Digital Agility in The Enterprise

Chris Nelson, VP Software Development
20th August 2018
Agenda

1. Today’s Digital Opportunity and Challenges
2. Digital Agility to Support Technology Trends
3. Enabling Digital Agility from Edge to Cloud
65%+ of the World's Population is Connected

100,000,000,000,000 Sensors by 2030

50+ Billion Devices Connected by 2020

16,000,000,000,000,000,000,000 (Zetta)bytes of Data generated in 2018

15% of all IT spend will be in Cloud by 2020

50+ Billion Devices Connected by 2020
IT IS NOT THE STRONGEST OF THE SPECIES THAT SURVIVES, NOR THE MOST INTELLIGENT THAT SURVIVES. IT IS THE ONE THAT IS THE MOST ADAPTABLE TO CHANGE.

CHARLES DARWIN
Who Will Succeed?
How Do You Manage Increasing Complexity?
How Do We Avoid the Data Graveyard?
Why Try and Solve These Problems?

- Revenue Growth: 5X Their rivals
- Profit: 8X Their rivals
- Shareholder Returns: 2X Their rivals

The First to Last Mile of Operational Excellence
Digital Agility is Key to Embracing the Opportunity

- Support for IT and OT initiatives
- Adoption of best of breed IIoT technology
- Self-service access to operations data
- Application building agility
- Analytics where it makes sense
Our Vision - Edge to Community Transformations

- **Sensors**
  - Millions of Smart Devices
  - Multiple Sensors

- **Assets**

- **Plant**
  - Multiple Assets

- **Enterprise**
  - Multiple Plants

- **Community**
  - Multiple Enterprises
OSIsoft’s Software and Services Direction

Pervasive Data Collection

OSIsoft Cloud Services

Sensors
- Millions of Smart Devices
- Multiple Sensors

Assets
- Multiple Sensors

Plant
- Multiple Assets

Enterprise
- Multiple Plants

Community
- Multiple Enterprises

PI System
Data Infrastructure Approach to Digital Agility

Operations
Real-time Monitoring

Operations
Self-service Access

Advanced
Analytics

Enterprise Data
Infrastructure

Streaming Analytics
Connectivity

Authoritative Source

Devices
Assets
Site

IoT
Enterprise
Remote Services

OT
IT

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Agility to Select Best of Breed IoT technology

Operations
Analysts
Executives
IT
Partners

Context
Connectivity
Streaming analytics
Data Archive

Edge
Automation/Control Systems
Cloud IoT Platforms

>450 Connectors & Interfaces

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Data Structure is Critical For Digital Agility

PI Asset Framework structures and creates data consistency for easy interpretation by anyone.
Self-service Data Access by Anyone
Application Building Agility

Centrifugal Compressor Templates

Health Index Templates

Anomaly Detection Templates

Physical Compressor Stations

Digital Compressor Stations

Exception based KPI Dashboard system

System Contextual Drill Down
Example: Application Development Agility within Oil and Gas

1000’s of Applications
Agility to Support Needs from Execs to Operators

Executive Dashboards
Visibility
Situational awareness

Drill into the Problem
Multiple layers of information

Data Analysis
Ad-hoc trending
Model training

Take Action, Track & Document

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Advanced Analytics Challenges

• IT want to move everything to a data lake in the cloud
• Advanced analytics projects challenged:
  – Trust
  – Quality
  – Access
• Time spent on the processing data and not the analysis
Best Practices for Analytics

Imagine your future Driverless car is your critical operations. Where should you do the analytics?

**Real-time electronic braking**
Where would you trust the analytics?

**70mph on the freeway**
Where would you trust the analytics?

**Commute Route**
Where would you trust the analytics?

**Edge analytics**

**“Site” analytics**

**Cloud analytics**
Enterprise Analytics Initiatives

Data Lake

Analytics-ready, contextualized time-series data

Artificial Intelligence

Machine learning

Modelling and simulation

Real-time Operations

Applications & Services

Analytics/ GIS/BIG Data

Real-time Monitoring

Trusted Source of Quality Operations Data

Context Connectivity

Streaming analytics Data Archive

Remote and Mobile Assets

Automation/Control Systems

Cloud

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Asset Framework Enables Fast Data Integration

Operations Data Structure

Business Data Structure

Enterprise Intelligence

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Result: PI Integrators Delivers Analytics Ready Data

Quick access to analytics ready data gives data scientists the agility to explore questions and answers:

A typical data extraction initiative can take upwards of a month (or 744 hours) to complete for 70 sites.

The PI Integrator for Business Analytics reduces this down to 5 minutes.
Our Data Collection Technologies

- PI Connectors
- Edge Data Store
- Open Edge Module
- OMF Application

- Plants
- Assets
- Devices
- Sensors

- 10,000’s Data Streams 10’s
- High Compute Resources Low
OSIsoft Cloud Services

OSIsoft Messaging Format (OMF)

- Community
- Calculations
- Visualization
- Storage
- Ingress
- REST APIs

OMF Applications
2. Open Edge Module
Edge Data Store
PI Connectors
PI Systems

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Summary: Digital Agility is Key

• Support for IT and OT initiatives
• Adoption of best of breed IIoT technology
• Self-service access to operations data
• Application building agility
• Analytics where it makes sense
Examples of Digital Agility
3 Additional Talks Today

- Condition Based Maintenance with the PI System
- Delivering Analytics with the PI System
- Sustainability Improvements with the PI System
Please wait for the microphone before asking your questions.

State your name & company.
Thank You
THANK YOU