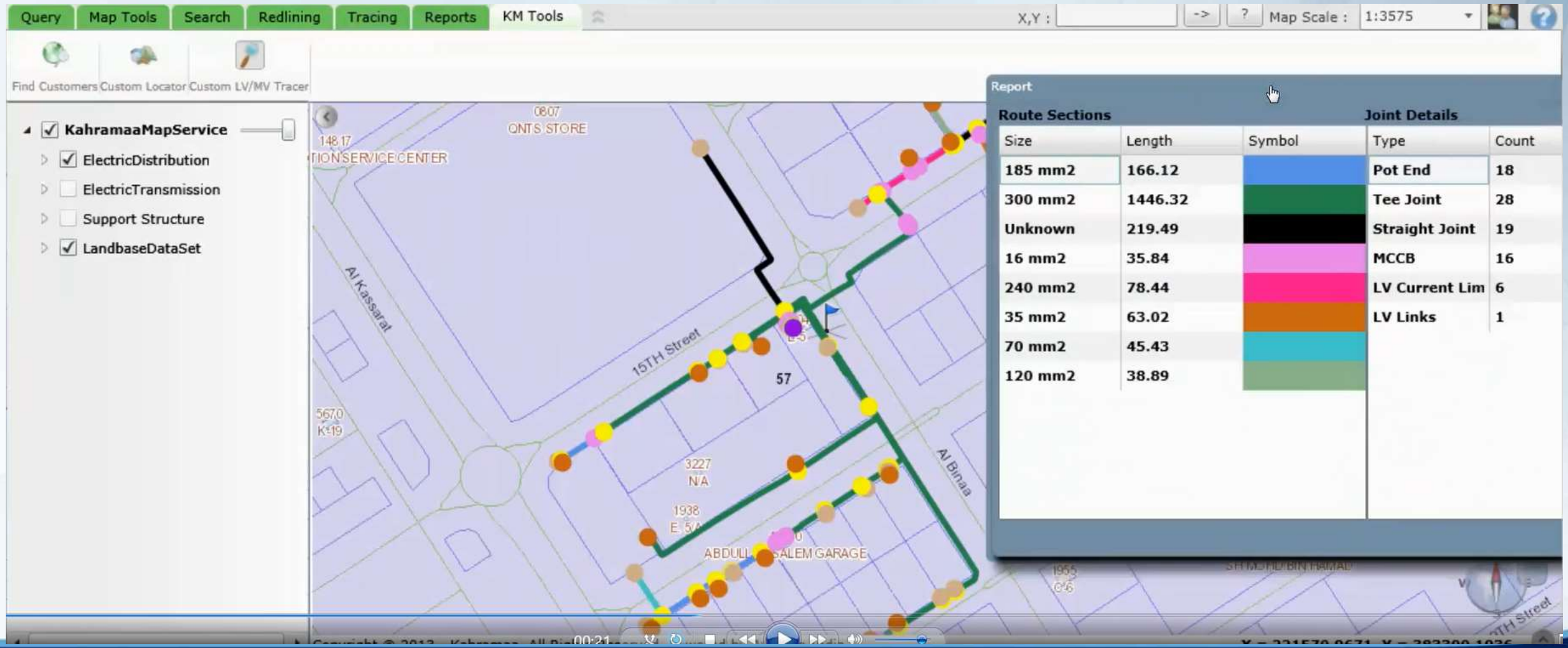
Avineon Custom toolkit for utilities

Load Summary Tool: Real time load summary by circuit, SS, Transformer



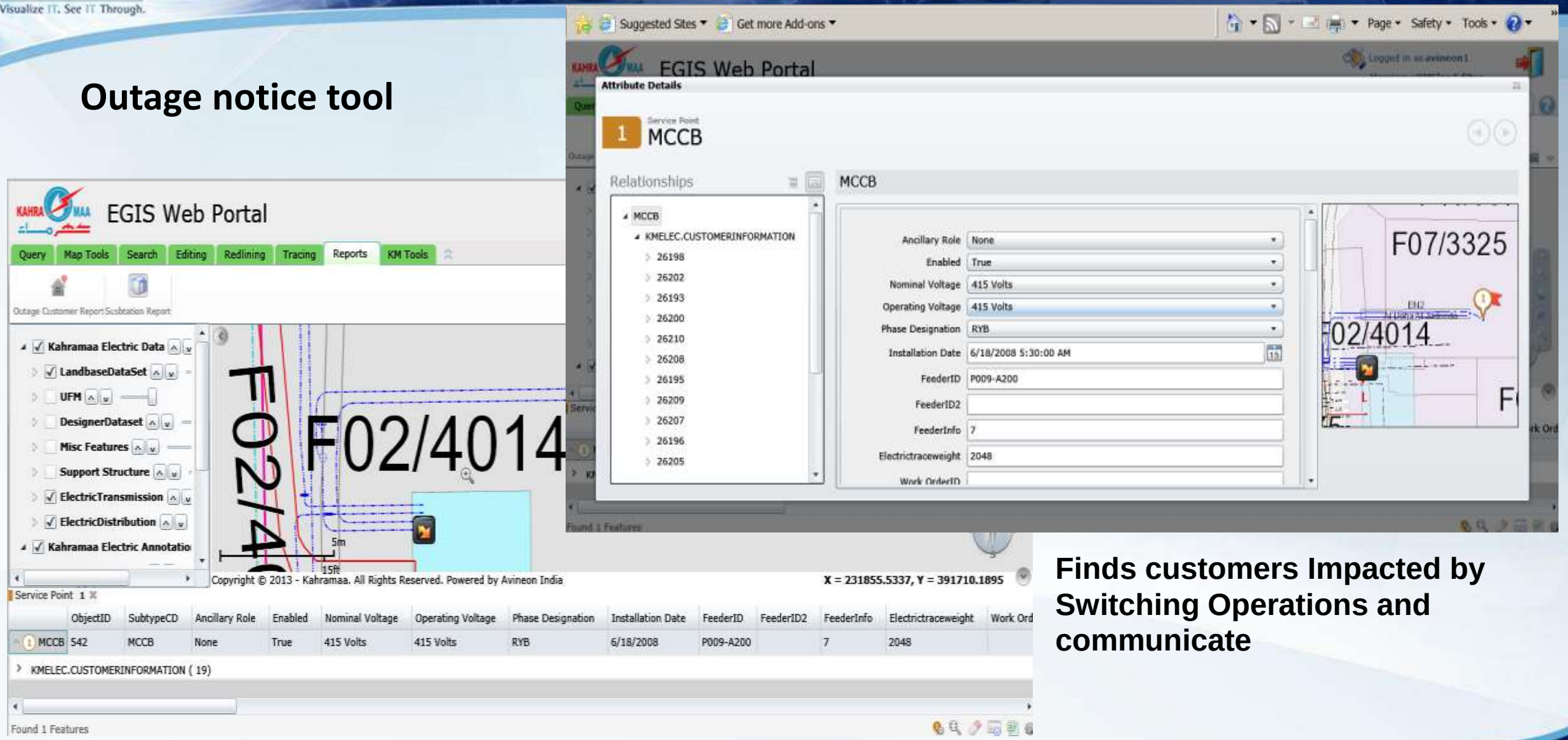
Avineon Custom toolkit for utilities

Asset summary tool: Summarizes connected cables by size, material and associated connection points by selecting any asset in the map.



Avineon Custom toolkit for utilities

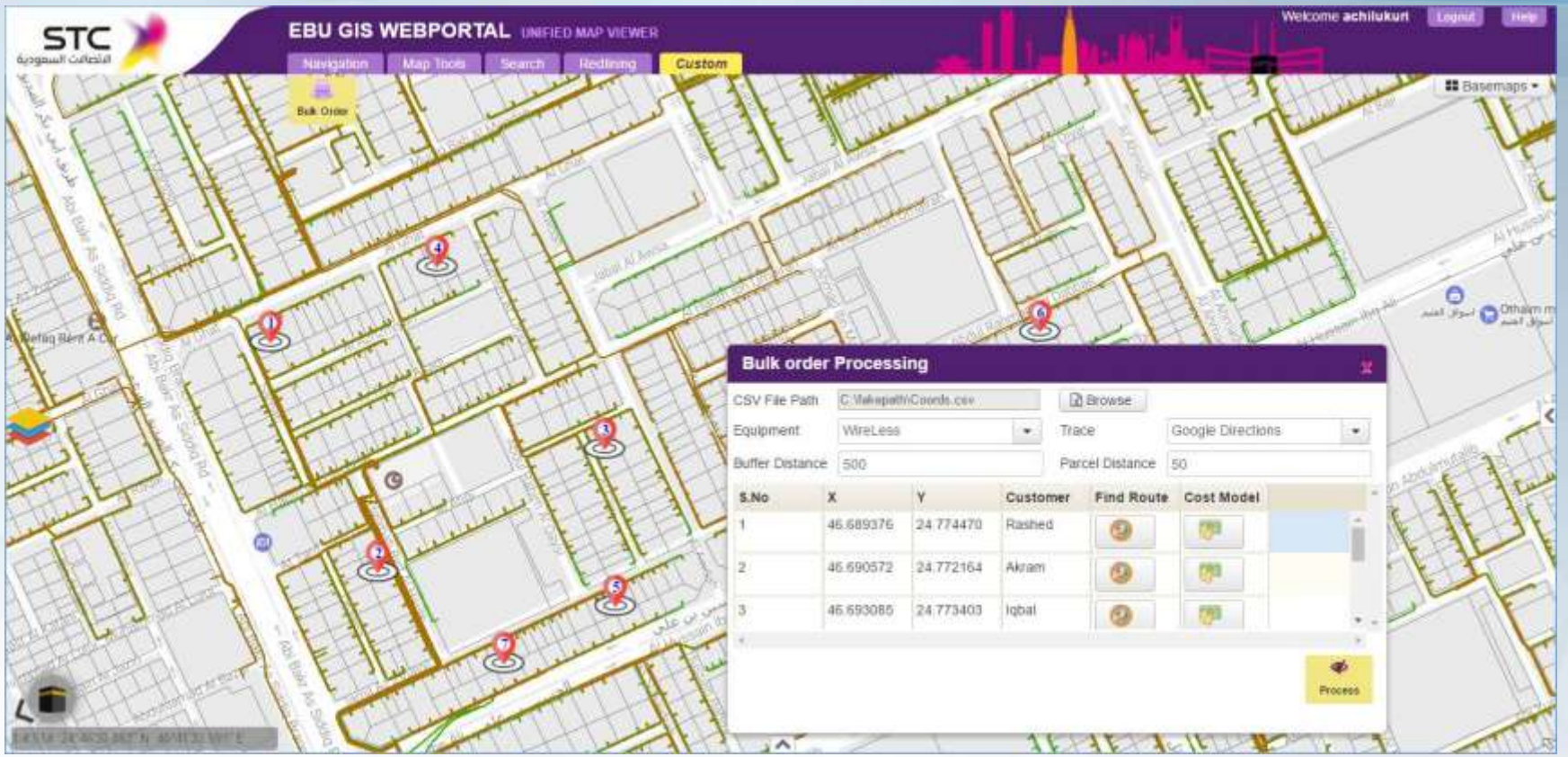
Outage notice tool



Finds customers Impacted by Switching Operations and communicate

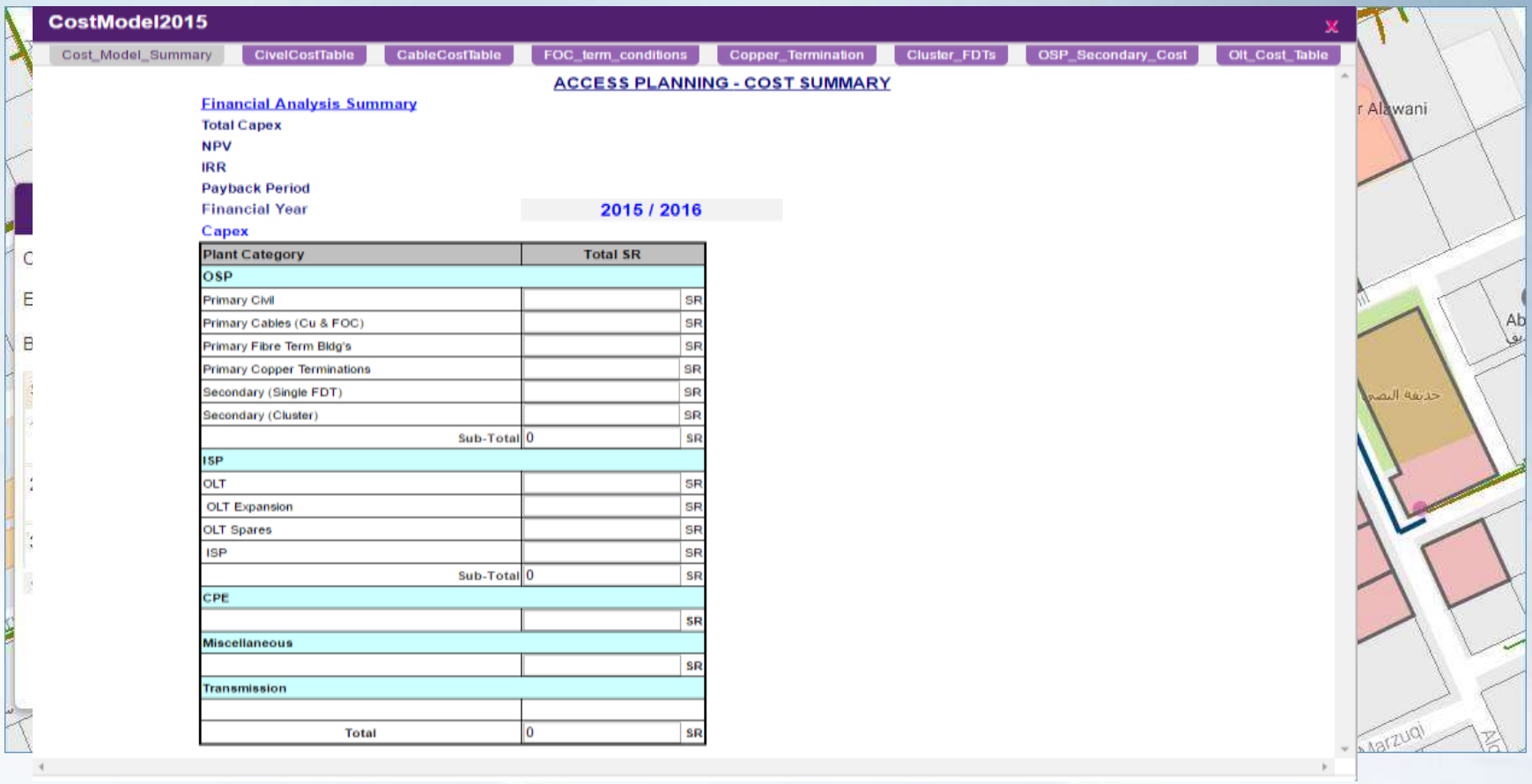
SMART Design for Fiber

- Designer gets connection request locations
- Request locations (Address/XY/Latlong) are input to the tool
- Tool automatically geocode the locations



SMART Design for Fiber

- Tool locates nearest equipment for each connection request
- Shows the civil network and fiber network route and length
- Provides cost estimate as well for the proposed route



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DISCOVERING DATA TRENDS FROM GIS: Avineon Metrics

Metrics Extension to ArcGIS for Server

Analytics for GIS

DEFINE › SCHEDULE › COMPUTE › SHARE

- **Founded 1992**
- **900+ employees**
- **Privately held**
- **Headquartered in McLean, Virginia with office in Florida.**
- **Subsidiaries in Canada, France, Belgium, Netherlands, United Kingdom, and India.**

An ISO 9001:2008 Registered
CMMI Maturity Level 3 Company

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Information ⇨ Intelligence

Analytics for GIS

GIS Manager, Supervisor, Administrator, Analyst

- Data Trends
- Quality Trends
- Editing Trends

❑ What is updated in the last week, month, quarter, year?
❑ Is the data quality getting better?
❑ What are the unposted changes?

Executives, Managers, Supervisors, Consultants

INDUSTRY: Electric, Gas, Water, Telecom, Transportation, Oil, Insurance

- Inspection Trends
- Installation Trends
- Aging Trends
- Reliability Trends
- Customer Trends

❑ What, Where, When and Outcomes?
-By Circuit/Route | Asset Type | By Region

GOVERNMENT: City, County, State, Federal

- Land Use Trends
- Demographic Trends
- Public Safety and Security Trends
- Health Trends
- Human Services Trends
- Citizen Services Trends

❑ Property Type | Surface Type | Structure Type
❑ Traffic Violations | 911 calls
-By Zip Code | Subdivision | Tax Districts | Zone
-By School | Counsel | Congressional Districts

Asset trends

oxford/electric.html

Electric

Asset Type | Inspections | Installation | Reliability | Customers

By LV Joints By Joint Type* | LV Cable By Material and Size* | Customer Count By Cutout Size* **By** Pole Inspections | Joint Use | Streetlight Maintenance **By District and** LV Joints | Xfmr Count By Mfr Year and District* | Joint Use | Line Clearance | Abandoned | Meter Type **By Circuit and** Cutout Type | Transformer KVA |

Metrics Extension

ArcGIS for Server

Electric LV Joints By Type

Category	Current
	17-Mar-16
PB Termination.XLPE	249
PB Termination.PILC	1
PB Termination.Transition	2
PB Termination.Not Applicable	1646
Straight Joint.XLPE	41925
Straight Joint.PILC	31772
Straight Joint.Transition	19020
Straight Joint.Not Applicable	25
Pot End.XLPE	126
Pot End.PILC	4
Pot End.Transition	1
Pot End.Not Applicable	97141
Tee & Straight Joint.XLPE	367
Tee & Straight Joint.PILC	1931

- By Type
- By Joint Type
- By District
- By Contractor
- By Install Year

Data Quality and Governance

Feature Counts

What do we have ?

Feature Class	Apr 1, 2016	Nov 1, 2015
Parcels . Single Family	23,100	22,928
Streets . Alleys	1,624	1,624
Street Lights . Customer Owned	782	1321
Work Orders . In Progress	45	23

Field Density

How complete is the data?

Feature Class	Apr 1, 2016	Nov 1, 2015
Street Light . Owner	23%	21%
Street Light . Bulb Type	89%	75%
Street Light . Year Installed	5%	0%
Street Light . Manufacturer	8%	7%

Versions By Depth and Age

Feature Class	Apr 1, 2016	Nov 1, 2015
Depth 1 . 30 to 90 Days	16	3
Depth 1 . 180 to 360 Days	4	2
Depth 2 . 30 to 90 Days	45	19
Depth 2 . 180 to 360 Days	87	52
Depth 3 . 30 to 90 Days	132	245

Unposted Changes in Versions

Feature Class	Apr 1, 2016	Nov 1, 2015
Parcels . Add	4	24
Parcels . Update	65	3
Parcels . Delete	15	9
Manholes . Add	1	0
Manholes . Update	23	2
Manholes . Delete	300	15

Metrics Extension

ArcGIS for Server

Summary

GIS & SMART Utilities

- GIS has become a key technology that makes an impact in utility industry operations
- Integration of GIS technology into the back-office systems is helping operators gain new knowledge about their systems and operations
- Enabling utility operations to move from a static environment to a real-time environment
- Key role in network analysis (to know where things are) and asset management
- Helps to do better spatial based analytics, and improve maintenance and hence reliability
- Information is made available to remote field staff, repair crew, operations centers, and dispatchers is helping in better decision making

Take away

What can Avineon bring in!

- → Bringing global experience multiple domains
- → Successful execution of Software Development projects & Enterprise GIS projects.
- → Excellent customer references in India, ME, USA, Europe
- → Expertise in leading geospatial technologies on Web/Mobile
- → Quality Management and Project management tools/processes
- → Experienced resources (specific to consultancy/data/web/mobile application implementation).

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Thank you