Smart Factory Task Group

Co-Chairs:
Calvin Smith (Wipro Digital)
Erik Walenza (IoT One)
John Kowal (B&R)

IIC Verticals Marketing Manager:
Cheryl Rocheleau
<table>
<thead>
<tr>
<th>Marketing Working Group</th>
<th>Communications</th>
<th>Energy</th>
<th>Healthcare</th>
<th>Marketing Security</th>
<th>Retail Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Factory</td>
<td>Mining</td>
<td>Thought Leadership</td>
<td>Security Working Group</td>
<td>Liaison Working Group</td>
<td>Standards</td>
</tr>
<tr>
<td>Technology Working Group</td>
<td>Architecture</td>
<td>Connectivity</td>
<td>Distributed Data Interoperability &amp; Management</td>
<td>Safety</td>
<td>Edge Computing</td>
</tr>
<tr>
<td>Innovation</td>
<td>IT &amp; OT</td>
<td>Vocabulary</td>
<td>Industrial Analytics</td>
<td>Interoperability</td>
<td></td>
</tr>
<tr>
<td>Testbeds Working Group</td>
<td>Healthcare Initiative</td>
<td>Smart Grid</td>
<td>IIRA-based Horizontal</td>
<td>Smart Cities</td>
<td></td>
</tr>
<tr>
<td>Business Strategy and Solution Lifecycle Working Group</td>
<td>Business Strategy</td>
<td>Use Cases</td>
<td>Ecosystem</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Marketing Working Group

- Current focus: Security & Smart Factory
- Events: Security Forum, Industrial Internet Forum, IIC Pavilions (Hannover Messe, IoT SWC)
- IIC Journal of Innovation
- Promotion of Publications:
  - Security Framework
  - Industrial Internet Reference Architecture
  - Connectivity Framework
  - Journal of Innovation
- White papers; Security, Energy, Investment, Green Patch & Testbed Results White Papers
- Industrial Internet in Action case studies
- Videos
- Webinars
- Industry Vertical Flyers and Testbed Flyers/1-Pagers
Architectures of the past are no longer viable in the age of IIoT. In order to influence the next generation of manufacturing technology, we’re working within the IIC ecosystem to contribute requirements, expertise and customer insight.

—Calvin Smith
Director & Head of IoT Partner Engineering,
Wipro Digital
SMART FACTORY TASK GROUP CO-CHAIR
INDUSTRIAL INTERNET CONSORTIUM

IIoT in Manufacturing

The term IIoT describes technology innovations and interconnectivity enabled by the Internet. By automating communication between industrial equipment and systems, IIoT enhances efficiencies throughout the factory, making it smarter.

Evolution to Smart Factories

Becoming a Smart Factory is a long-term, complex process. It often requires a “wrap and reuse” rather than “rip and replace” approach where smart connected assets operate as part of a larger system, a system of systems, or “greenfield” and “brownfield” applications – all converging as a smart manufacturing enterprise.

Benefits of IIoT in Manufacturing

• Minimize unplanned downtime
• Maximize operational efficiency
• Optimize business operations
• Enhance and protect systems
• Reduce TCO and increase revenue

IIoT Applications in Smart Factories

• Predictive Maintenance
• Intelligent Supply Chain Management
• Asset Performance Management
• Augmented Operators/Workers
• Cyber Security

Industry Vertical Flyers
Industrial Internet of Things (IIoT)
in the Manufacturing Industry
“Traditional manufacturers and industrial leaders now have the opportunity to embrace the IIoT. ...as long as they think unconventionally, they have a chance to generate new growth with IIoT.”

ERIK WALENZA, CEO, IOT ONE
SMART FACTORY TASK GROUP CO-CHAIR
INDUSTRIAL INTERNET CONSORTIUM

Ecosystem of Experts
The Industrial Internet Consortium Smart Factory Task Group brings together end user organizations, product vendors, service providers and research organizations to create new IIoT solutions, generate operational efficiencies and develop business model innovations.

Key Benefits
• Form collaborative relationships
• Access new knowledge and technologies
• Innovate through testbeds
• Influence future IIoT development
• Explore new business models
• Co-author publications
• Create market momentum

Smart Factory Task Group Mission
• Establish IIC and its members as Smart Factory thought leaders.
• Create value for task group contributors by validating them as subject matter experts.
• Promote IIC collaboration with Mfg industry-oriented organizations and end-user groups.

Resources
• White Paper: Smart Factory Applications in Discrete Manufacturing Whitepaper
• Brochure: Smart Factories: a Symphony of the Industrial Internet in Action
• Case Studies & Testbeds

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<table>
<thead>
<tr>
<th>Common Denominators</th>
<th>ENERGY</th>
<th>SMART FACTORY</th>
<th>MINING</th>
<th>RETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extension of key artifacts by vertical</strong></td>
<td></td>
<td>Ongoing</td>
<td></td>
<td></td>
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<tr>
<td>• IIRA</td>
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<td></td>
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<tr>
<td>• IISF</td>
<td></td>
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<td>• Connectivity</td>
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<td><strong>Education &amp; Awareness; Networking &amp; Education; Community Outreach</strong></td>
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<td></td>
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<tr>
<td>• Identification of top priority venues</td>
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<tr>
<td>• Developing “Generic pitch to secure Speakers”</td>
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<td></td>
<td></td>
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<td>• Whitepapers and other Materials</td>
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</tr>
<tr>
<td>• Webinars</td>
<td></td>
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<td>• JOI TB Articles</td>
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<td><strong>End User Engagement</strong></td>
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<td>• “Pop-up” Networking Events</td>
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<td>• Reach the Users via Liaisons</td>
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<td>• Call for End User Community to host IIC Testbed</td>
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<td>• Establishment of EUAG/EUSIG</td>
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<td><strong>Testbed Engagement</strong></td>
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<td>• Develop a “Shark Tank” style testbed pitch slide (1 per testbed)</td>
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<td>• Call for “End User” Testbed hosts</td>
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<td>• Testbed Whitepaper – Fontaine/Kradjel</td>
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Revamped, Resource-Rich Microsite

MANUFACTURING & SMART FACTORY

FEATURED VIDEOS:

- B&R - The Importance of Industry Standards
- IIC Networking Event at IMTS 2016

READ MORE:

- Smart Factory Applications in Discrete Manufacturing Whitepaper
- Understand IIoT Technology for a Smart Factory Future
- Smart Factories: A Symphony of the Industrial Internet in Action
- Industrial Internet Consortium and Platform Industrie 4.0: Collaboration for Interoperability

FEATURED TESTBEDS:

The Industrial Internet will dramatically improve productivity and efficiencies in the production process and throughout the supply chain. Processes will govern themselves, with intelligent machines and devices that can take corrective action to avoid unscheduled breakdowns of machinery. Individual parts will be automatically replenished based on real-time data. Every handheld digital device in the factory will report the status of every fixed device, giving personnel mobile access to real-time, actionable information. Wearable sensors will track the location of each employee in the factory, in case of emergency. The list goes on and on.

FUTURE SCENARIOS WILL INCLUDE:

New steering instruments will interlink millions of things to ensure that everything runs as planned across the entire value chain. Changes in one part of the chain, automatically trigger adjustments on the factory floor.

- Customization will be automatic. Raw materials will be programmed with information that it will be part of product X, to be delivered to customer Y. Once the material is in the factory, the material itself records any deviations from the standard process, determines when it’s “done,” and knows how to get to its customer.

For more information, please contact info@icongorium.org.
Program Outline:
SFTG End User
Testbed Engagement

Erik Walenza-Slabe, IoT ONE
Co-chair, Smart Factory Task Group (SFTG)
End User Testbed Engagement Strategy

PROGRAM GOALS:
1. Provide a path for end users to engage with the IIC (in a limited scope).
2. Enable testbeds to experiment with multiple field deployment footprints.
3. Provide IIC members with greater exposure and business opportunities as testbeds move towards commercialization.

PROGRAM SCOPE (trial phase):
1. **Target end users:** Manufacturing facility owners/operators.
2. **End user opportunity:** End users can only participate as a deployment partner or advisor for existing testbeds. They cannot propose new testbeds.
3. **KAVI Access:** Separate KAVI databases are created to provide end users to access to information regarding their testbed deployment.
ENGAGEMENTS TYPES (level of engagement determined by testbed sponsors)

1. **One-time requirements interview [no access to confidential material]**
   - Testbed receives feedback into end user requirements.
   - End user receives a brief on the testbed.

2. **Periodic advisory [NDA between testbed participants and non-members 1]**
   - Testbed receives periodic end user input and a potential customer.
   - End user receives periodic insight into solution development.

3. **New deployment at end user site [NDA 1 + optional partnership agreement 2]**
   - Testbed receives a new deployment footprint and a potential customer.
   - End user receives experience implementing the solution.

Alternatives should be viewed as a progression, they are not mutually exclusive.

Notes

1: We will follow the existing procedure for end user engagement. NDAs will be required at the discretion of testbed sponsors and structured based on discussion between the testbed participants and end users. A formal IIC NDA may be developed in the future.

2: Partnership agreements beyond the scope of the IIC may be required between company participants.
The pilot program is scheduled to launch after the Q4 meeting.

**Q4 2017**  
Align on engagement modes, processes, legal, IP protection.

6 testbeds have opted in (Track & Trace, Manufacturing Quality Management, **Smart Factory Web**, **TSN**, Deep Learning, SF Connectivity for Brownfield Sensors)

**Q4 IIC Meeting**  
Formally launch [pilot program](#).

**Q1 2018**  
Pilot launch – SFTG Chairs to recruit 10-15 end users to complete [Interest Form](#).

3 end users have opted in (Nestle, Pfizer, Startup Factory).

**Q2 2018**  
Pilot launch – introduce 5-10 end users to testbeds.
Example End User - Startup Factory (Kunshan, China)

“The Manufacturing Site for Medium Sized Enterprises in China”

• Operating production lines for 30 European manufactures in China.
• Owned and operated by a German-Chinese consortium.
• Main sectors include automotive, machinery, measuring, electronics, automation.
Factory to Field: XLM to Smart Device Closed-Loop

Drive to Reduce Costs, Product Innovation, Enhance Product Features, Improve Product Quality

Product Innovation / Variants / Changes / Enhancements

Product Configurator

Continuous Refinement

CAD & AR

Requirements Mgmt

OTA

< Bug Fixes / Software/Firmware Upgrades / New features >

Next Gen / Family

APIs and Integration

PLM

ALM

{ Smart Devices }

Actionable Data

Data Transformed

Knowledge Base

Raw Data

< Usage / Performance / Consumer Preferences >
Dashboard & Closed Loop Product Lifecycle

Suggested Changes:
1. Strengthen tub rib structure
2. Motor and Tub spindle is connected with direct drive

Connect for deeper architecture & demo: iot-partners@Wipro.com
Connection Points/Next Steps

1. SFTG End User Testbed Engagement – Call for End Users
2. OMG Manufacturing Tech & Info Standards Task Group (MANTIS) Connection/Cross-Pollination
   +OMAC/OPC Foundation/PLCopen/OpX Leadership Nework?
3. Calvin’s Selfish Factory to Field Closed Loop Exploration (Use Cases & End Users)
4. Others from OMG & the Audience? Please let us know:
   calvin.smith@Wipro.com
   erik.walenza@iotone.com
   John.Kowal@br-automation.com
   rocheleau@iiconsortium.org
Thank You!