OSIsoft + Microsoft collaborate to rapidly operationalize IoT Analytics initiatives

Presented by
Sam Truswell, Senior Partner Marketing Advisor
Rainer Muhm, Strategic Alliance Principal
Agenda

• Time to start Digital Transformation
• Digital Transformation and IoT Analytics
• Microsoft and OSIsoft introduce RCIP
Digital Disruption and the 4th Industrial Revolution

Mechanized production
Mass production
Automated production
Digitized production

1780s
1870s
1970s
2015+
30% simultaneous revenue increase and cost reduction for Industry 4.0 first movers by 2020, compared to only 2.9% p.a. and 3.6% p.a. respectively for the average company.

"Consumers will ultimately choose the winners and losers among the companies and brands vying to deliver convenient, low-cost and customized mobility solutions."  

Within 3 to 5 years, hundreds of millions of things will be represented by digital twins.  

40% of operational processes will be self-healing and self-learning by 2022.  

85% of manufacturing executives expect human-machine-centric environments to be commonplace by 2020.  

$500b potential in savings for manufacturers and equipment makers from virtualization, real-time communication, and cobot technology.

95% of business leaders expect their company to use the IIoT within the next three years.  

Companies start the Digital Transformation now

Companies that are adapting to a digital world are 26% more profitable than their industry peers \(^1\)

What is the problem?

- People / Culture / Collaboration
- Adoption of a proper technology
- Identify and address relevant use cases quickly
- Manage the risk

\(^1\) MIT Sloan research [http://www.leadingdigitalbook.com/](http://www.leadingdigitalbook.com/)
Digital Transformation and IoT Analytics

1 | Data
Basic Analytics

2 | Information
Descriptive & Diagnostic Analytics

3 | Intelligence
Predictive & Prescriptive Analytics

Insight

What happened?
Why did it happen?
What will happen?
What should I do?

Descriptive [Reports]
Diagnostic [Interactive Dashboards]
Predictive [Machine Learning]
Prescriptive [Recommendations & Automation]

OSISoft. EMEA USERS CONFERENCE 2017 LONDON
#OSISOFTUC ©2017 OSIsoft, LLC
Adoption of proper technology
OSIsoft and Microsoft created RCIP to address IoT Analytics

delivers an open enterprise infrastructure, to connect sensor-based data, systems and people for operational real-time insights that empower companies to optimize and transform their business.

Microsoft’s Cloud Platform, which includes Cortana Intelligence, Azure IoT, Power BI and the PI Integrator for Microsoft Azure, is a recognized premier platform for Cloud AI and Big Data analytics.
Red Carpet Incubation Program (RCIP)

The Red Carpet Incubation Program (RCIP) is a comprehensive collaboration between OSIsoft and Microsoft to accelerate *operationalization* of IoT analytics using a business-oriented agile incubation process.
PI Integrator for MS Azure provides Analytics-Ready Data | Context | Events via C-A-S-T
Identify relevant use cases
Leveraging the PI System and Cortana Intelligence to Increase Process Efficiency

**COMPANY and GOAL**

Deschutes Brewery is the 7th largest craft brewery in US, and wanted to maximize production with its existing infrastructure to fund construction of a third brewery in Roanoke, VA.

**CHALLENGE**

Batch’s phase transition happens between manual density measurements occurring every 8-10h

- Impact: Losing up to 72H in production time

**SOLUTION**

Use data science to achieve accurate predictive analytics for determining a batch’s density measurements

- PI System
- PI Integrator for Microsoft Azure
- SQL Data Warehouse
- Azure Machine Learning
- Azure Data Factory

**RESULTS**

Ability to eliminate production time losses and increase production capacity

- Accurate predictions of when a batch’s phase transitions from fermentation to free rise
Predicting the transition is a low-cost, accurate option

Indicate when transition happens

Use experience & predictions to ensure high quality beer

OSIsoft PI System and Microsoft Azure Integration

OT INFRASTRUCTURE ➔ PREPARE ➔ INGEST ➔ ANALYZE ➔ PUBLISH ➔ CONSUME

PI System ➔ PI Integrator for Microsoft Azure ➔ SQL Data Warehouse ➔ Machine Learning ➔ SQL Data Warehouse ➔ Azure Data Factory ➔ Predictions as Future Data ➔ Mobile/Desktop

On Premises ➔ On Cloud ➔ HoloLens ➔ Power BI ➔ PI Vision

OSIsoft PI System and Microsoft Azure Integration

#OSISOFTUC  ©2017 OSIsoft, LLC 14
**Mining Fleet Predictive Maintenance**

**Barrick Gold**

RCIP engagement provided the site with access to vehicle data like never before. Site was totally dependent on the vendor information, but now has access to data in a useful, meaningful manner. The site is now in the cutting edge of maintenance with Predictive models that detect engine failures before they occur.

David Luque, Control Engineer

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>SOLUTION</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain large fleet of mining trucks with limited access to data</td>
<td>RCIP team provided PI System connectivity to ingest VIMS data, develop PI AF models, and create analytics to detect over 60 different type of events</td>
<td>PowerBI reports providing detailed information on fleet performance, maintenance, and reliability</td>
</tr>
<tr>
<td>Site dependent on vendor to provide truck information</td>
<td>PII4MA published Asset and EF views, which are integrated with ERP, Dispatch, and maintenance data</td>
<td>Predictive models to detect probability of engine component failure in the next 5 days</td>
</tr>
<tr>
<td></td>
<td>Barrick and McKinsey developed PowerBI reports and Predictive models for inclusion in Barrick’s newly-developed asset health software application</td>
<td></td>
</tr>
</tbody>
</table>
AF Workshop focused on Exhaust and Suspension Systems
- Project grew to include all truck Systems
- integration with CMMS for automated WO generation
- Integration with ESRI
- Presented at SF UC 2017

- Worked with large Barrick-sponsored team involving Microsoft, McKinsey, OSIsoft
- RCIP participation to create ML models based on VIMS data
- Event and time-series data fed to DW via PII4MA
- Focused on detecting probability of major component failures
Use case determines the type of engagement

Microsoft Azure is the cloud technology of choice

<table>
<thead>
<tr>
<th><strong>RCIP-IoT</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• PI System on premise – historical data available</td>
<td></td>
</tr>
<tr>
<td>• Utilizing PI Vision and PowerBI for use-cases like Remote Monitoring, Asset Performance Management, ...</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RCIP-IoT SaaS</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• New customer or new site without PI System on premise</td>
<td></td>
</tr>
<tr>
<td>• Don’t want to manage / maintain PI System</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RCIP-AI</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• PI System on premise – 2 years of historical data, with detailed resolution and context available to address e.g. predictive or prescriptive analytics for pump failure predictions</td>
<td></td>
</tr>
</tbody>
</table>
Manage the risk
"We like the agile approach of OSIsoft and Microsoft’s Red Carpet Incubation Program for rapid operationalization of advanced analytics, helping us to harness the potential of digital technology and unlock value across Barrick’s business,''

said Ed Humphries, Barrick’s Head of Digital Transformation.
Key take aways and call to action

RCIP is available today!

OSIsoft and Microsoft together can accelerate your IoT Analytics initiative

Talk to your OSIsoft Account Manager about your digital strategy and IoT Analytics use case
Sam Truswell
satrus@microsoft.com
Senior Partner Marketing Advisor
Microsoft

Rainer Muhm
rmuhm@osisoft.com
Strategic Alliance Principal EMEA
OSIsoft
Questions

Please wait for the microphone before asking your questions

State your name & company

Please remember to...

Complete the Online Survey for this session

Download the Conference App

- View the latest agenda and create your own
- Meet and connect with other attendees

Search OSIsoft in the app store