



The Role of the PI System in IIoT

Presented by

Martin Jetté – Regional Manager Canada

November 2nd, 2017





We believe **People** with **Data** can **Transform** their world

Birth of the Internet of Things - IoT

CONSUMER Internet of Things



The IoT Game Changer



Hello Barbie

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

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

Press and hold down belt buckle to activate speech recognition.
How Speech Recognition is Not for Unlabeled

Doll cannot stand alone.

Flat feet for charging stand placement.



ONE TIME APP DOWNLOAD AND WIFI CONNECTION REQUIRED FOR 2-WAY CONVERSATION.
(Customer: Compatible other device required.)



PARENT CONSENT REQUIRED



CHARGING STAND INCLUDED
How: Plugging in 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: matteil.com/hellobarbieFAQ and 1-800-666-6666. ©2015 Mattel. All Rights Reserved. ToyTalk and the ToyTalk logo are trademarks of ToyTalk. Apple, the Apple logo, and iPad are trademarks of Apple Inc., registered in the U.S. and other countries.






5	5						
2	0	5	3	9	6	8	
3	9	6	6	7	0	2	
2	2	8	9	8	7	9	
9	6	2	9	5	8	0	
0	4	4	2	2	5	6	
8	9	6	8	4	5	8	






Wi-Fi and Compatible Smart Device Required, not for use with a list of compatible devices.
Data rates may apply. ToyTalk and the ToyTalk logo are trademarks of ToyTalk. Google Play is a trademark of Google Inc.
© Mattel 2015

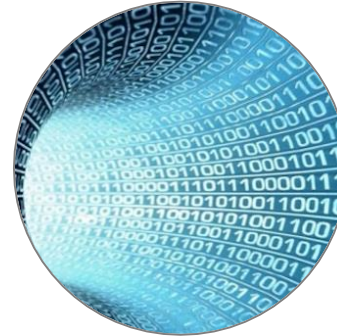
What's Driving the Interest in IoT?



Cheap, and tiny
sensors



Decreasing compute
and storage costs



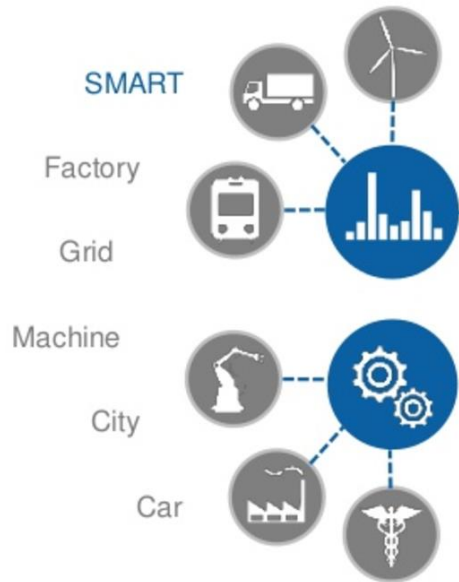
New abilities to
process and analyze
data



Ubiquitous
connectivity

Enter the Industrial Internet of Things - IIoT

INDUSTRIAL Internet of Things



CONSUMER Internet of Things



Connectivity
Data Analytics

Based on Moor Insights & Strategy's report *Segmenting the Internet of Things (IoT)*

OSIsoft on Industrial IoT

“Connecting people with sensor based data in ways that were physically or economically unrealistic before”

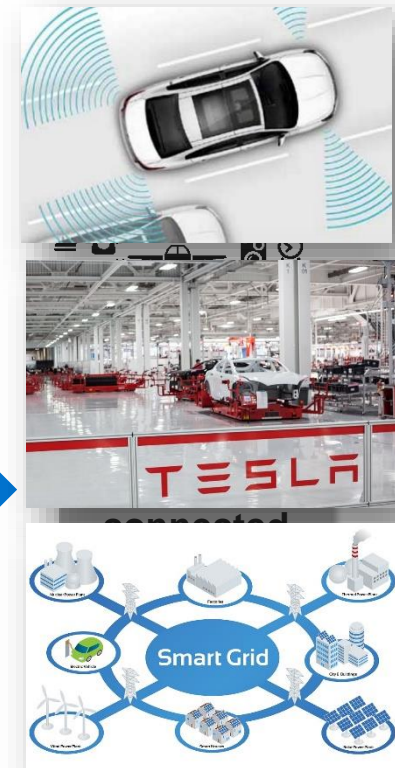
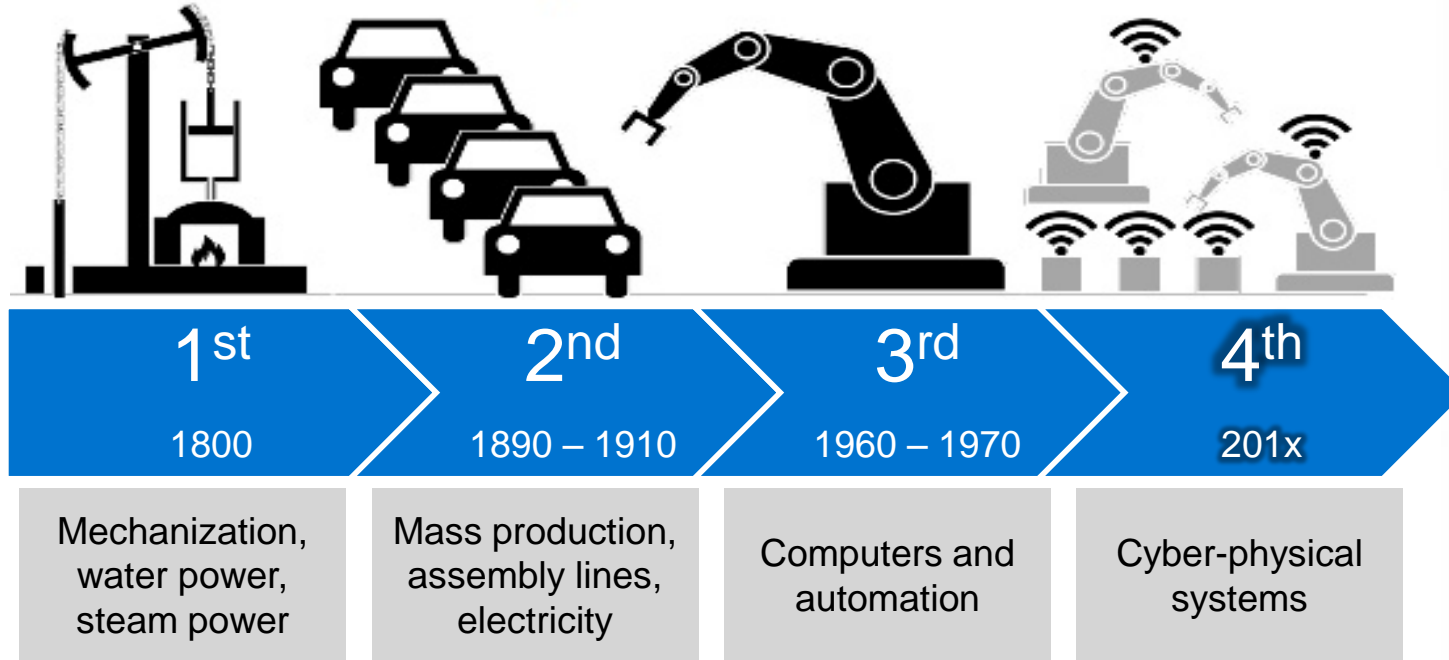


OSIsoft®

OSIsoft and the Industrial Internet of Things (IIoT)

Dr. J. Patrick Kennedy
Founder, CEO, OSIsoft, LLC

Accelerated by the 4th Industrial Revolution



What does it mean to Industry?

- Create New revenue streams
- Become More sustainable
- Remain competitive
- Increase asset life
- Increase margins
- Increase Quality
- Safer workplace
- Innovate





OSIsoft®

IoT is Not Magical--
It's What You Can *Do*
With the Data

Larry S. Shutzberg
SVP & CIO for Evergreen Packaging,
Graham Packaging,
Closure Systems International



Do you want to be Digital Prey or Predator?

- Forester Research

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

Safety &
Security

Energy

Productivity

Asset Health

Quality

Regulatory
Performance



Eliminated
5 unplanned
shutdowns in
first year

\$3.3 million in
annual energy
savings

**Industrial
Demand
Response** and
Smart
Manufacturing

€20M per year
in preventative
maintenance
and improved
worker safety

1000+ fewer
paper
documents via
Lifecycle
tracking

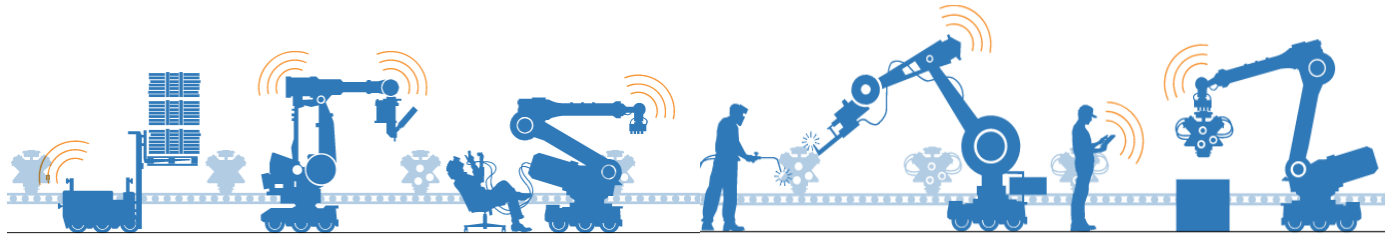
Recovering
640M liters
of treated water

How is OSIsoft supporting IIoT

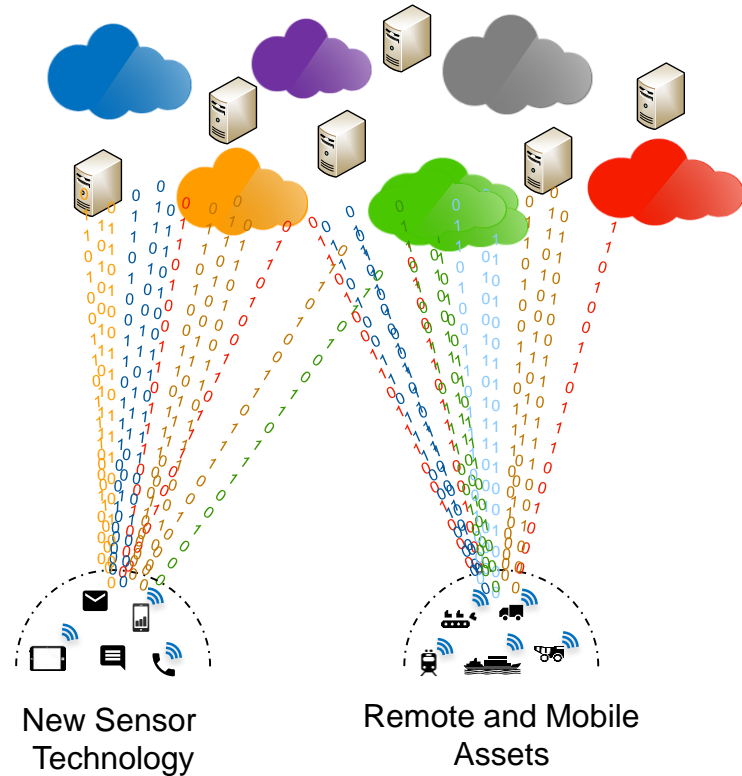
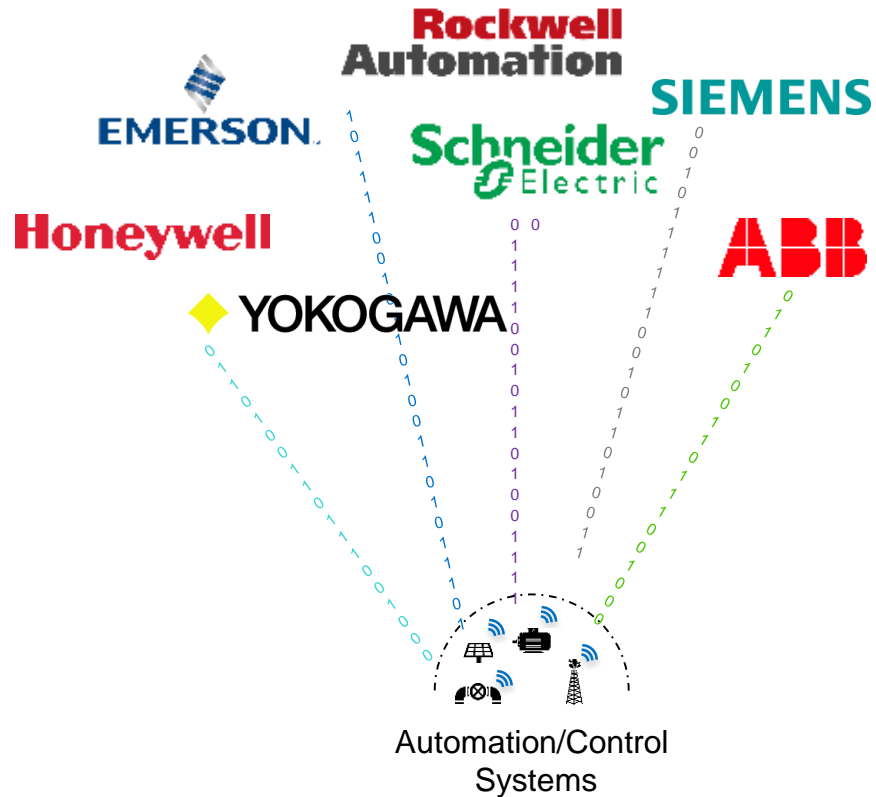
OSIsoft Pervasive Data Collection strategy

“Ensuring no matter where your operational data resides, there are OSIsoft technologies available to collect, contextualize and store this data”

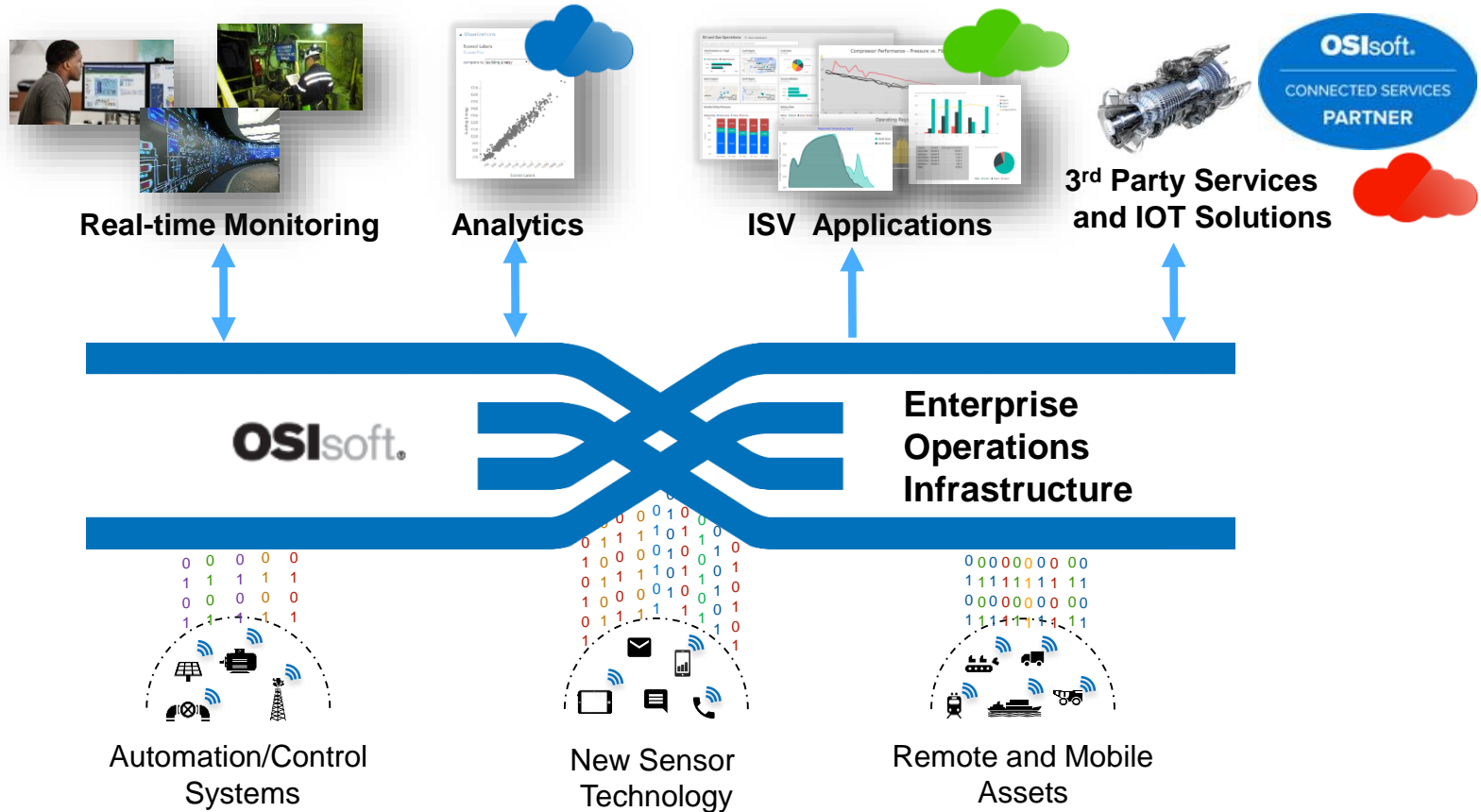
- Ray Hall – VP Engineering



The IIoT Challenge



Strategic Approach to an IIoT Enabled Enterprise





OSIsoft®



How OSIsoft is Extending the PI System for IIoT

Jason Strayberry, Chris Felts, and Enrique Herrera
OSIsoft

USE

Large facilities
10s of systems
1,000,000s of data streams
- 100,000s streams/system

Distributed and/or remote assets
10,000s of devices
1,000,000s of data stream
- 100s of streams / device

Embedded within equipment,
control and IT hardware
1,000s of devices
1,000,000s of data streams
- 1,000s of streams / device

Complied In, open source
technology from OSIsoft
100,000s of devices
1,000,000s of data streams
- 10s of streams / device

Roll your own embedded app
10,000s of devices
1,000,000s of data streams
- 100s of streams / device

CONNECTS TO



DCS/SCADA



Remote Assets



Automation Equipment



Sensors



Proprietary Hardware

EDGE TECHNOLOGY

PI
Interface

PI
Connector

PI
Connector

Edge
Connector

Data Access
Data Storage
Analytics
Relationships

PI / OCS
Connectivity

Edge Data Store

Admin API
Input API Buffer Output

Open Edge Module

OMF
Application

HARDWARE PLATFORM



Server / PC



Industrial Router



Edge Gateway



PLC Controller



Embedded Gateway



SBC



Local HMI



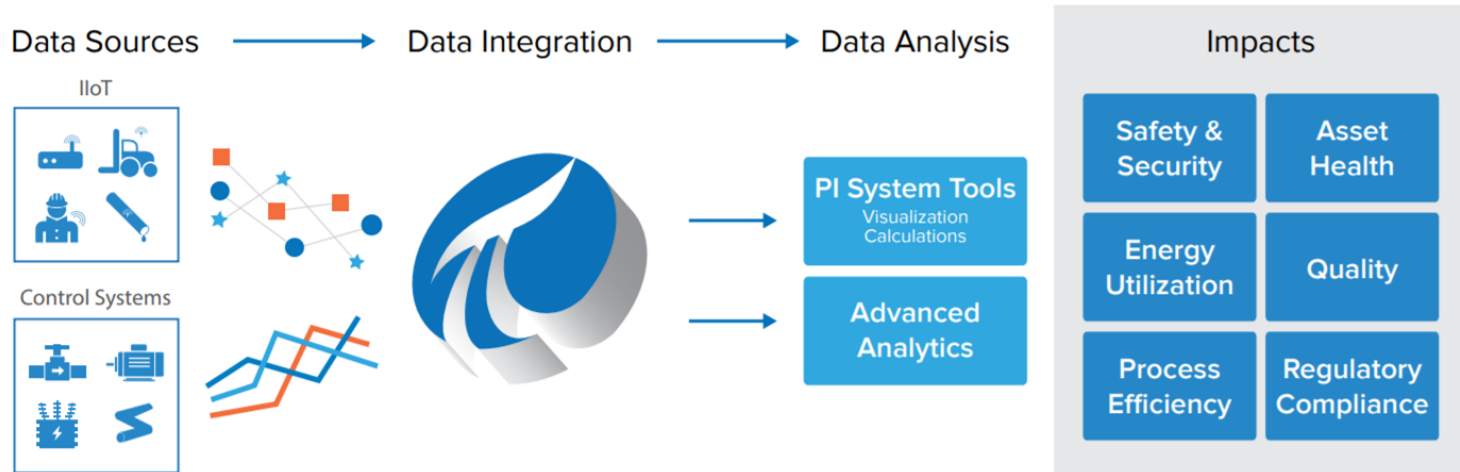
Industrial Switch

Any OS

Digital transformation and IIoT use cases

3 Use Cases for “New” IIoT

Monitor what you couldn't
Integrate new sensor types
Add sensors around existing systems



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

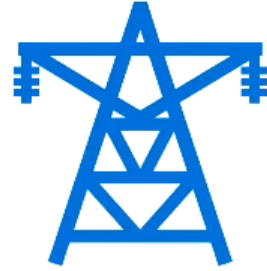
Prevented spending **\$25 million** in Capex. Reduce 6.6 million customer outage minutes annually

1000x Smart Fault indicators





OSIsoft®



Improving Distribution Reliability with Smart Fault Indicators and the PI System

Cameron Sherding, DTE Energy

Heavy-Haul Equipment Logistic Strategies Using the PI System

COMPANY and GOAL

ArcelorMittal is Mines Canada on Quebec's North Shore - The world's number one steelmaker hauls and ships over 26 million metric tons of iron ore products every year for the international steel market **WANTS to Transform its mining business with supply chain resilience.**



CHALLENGE

Increase speed and quality of logistic decisions to support an increase of 10+ Mt of throughput following expansion

- Reduction in variable production costs
- Increase visibility of entire supply chain
- Resilience in adapting to disruptions and plan changes

SOLUTION

Use the PI System as an Information Hub to “Contextualize” data and manage all aspects of the supply chain

- Transform data into actionable information
- Support KPI-based planning to drive business goals
- Assist in scheduling maintenance at the right time based on market requirements

RESULTS

Throughput targets of 26Mt were met as shipping capacity increased with no infrastructure investments

- Visibility on all strategic, tactical and operational planning challenges
- Increased production and ore shipments from 23 to 26 Mt with additional revenue of 120M\$ in 2015



OSIsoft®

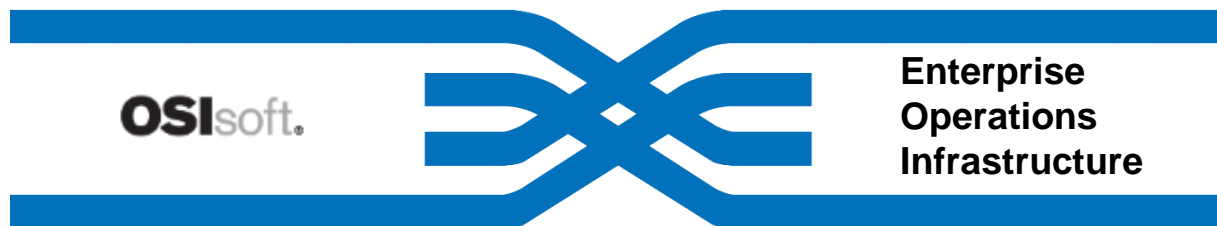


A Single Supply Chain-Oriented View of Operations

Michel Plourde, ArcelorMittal Mines Canada

Next, learn from **OSIsoft** and, most importantly, from **your peers**
how **you** can achieve a **digital transformation with IIoT**

- 1 IIoT Data Collection with the PI System
- 2 IIoT Data Readiness with the PI System
- 3 IIoT Data Access with the PI System



Thank You



OSIsoft®