



# Smart Grid Big Data Workshop– Data Analytics and Tools

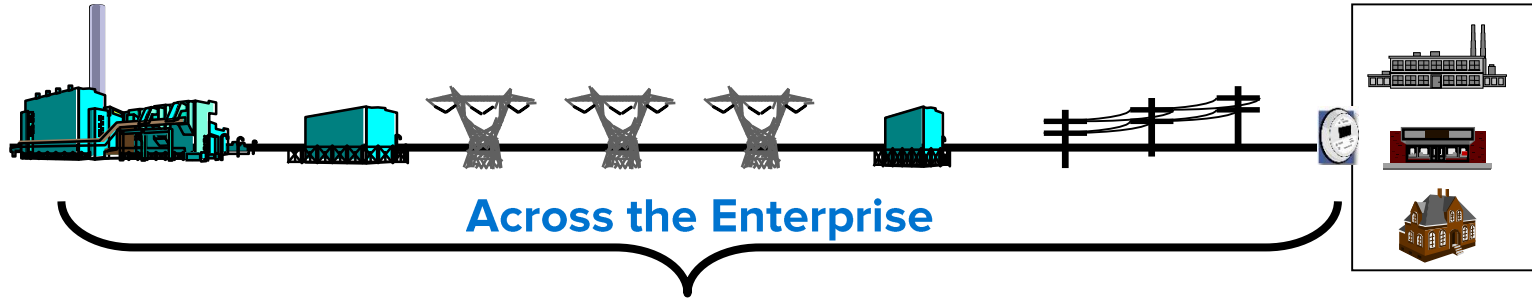
Jim O'Rourke, Academic Acct. Mgr. OSIssoft [jorourke@osisoft.com](mailto:jorourke@osisoft.com) 281-433-3399

Dr. Dilma Da Silva, Department Head, Computer Science and Engineering TAMU

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# Smart Grid Operations Areas Where Data Analytics Are Utilized



## Transmission

Wide Area Situational Awareness  
 Renewable Integration  
 Dynamic Capacity Analysis & Planning  
 Power Flow Modeling  
 Post Mortem Analysis of Events & Trips

## Substation

Increased Asset Life  
 Identify Equipment Failures (CBM/RCM)  
 Substation Security  
 NERC-CIP  
 Growth Planning

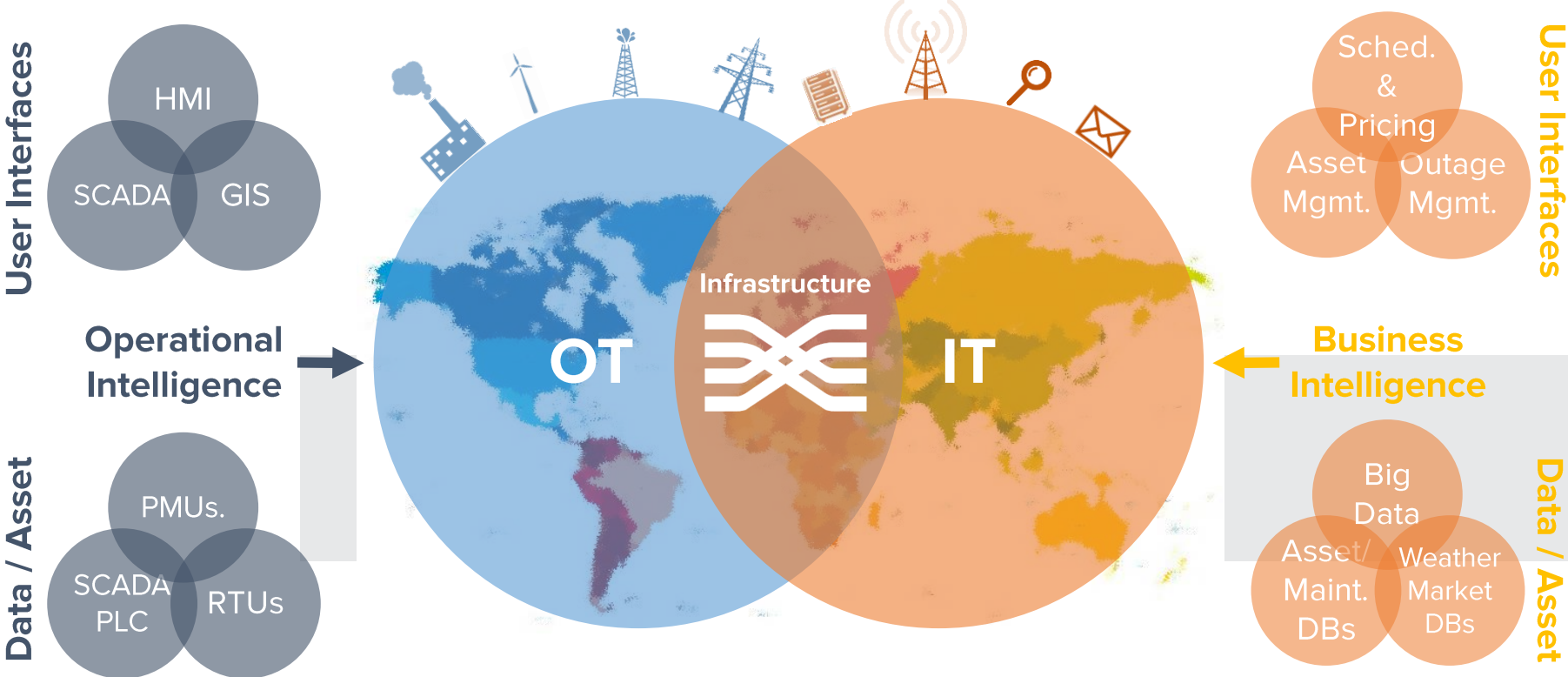
## Distribution

Distribution Transformer Load Monitoring  
 Customer Energy & Outage Management  
 Monitor IT and Communication Health  
 System Loss Evaluation  
 Theft Detection

## Smart Grid

AMI  
 In-home Devices/IoT  
 Distributed Generation/Microgrids  
 Demand Response  
 Sudden Load - Vehicle Charging

# OT & IT Convergence In Smart Grid For Advanced Analytics & Performance



# Aggregated/Contextualized Historical Data For:

Geospatial Analysis

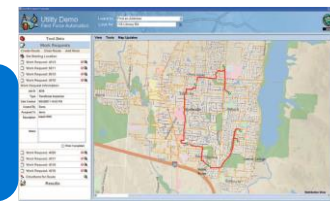
Utility-Wide  
Real-Time Data  
Consolidation

Regulatory  
Compliance

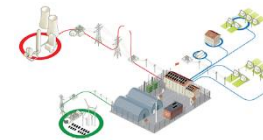
R-T Situational  
Awareness &  
Optimization

Asset Health  
Stewardship

Big Data &  
Advanced  
Analytics



Enterprise-Wide Real Time  
Data Infrastructure



Microgrids



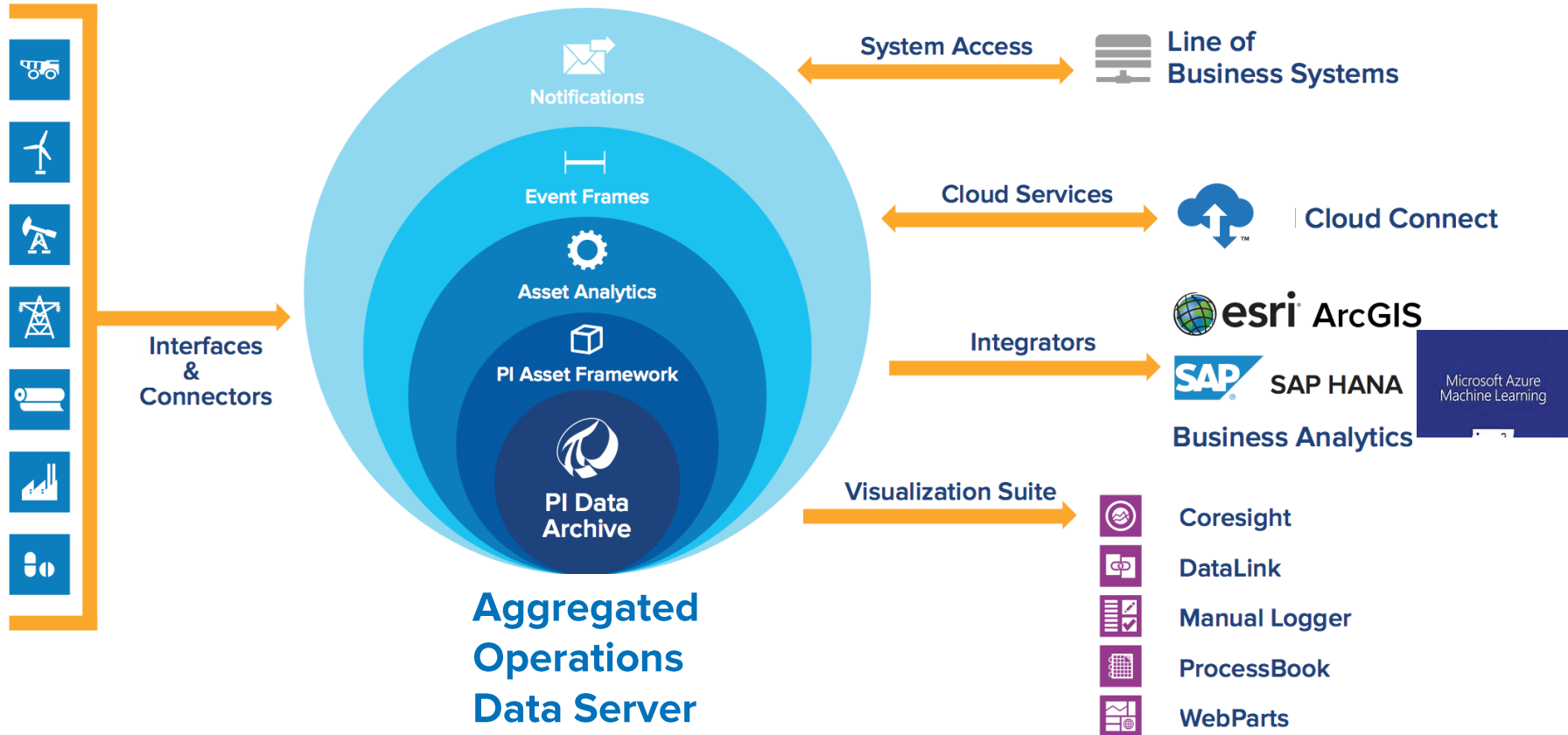
Other Assets  
Remote/Mobile



Empowering Business in Real-Time.

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# Reducing Data Extraction Time For Big Data Analysis



# Today's Panelists

- **Dr. Zoran Obradovic** – Temple University
- **Mr. Ankush Agarwal** – Mgr. of Data Analytics – Exelon Corp.
- **Mr. Brad Williams** – VP, Oracle Corporation
- **Dr. K. Selçuk Candan** - Arizona State University



# Questions?

