

# The Role of the PI System in IIoT

Clarence Presha  
October 10, 2017

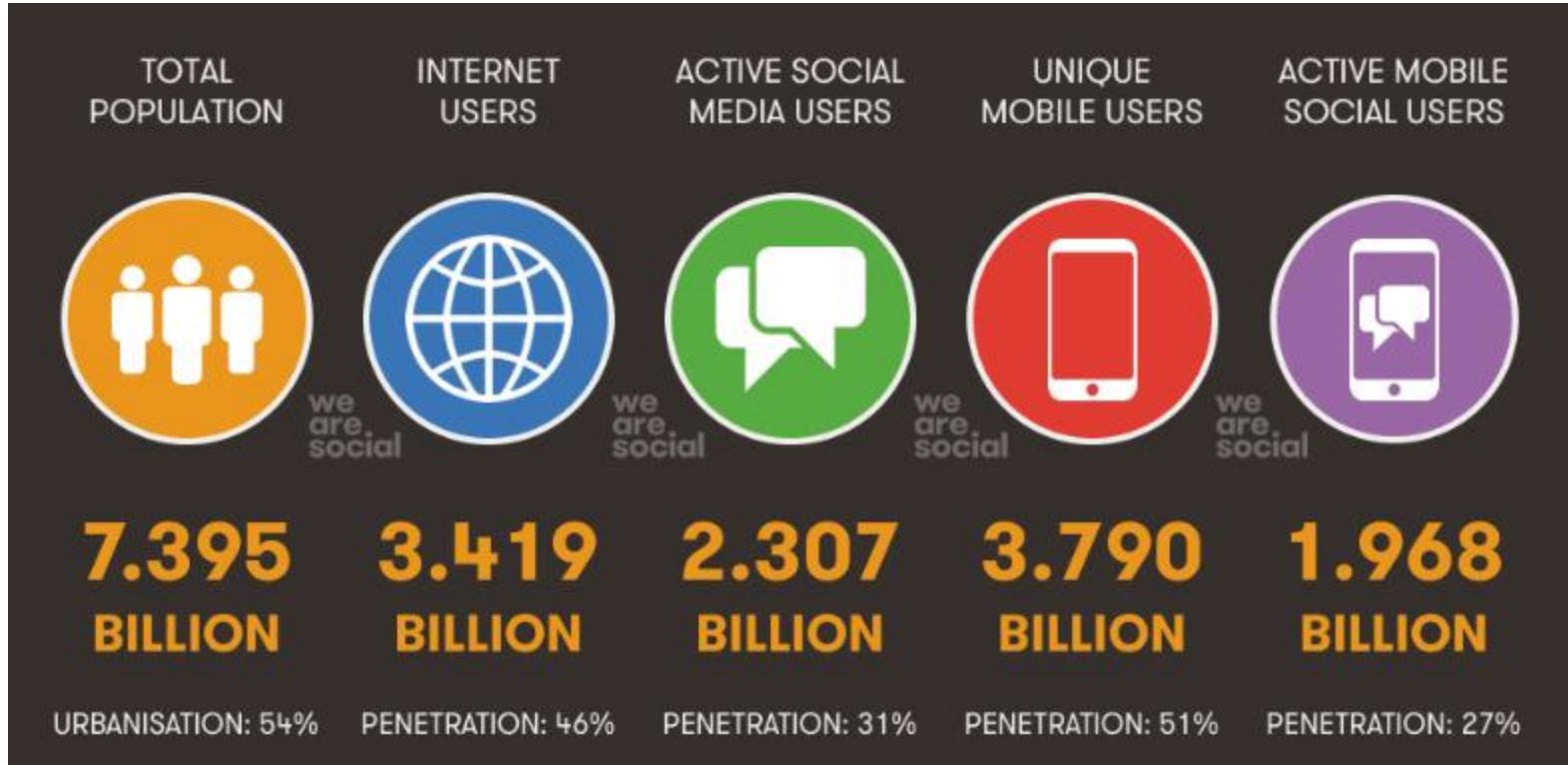


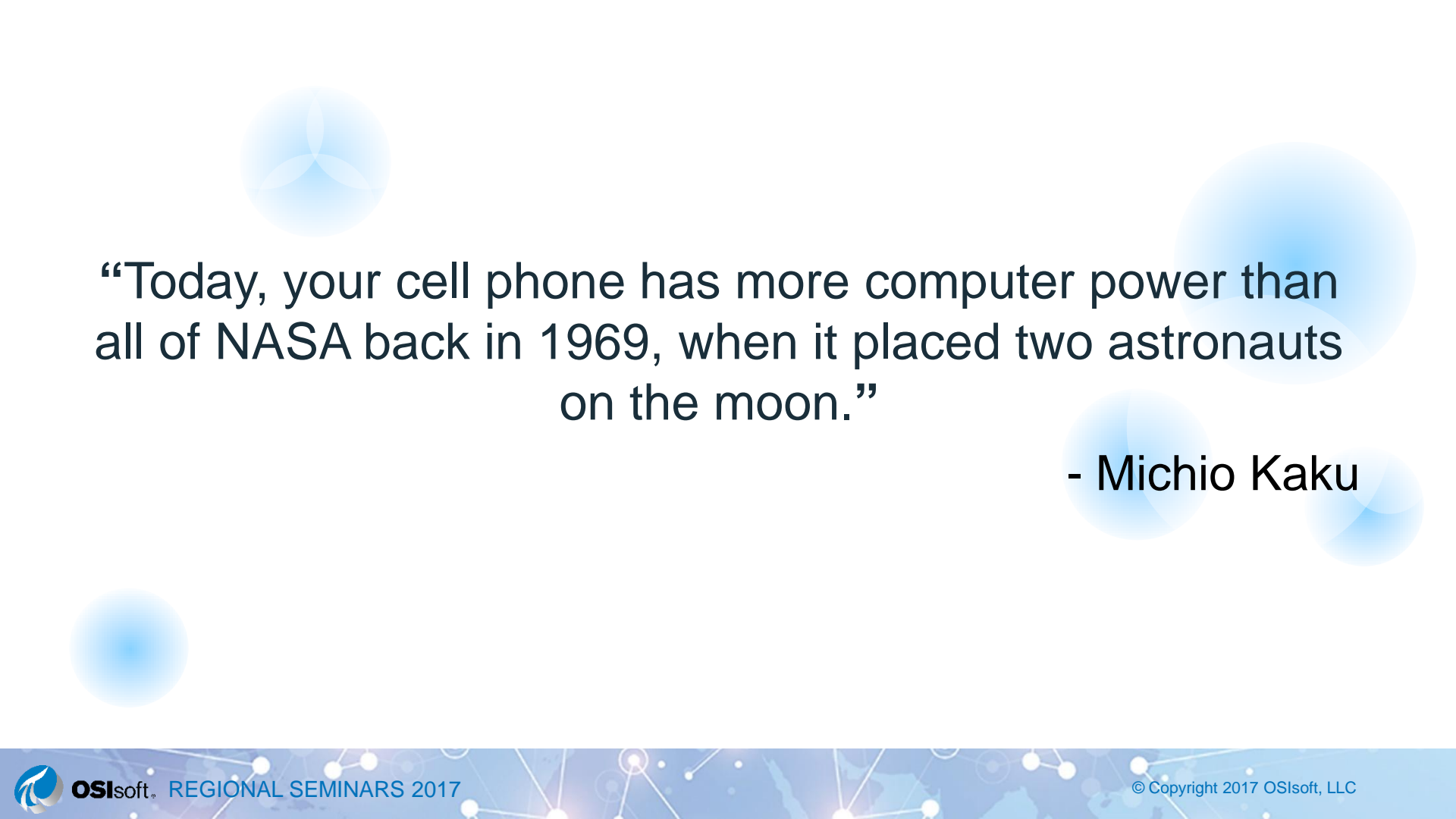
# Our World Is Digitally Transforming



Source: McKinsey, "MGI Digital America" December 2015

# We Are Growing More Connected





“Today, your cell phone has more computer power than all of NASA back in 1969, when it placed two astronauts on the moon.”

- Michio Kaku



# The Digital Opportunity: Top B2B Digital Companies

Revenue  
Growth

5X

Their rivals

Profit

8X

Their rivals

Shareholder  
Returns

2X

Their rivals

McKinsey and Company-McKinsey Digital Quotient, Capital IQ



# Data-driven Transformations via the PI System

Safety & Security

Energy

Productivity

Asset Health

Quality

Regulatory Performance



Eliminated **5 unplanned** shutdowns in first year

Reached \$3.3 million in annual energy savings

**Industrial Demand Response** and Smart Manufacturing

Gained **\$20M** per year in preventative maintenance and improved worker safety

Achieved 1000+ fewer paper documents via Lifecycle tracking

Recovering **640M liters** of treated water



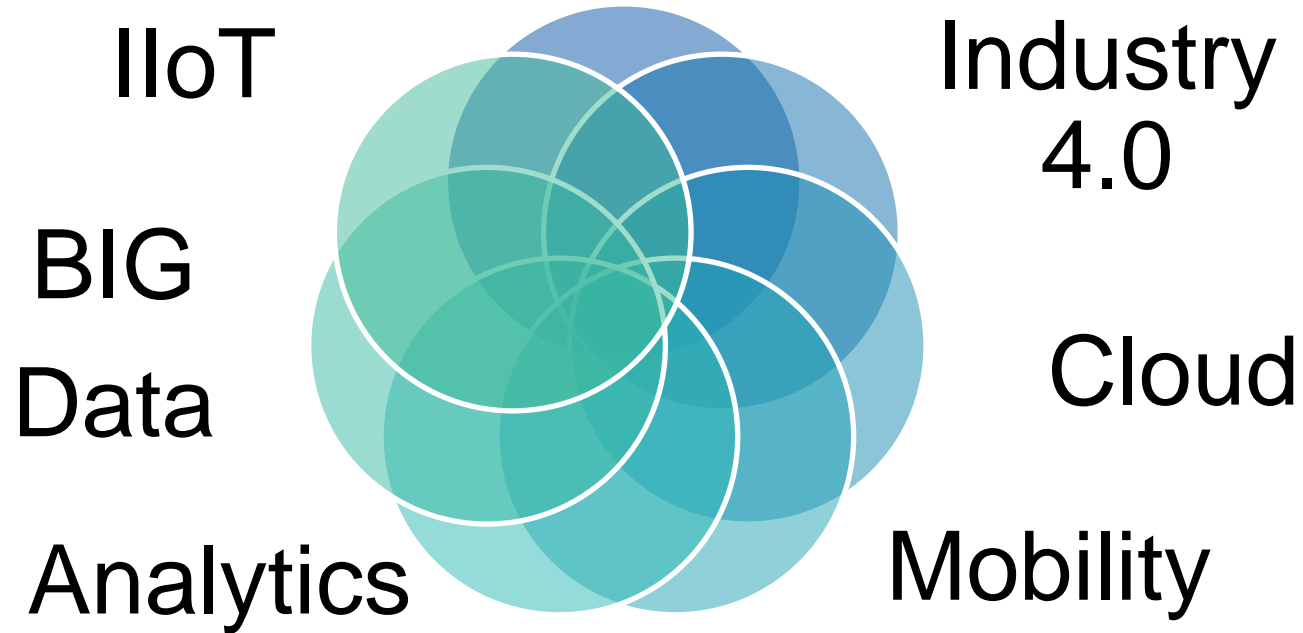


# Do You Want to Be Digital Prey or Predator?

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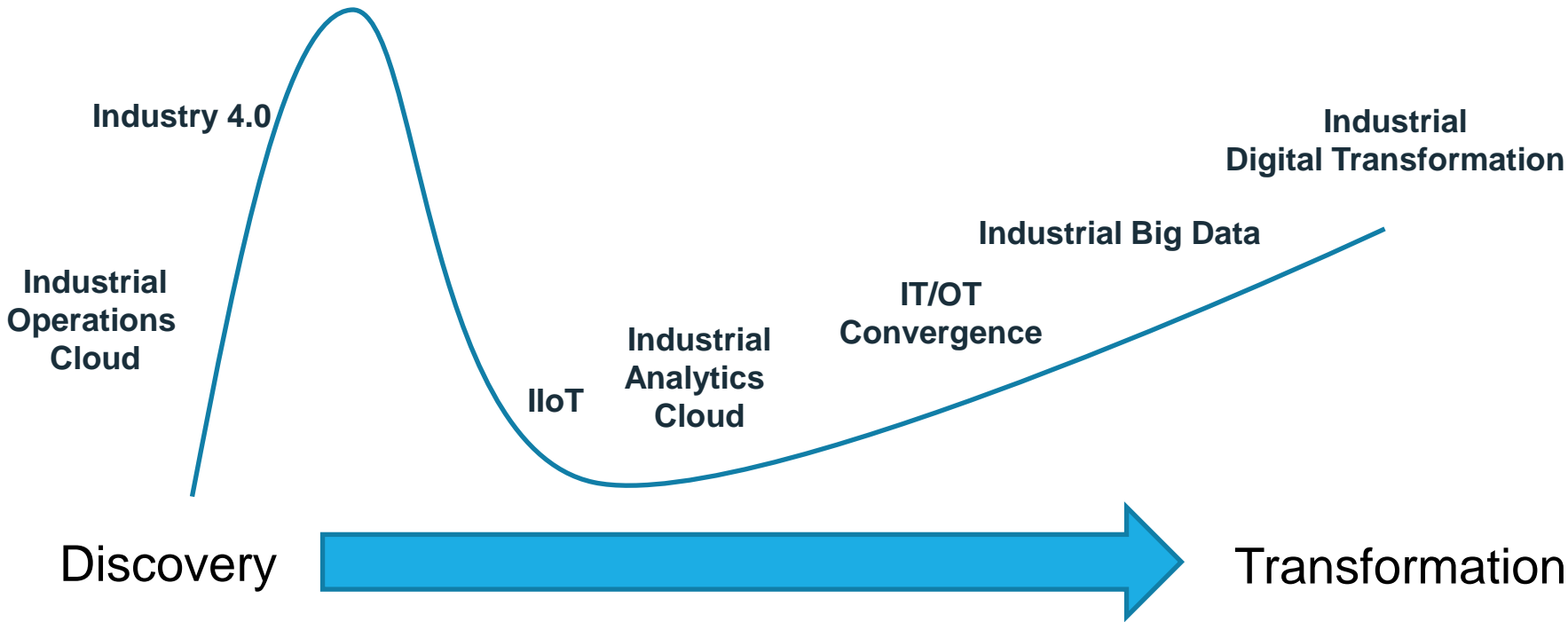


# Your Challenge: Buzzwords

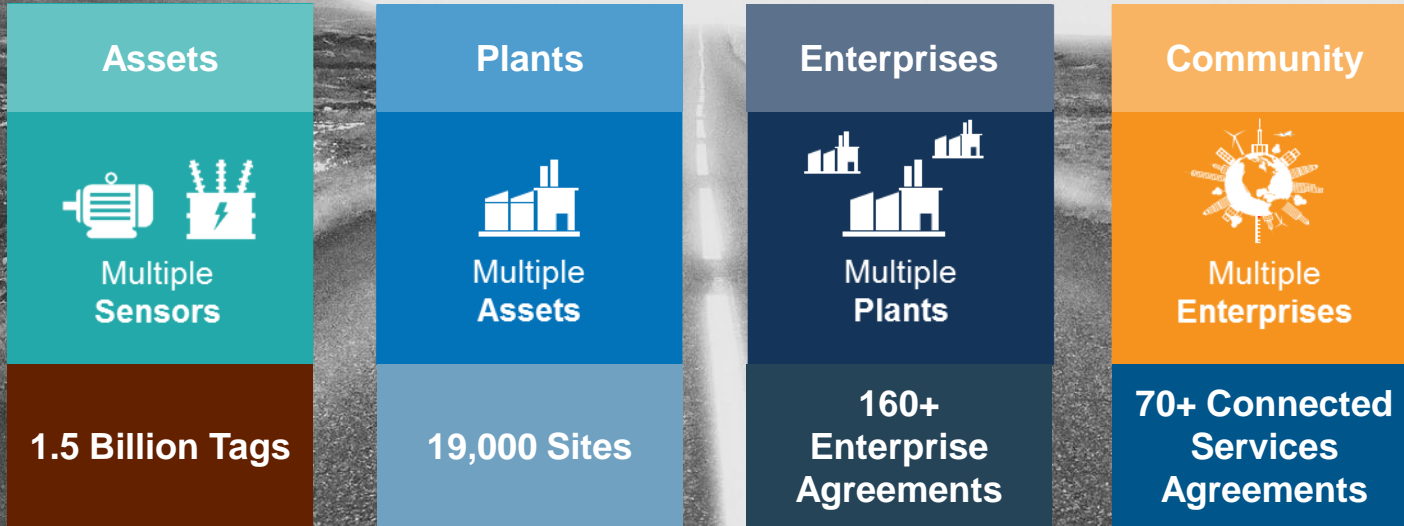




# Customer (Hype) Interest Cycle as OSIsoft Sees It



# IIoT Digital Transformation Is Happening Today





# The IIoT Game Changer



**Hello Barbie**

HELLO HELLO HELLO

Microphone, speaker and tri-color LED lights embedded in necklaces.

Turn the doll on with the power button on her belt.

Press and hold down both buttons to activate speech recognition.  
Note: Speech Recognition is Not On Unless Powered.

Doll cannot stand alone.

Flat feet for charging stand placement.

ONE TIME APP DOWNLOAD AND WIFI CONNECTION REQUIRED FOR SWAY CONVERSATION.  
Disclaimer: Computer error/voice required.

PARENT CONSENT REQUIRED

CHARGING STAND INCLUDED  
Note: Instructions on the battery life is about an hour.

DOLLS AVAILABLE IN THREE SKIN TONES

Your privacy and product experience are extremely important to us. For questions or concerns, please contact us: [hello@hellobarbieHQ.com](mailto:hello@hellobarbieHQ.com) and 1-800-246-2222. ©2017 Mattel. All Rights Reserved. The Barbie and the Hello Barbie logos are trademarks of The Barbie, Barbie, the Barbie logo, and Barbie are trademarks of Apple Inc., registered in the U.S. and other countries.



# The Role of IIoT within Industrial Operations

Traditional Operations



Sense



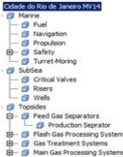
Process/  
Control  
System



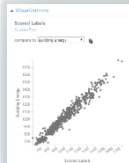
Connect



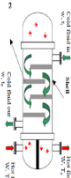
Store



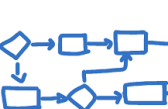
Structure



Analyze



Model



Implement



Automate

IIoT Enabled Operations

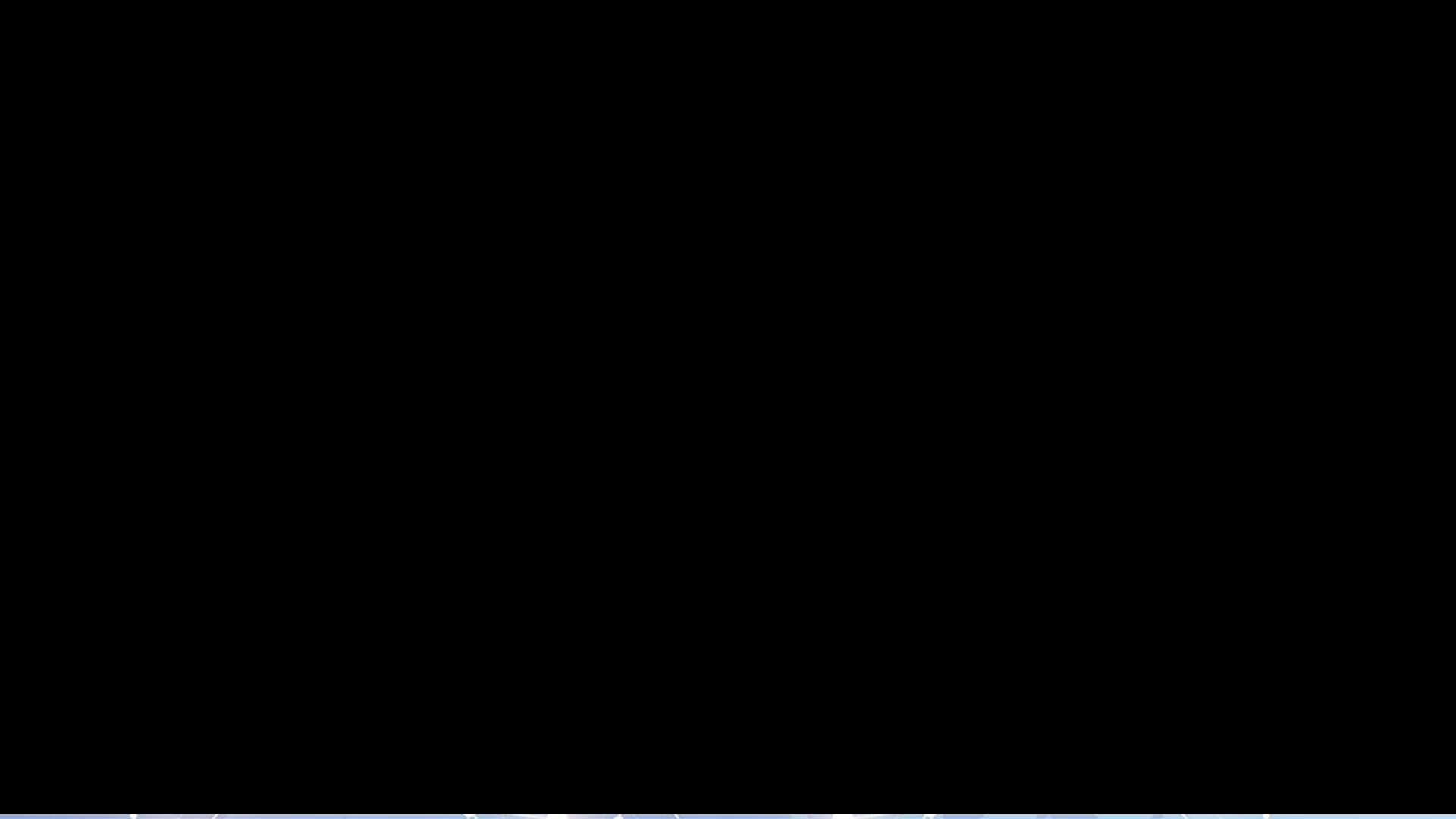


Sense



Connect/  
Gateway





# The Role of the PI System in IIoT

Traditional Operations



Sense



Process/  
Control  
System

PI  
Connectors

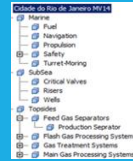


Connect

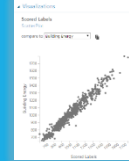
PI Server



Store Structure  
PI Visualization



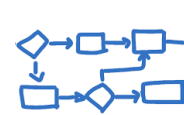
PI  
Integrators



Analyze



Model



Implement



Automate

IIoT Enabled Operations



Sense



Connect/  
Gateway



# Three Use Cases for “New” IoT



Monitor what you couldn't



Integrate new sensor types



Add sensors around existing systems





# 1) Primary Use Case: Now Connect What was Physically and Economically Not Possible Before



.... Remote and mobile assets





# DTE Energy Shortens Customer Outages

With Wireless Sensors & the PI System

## Challenge

Determining where to send crews during outages to minimize patrol times and reduce duration of outages.



## Solution

Install wireless sensors to help pinpoint fault locations. Leverage OSIsoft technology to collect and share this data across the enterprise.



## Results

Prevented spending **\$25 million** in Capex. Reduce 6.6 million customer outage minutes annually.



## 2) Use Case: New Sensors Outside of Existing Systems

[Automation Solutions](#)[Commercial & Residential Solutions](#)[Industries](#)[Expertise & Best Practices](#)[Documents & Drawings](#)

### Rosemount™ 708 Wireless Acoustic Transmitter with Steam Trap Monitor

Featuring ultrasonic acoustic event detection that mounts externally, the Rosemount™ 708 Wireless Acoustic Transmitter with Steam Trap Monitor offers a fast, cost effective installation. This device allows visibility into steam traps and pressure relieve valves (PRVs) by accurately communicating acoustic level and temperature data as well as device data, event status and leak detection via the *WirelessHART*® network. The Steam Trap Monitor software option provides real-time information about steam trap conditions, energy usage and emissions.

[BUY NOW >](#)[CHAT NOW >](#)[CONTACT US >](#)[LEARN ABOUT >](#)[REQUEST QUOTE >](#)

# 3) Use Case: Upgrade Existing Systems with New Sensors

## Advantages of Wireless Sensors vs SCADA

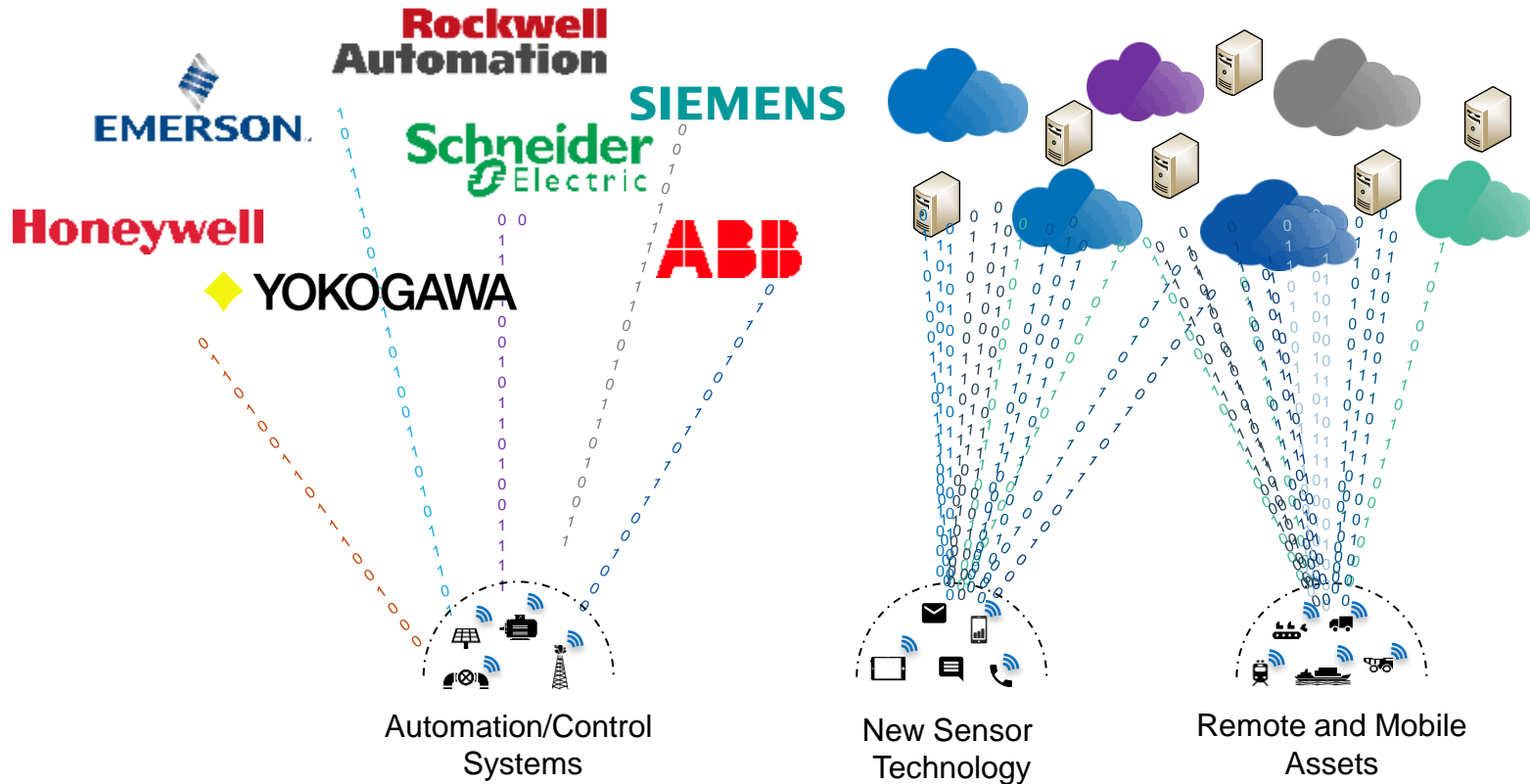
DTE Energy



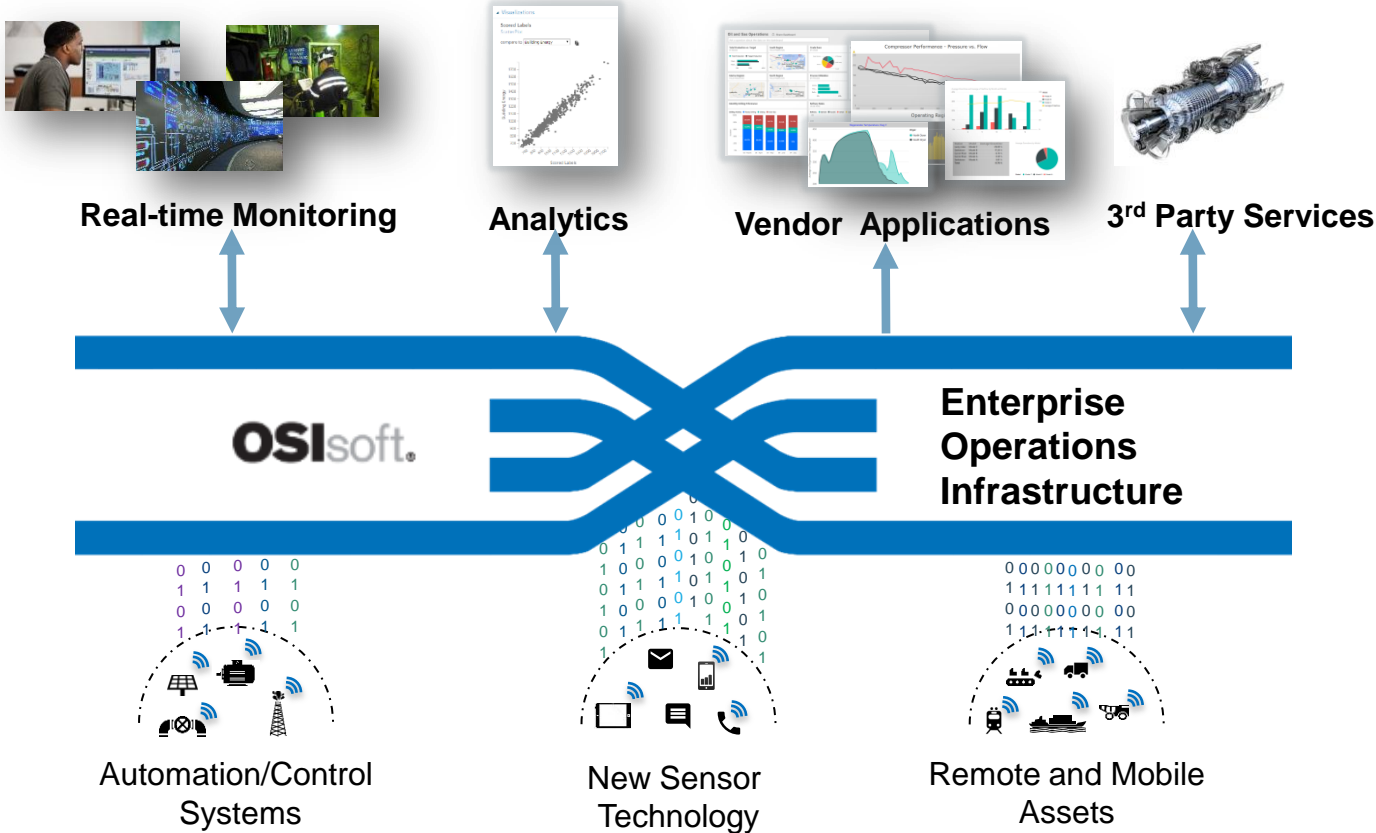
- Capital Expense
  - SCADA is **\$30K** per install
  - Wireless is **\$5k** per installation
- Deployment Time
  - SCADA takes **months** to deploy
    - Requires a shutdown
    - Significant construction
  - Wireless takes **hours** to deploy
    - Can be installed on live wires
    - 1 bucket truck and 2 people



# The IIoT Challenge




# Strategic Approach to an IIoT Enabled Enterprise




# Data Infrastructure: Designed For Today and Tomorrow's IIoT

**Volume**



**DTE:**  
3 million  
customers  
27 million+ tags

**Variety**

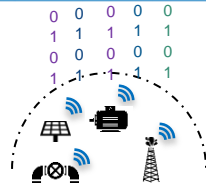
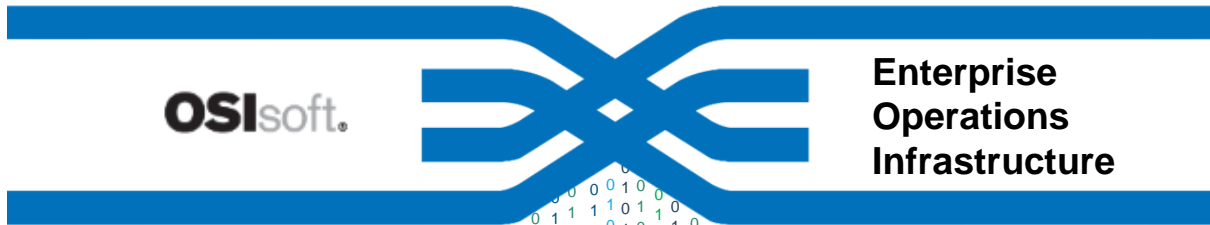


**E.ON:**  
310,000  
tags, 250  
formats, 140+  
locations

**Velocity**



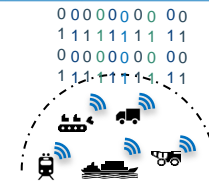
**SetPoint:**  
400,000 events  
/sec



Automation/Control  
Systems



New Sensor  
Technology



Remote and Mobile  
Assets





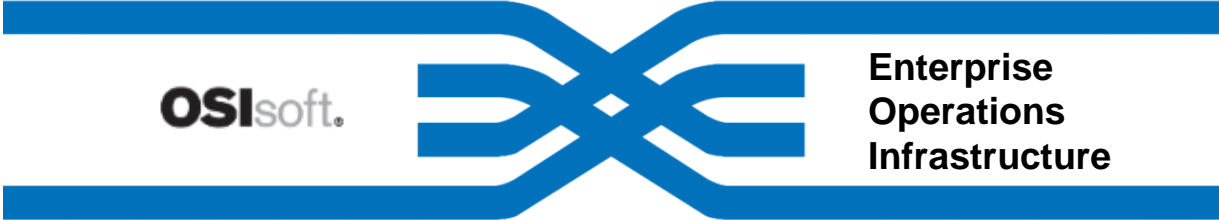
# Summary: 3 Steps to Strategically Embracing IIoT

Next 3 technical presentations:

Data  
Utilization

Data  
Readiness

Pervasive Data  
Collection



감사합니다

谢谢

Danke

Merci

Gracias

**Thank You**

ありがとう

Спасибо

Obrigado



# Contact Information

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## Questions?

Please wait for the **microphone** before asking your questions



Please state your **name & company**

## Please don't forget to...

complete the Post  
Event Survey

