Welcome and Overview
Industrial Internet Consortium

Dr. Richard Mark Soley
Executive Director
24 October 2016
The Industrial Internet is leading the next economic revolution

GDP data extracted from the Futurist 2007
The Measurable Outcome will be in the Trillions of Dollars

GE: $32.3 trillion opportunity representing 46% share of GDP today.
Cisco: Internet of Things (IoT) will increase private sector profits 21% and add $19 trillion to the global economy by 2020
Gartner: IoT product and service suppliers will generate incremental revenue exceeding $300 billion in 2020.
McKinsey Global Institute: $36 trillion operating costs of key affected industries could be impacted by IoT

The convergence of Internet of Things, Industrie 4.0, Cyber-Physical Systems presents an enormous opportunity.
Yet there are current roadblocks to widespread adoption

Connectivity
Technology
Standards
Research
Academia
Government
Industries
Big Data
Security
Systems Integration
The IIoT: Things are coming together

November 8, 2016
The Industrial Internet Consortium is a global, member supported organization that promotes the accelerated growth of the Industrial Internet of Things by coordinating ecosystem initiatives to securely connect, control and integrate assets and systems of assets with people, processes and data using common architectures, interoperability and open standards to deliver transformational business and societal outcomes across industries and public infrastructure.

Launched in March 2014 by five founding members:

AT&T, Cisco, General Electric, IBM & Intel.

The IIC is an open, neutral “sandbox” where industry, academia and government meet to collaborate, innovate and enable.
Founders, Contributing Members, & Large Industry Members

IIC Founding and Contributing Members

ABB  Ericsson  Dell  Schindler
Bosch  EMC²  GE  Huawei  IBM  Intel  SAP  Schneider Electric
Kaspersky  Olympus  China Telecom  Toshiba
Hewlett Packard Enterprise  Analog Devices  L&T Infotech  TE Connectivity
Toyota  Kuka  Boeing  Azbil
Neustar  Gemalto  Rostelecom  Red Hat
Siemens  Denso  Accenture
Munich Re  Fuji Electric  Moxa  Cognizant
InterDigital  Haier  RICoh  Renesas
Belden  Konica Minolta  Qualcomm  Hitachi
Oracle  Pitney Bowes  Samsung  Fujitsu
Genpact  Microsoft  Tyco  VeriSign
Fujifilm  Mitsubishi Electric  Cisco  NEC
Tech Mahindra  Infosys  Micron  Rohm Semiconductor
Schlumberger  PTC  Equinix  Nokia  Xilinx
Unisys  3M  Science. Applied to Life™  Itron
Small Industry Members

[Logos of various companies]
Nonprofit, Academic, & Government Members
Current Steering Committee

- Mr. John Tuccillo
  IIC SC Chairman
  Senior VP of Global Industry & Government Affairs
  Schneider Electric

- Dr. Tanja Rueckert
  IIC SC Vice-Chair
  Executive VP IoT and Customer Innovation Unit
  SAP

- Dr. Jacques Durand
  Director of Standards and Engineering
  Fujitsu

- Mr. Jeff Fedders
  Chief Strategist, IoT Group Strategy & Technology Office
  Intel

- Mr. K. Eric Harper
  Senior Principal Scientist
  ABB

- Mr. Robert Martin
  Senior Principal Engineer
  Mitre

- Dr. Jacques Durand
  Director of Standards and Engineering
  Fujitsu

- Mr. K. Eric Harper
  Senior Principal Scientist
  ABB

- Mr. Greg Petroff
  Chief Experience Officer
  General Electric

- Dr. Stan Schneider
  CEO
  Real-Time Innovations, Inc.

- Mr. Dirk Slama
  Director of Business Development
  Bosch Software Innovations

- Dr. Richard Soley
  Executive Director
  Industrial Internet Consortium

- Dr. Said Tabet
  Chief Architect for IoT Solutions
  Dell Technologies

- Mr. Jeff Fedders
  Chief Strategist, IoT Group Strategy & Technology Office
  Intel

- Mr. Robert Martin
  Senior Principal Engineer
  Mitre

- Mr. Don O’Toole
  Business Development Executive, IBM Watson Internet of Things
  IBM

- Mr. Greg Petroff
  Chief Experience Officer
  General Electric

- Dr. Stan Schneider
  CEO
  Real-Time Innovations, Inc.

- Mr. Dirk Slama
  Director of Business Development
  Bosch Software Innovations

- Dr. Richard Soley
  Executive Director
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- Dr. Said Tabet
  Chief Architect for IoT Solutions
  Dell Technologies

- Mr. Wang Xuemin
  Director,
  Standardization and Industry Department
  Huawei
Activities fall into three main areas that ultimately drive new opportunities for IIC members:

**Testbeds**
Innovation to drive new products, processes, services

**Technology & Security**
Architectural frameworks, standards requirements, interoperability, use cases, privacy & security of Big Data

**The IIC Ecosystem**
Companies joining together to advance innovation, ideas, best practices, thought leadership and insights
IIC Track & Trace Testbed

Source: Bosch
IIC Testbed: Communication and Control
Participants:

- Members: EMC Corporation and Cork Institute of Technology
- Other Participants: Vodafone, Irish Government Networks, Asavie, and Cork Internet Exchange

Market Segment:

- The scale and scope of the project means INFINITE can be used across a wide and diverse range of industries and sectors

Solution:

- Completely virtual domains that are able to be connected via mobile networks
- A solution that allows multiple virtual domains to securely run via physical network

Commercial Benefits:

- Ideal for mission-critical systems
- Industrial Internet applications in an environment that resembles real-world conditions
Member Participants:
• IBM and National Instruments

Market Segment:
• Predictive maintenance cuts across multiple market segments like power plants, manufacturing, process, mining, transportation, aerospace, and defense

Goals:
• Develop new predictive maintenance analytics modeling techniques
• Document standard and secure architecture patterns and data formats for predictive maintenance in the Industrial Internet era

Commercial Benefits:
• Increase equipment uptime and prevent catastrophic failures
• Provide condition monitoring data to experts thru the cloud
Current Publicly Announced Testbeds
The Industrial Internet Consortium Today

- More than 250 organizations from more than 30 countries and growing
- 27 running testbeds all over the world
  - More than 20 coming through the approval process and in design
  - Expanding into new verticals (agriculture, security, etc.)
- Reference Architecture available for a year; second version in development
- Security Framework published in September
- Business Strategy & Solutions Lifecycle a year old, first white paper due soon
- Strategy for influencing standardization on track
- Much more breadth in Steering Committee
Interconnecting Regional Efforts

- Collaboration announced in February with German Plattform Industrie 4.0
  - First three meetings (November 2015, May 2016, September 2016) are producing proposals for consideration by both Steering Committees
  - Real collaboration happening in architecture & testbeds especially
- Collaboration announced in September with Japanese IoT Acceleration Consortium
- The Consortium is also developing ties with other regional efforts
  - France: Alliance Industrie du Futur
  - China: Internet+ and China 2025
  - United States: Cyber-Physical Systems
  - Chile: Industrial Internet Centers of Excellence
  - Japan: Industrial Valuechain Initiative & Robot Revolution Initiative
  - Russia: National Association of Industrial Internet
What about Standards? And Open Source?

Already plenty of standards at the communications level (e.g., OMG DDS)

**Semantic standards are going to be critical in all verticals**

IIC is a source for standards requirements & priorities through the I3C process