

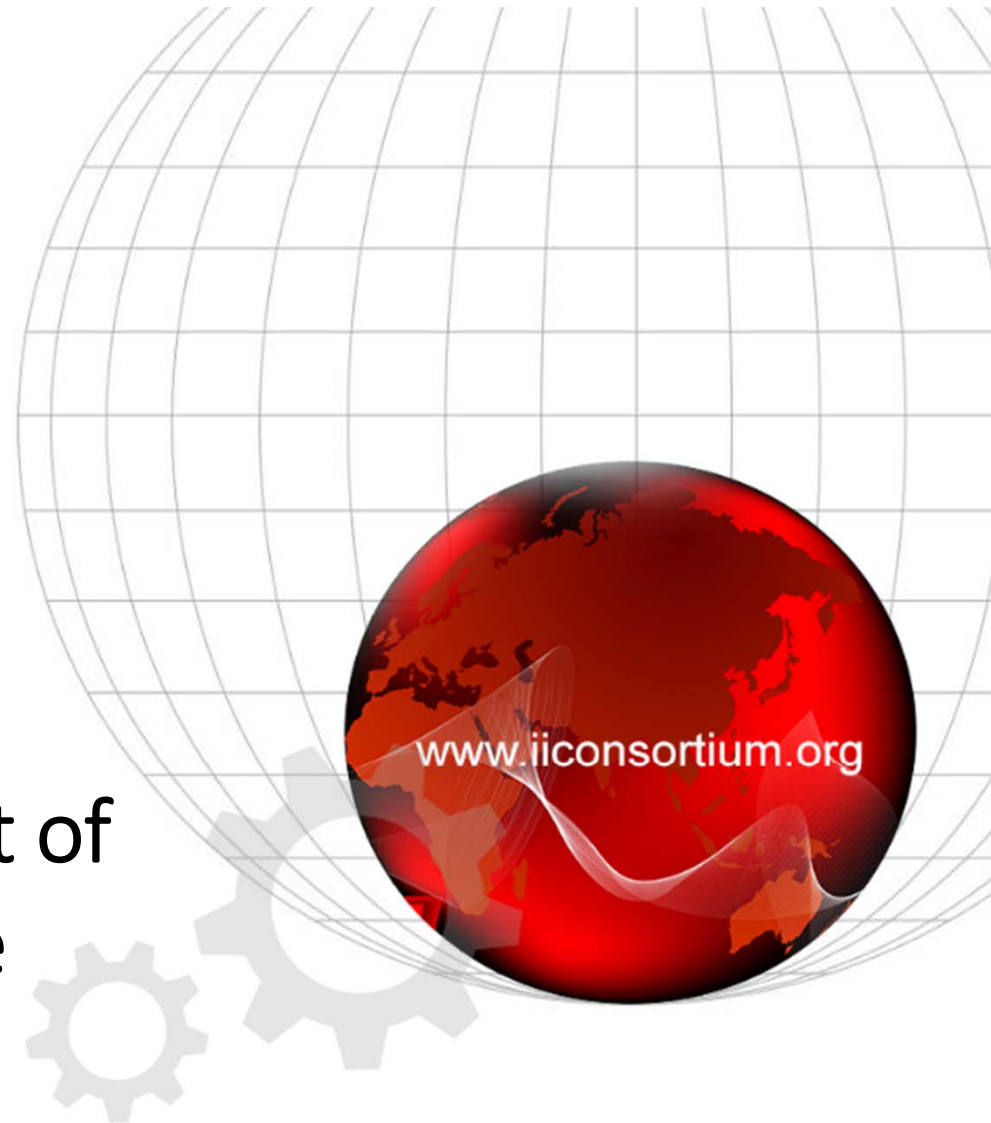


 Steinbeis-Transferzentrum
Innovationsforum Industrie
(STCI)

Network related transitions towards the Industrial Internet of Things – a testbed perspective

Sandra Haltmayer, Troyes, June 27

Project Manager Industrial Internet Ferdinand Steinbeis Institute
Representative Industrial Internet Consortium German Country Team





“A fundamental new rule for business is that the Internet changes everything.”

-Bill Gates, 1999

Or has it?

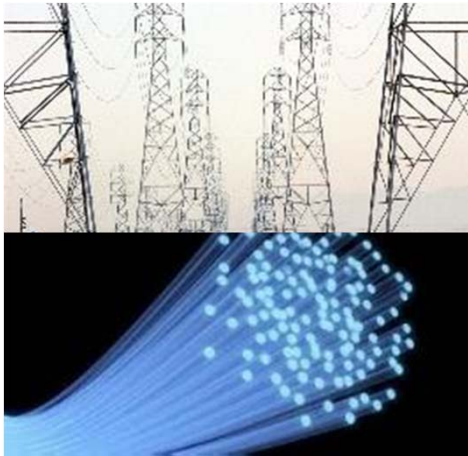




Energy Management

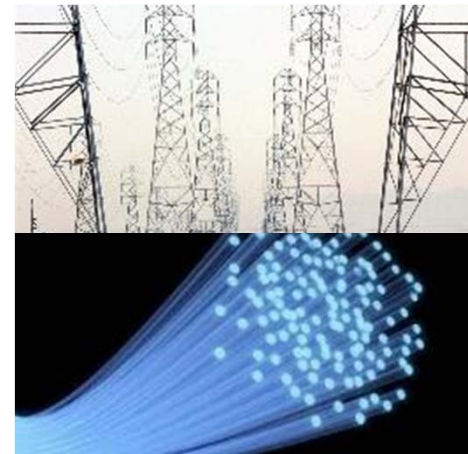
1950

Energy grids delivered power,
not information



2014

Energy grids deliver power,
not (much) information

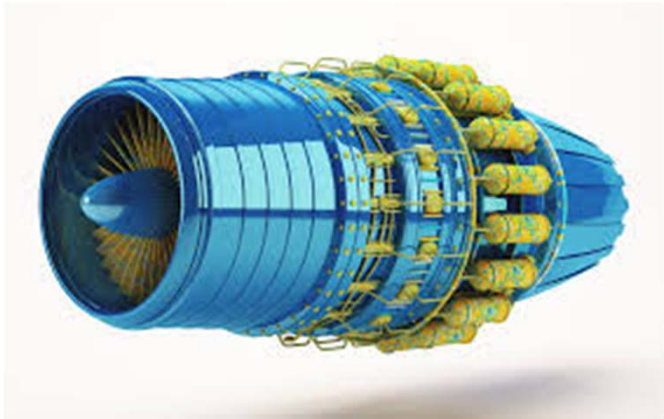




Aviation

1960

Jet performance data is downloaded by hand



2014

Jet performance data is downloaded by hand





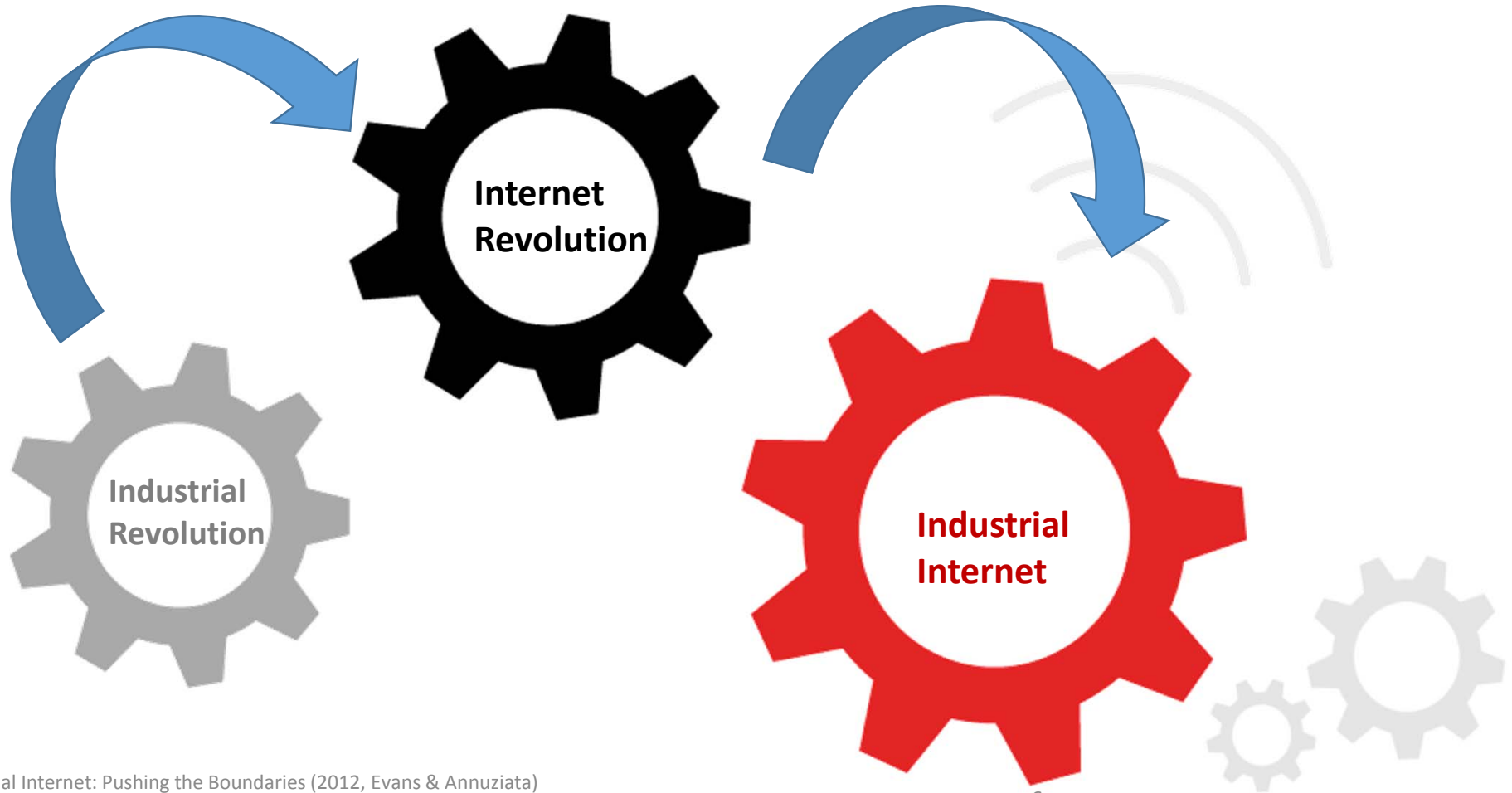
Yes, there are efficiencies and new integration points.

But we have a long way to go.



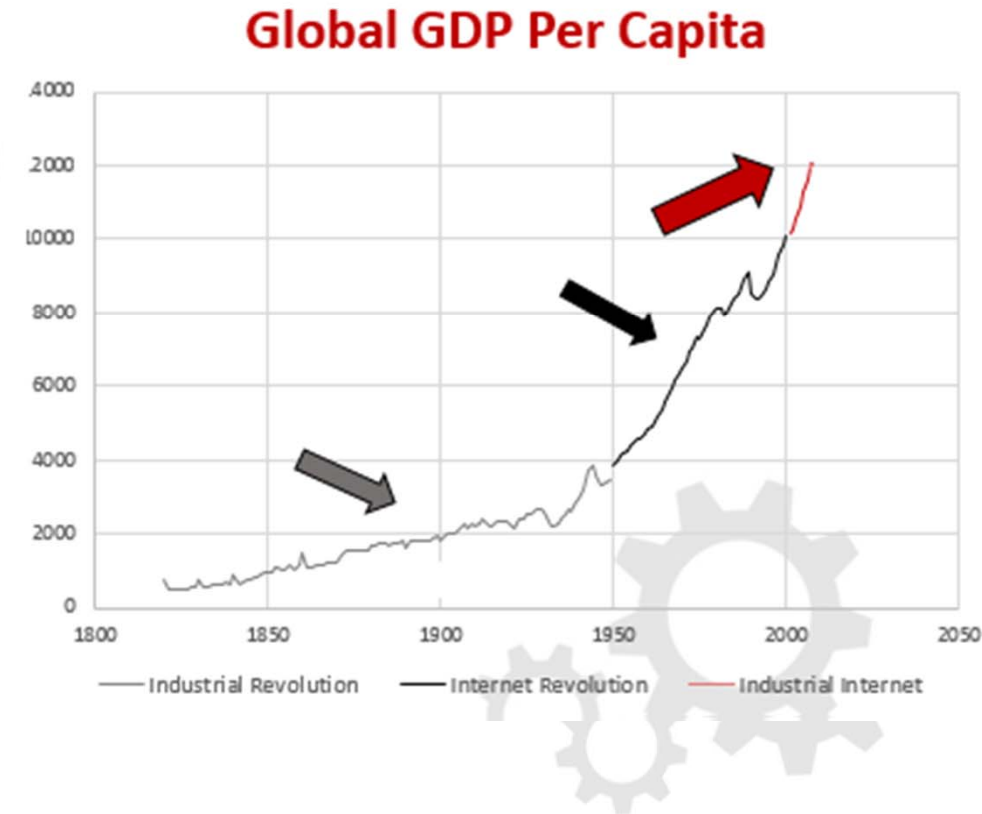
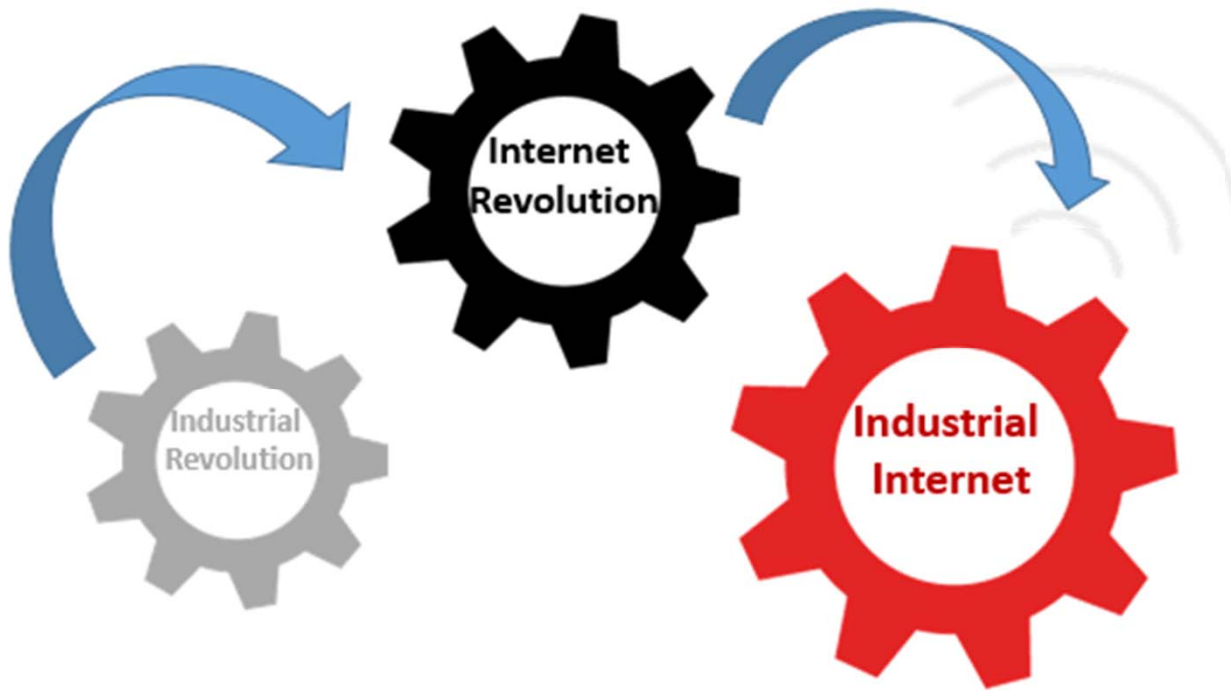


Disruptive Technologies lead to Transformational Change



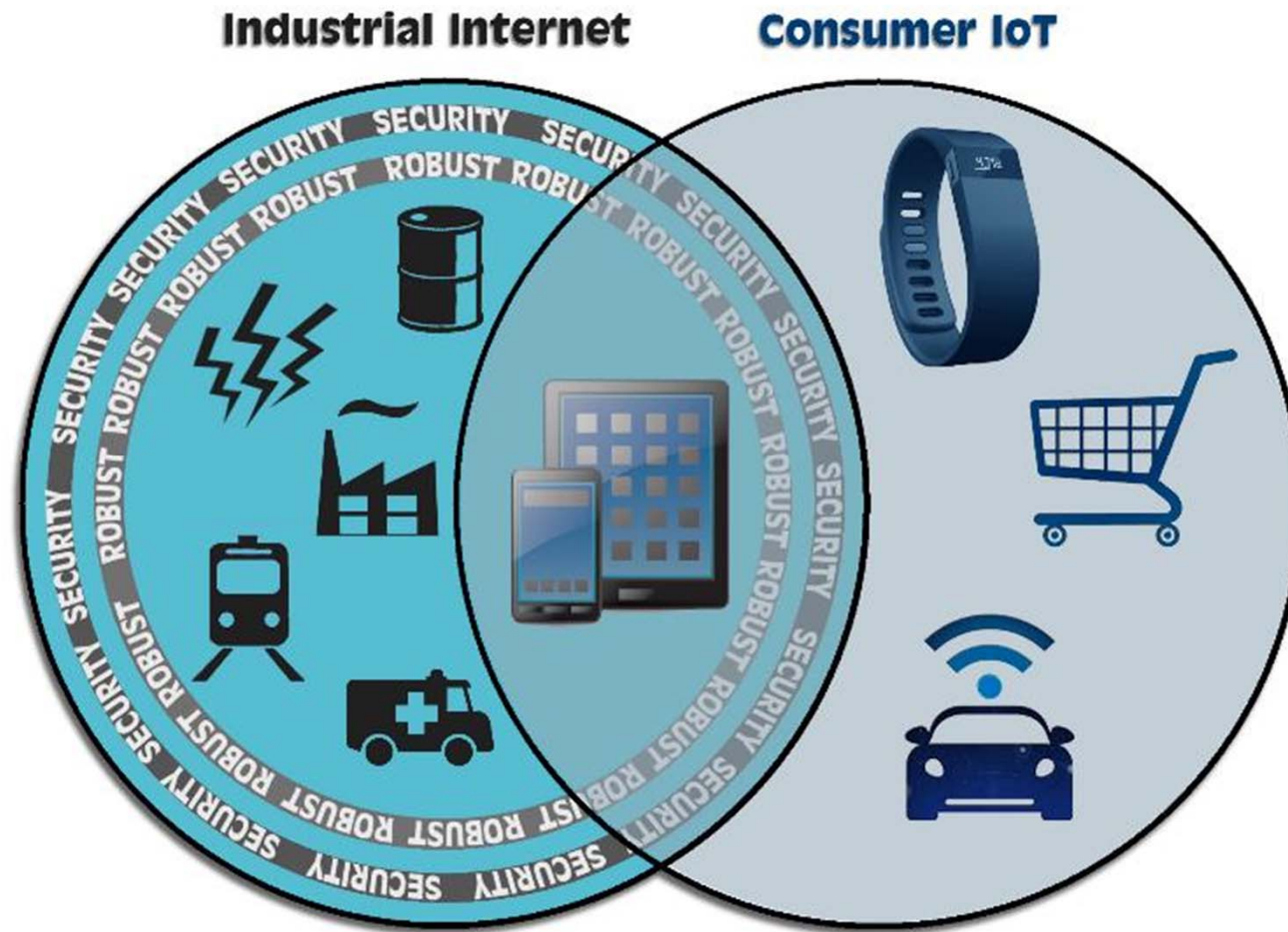
Adopted from Industrial Internet: Pushing the Boundaries (2012, Evans & Annuziata)

The Industrial Internet is leading the next economic revolution





There are key differences between the Industrial Internet and Consumer IoT



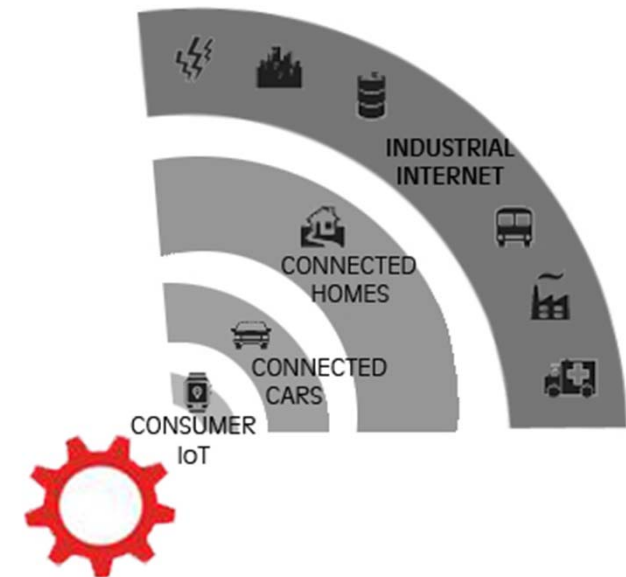
The Industrial Internet

Industrial Internet:


An internet of things, machines, computers and people...

enabling intelligent industrial operations...

using advanced data analytics for transformational business outcomes.



THE INTERNET OF THINGS LANDSCAPE



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

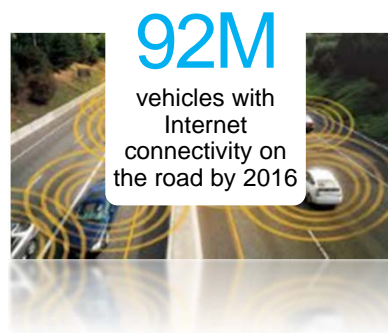
Gartner: IoT product and service suppliers will generate **incremental revenue exceeding \$300 billion** in 2020.

McKinsey Global Institute: **\$33 trillion operating costs** of key affected industries could be impacted by IoT

Sources: GE, Cisco, Gartner, McKinsey



Opportunities across every industry

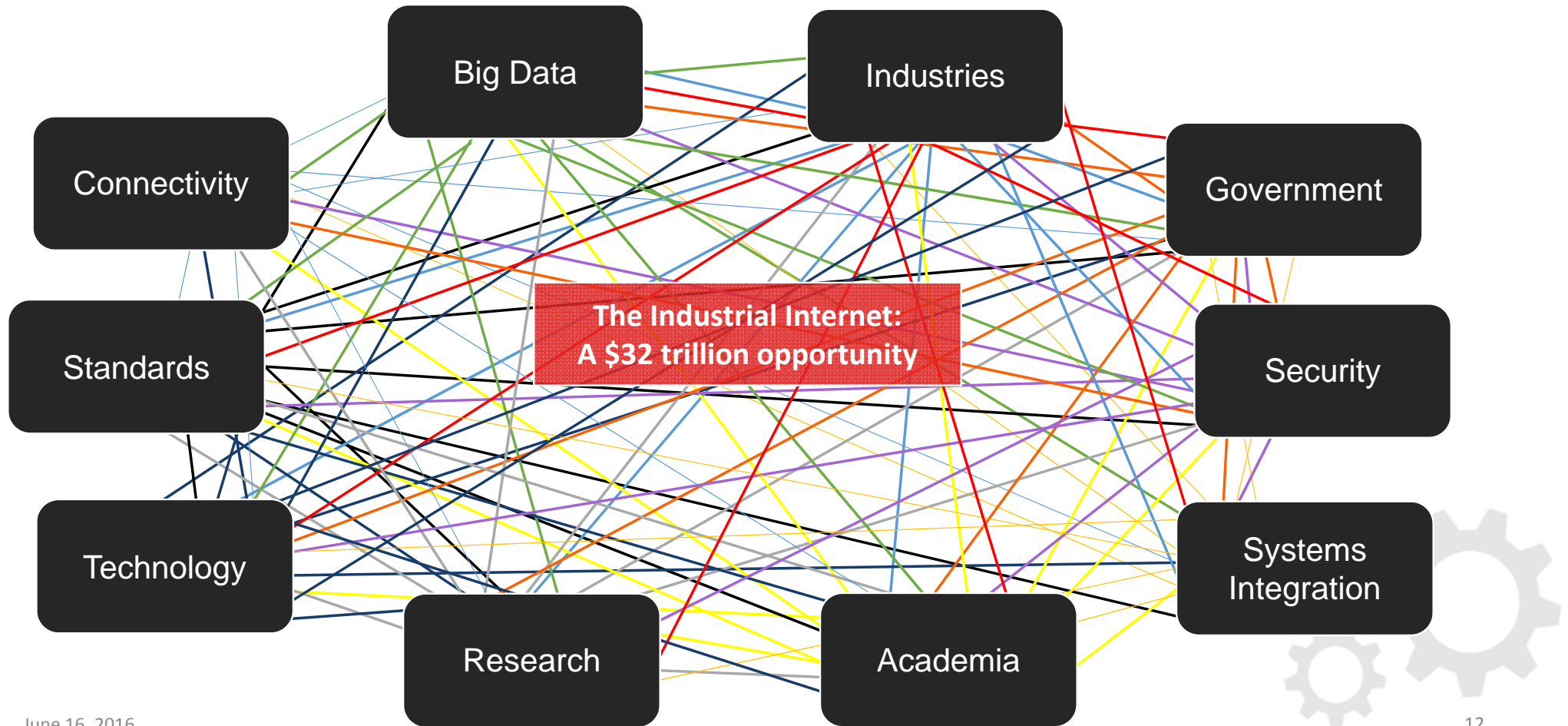


Beyond the numbers, the Industrial Internet is changing *how things work*.

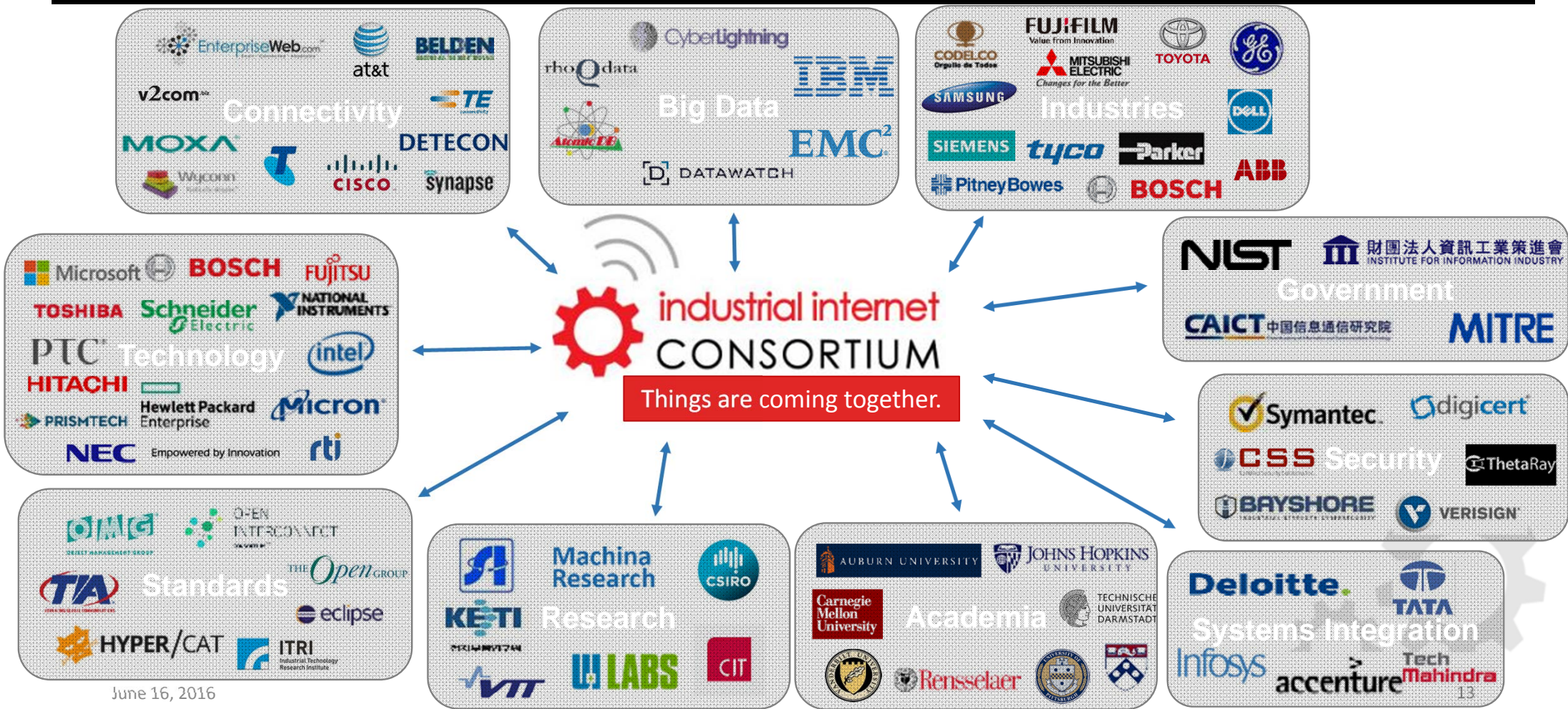




Adoption is Hampered in a Disconnected Environment



The IIC: Things are coming together



June 16, 2016

Industrial Internet Consortium

Mission

To **accelerate growth** of the Industrial Internet by **coordinating ecosystem** initiatives to connect and integrate objects with **people, processes and data** using common architectures, interoperability and open standards that lead to **transformational business outcomes**.

Launched in March 2014 by five founding members:

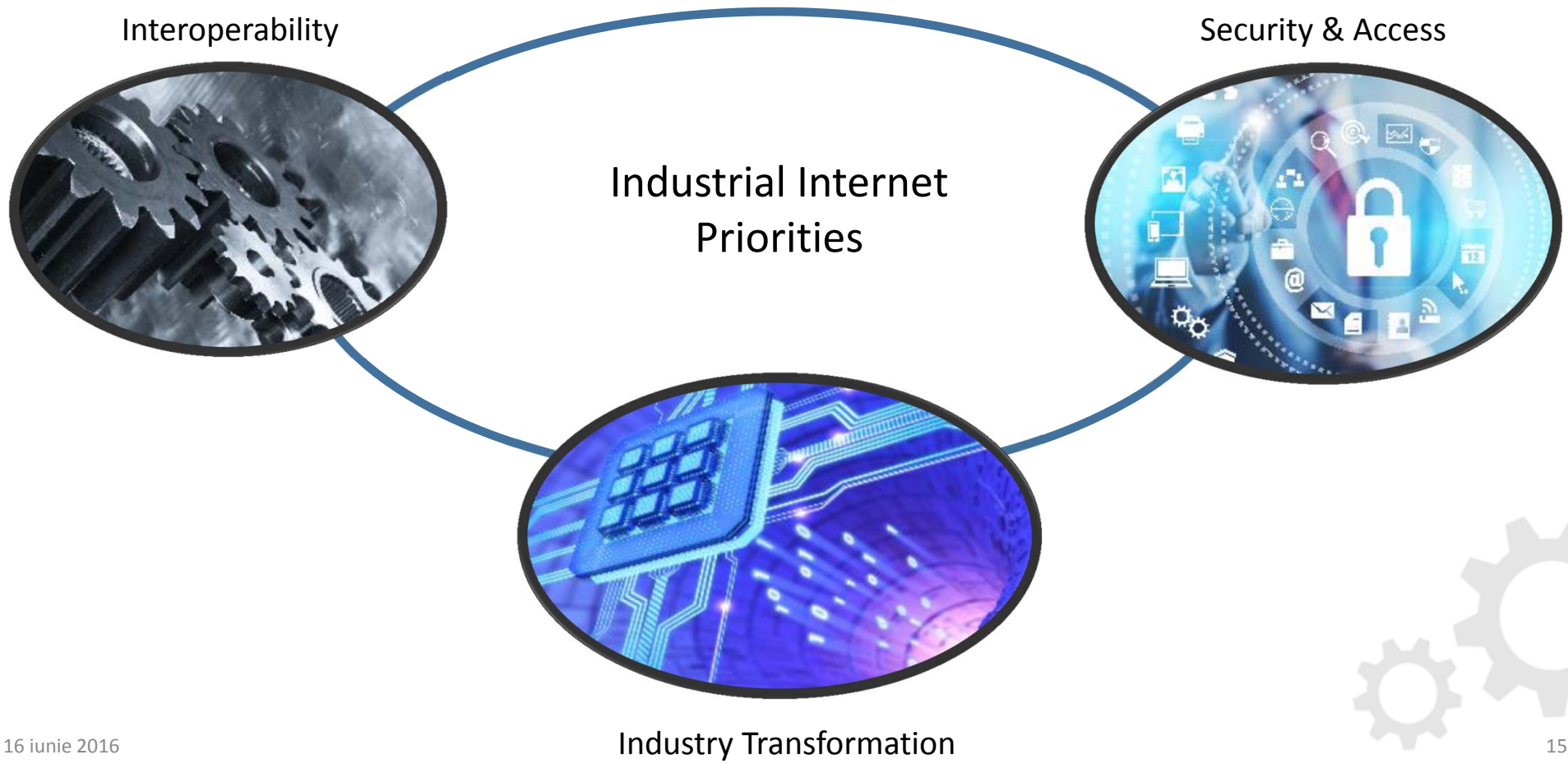


243 Member Organizations
Spanning 29 Countries



The IIC is an open, neutral “sandbox” where industry, academia and government meet to collaborate, innovate and enable.

Focused on Advancing the Industrial Internet



The IIC and Standards Organizations

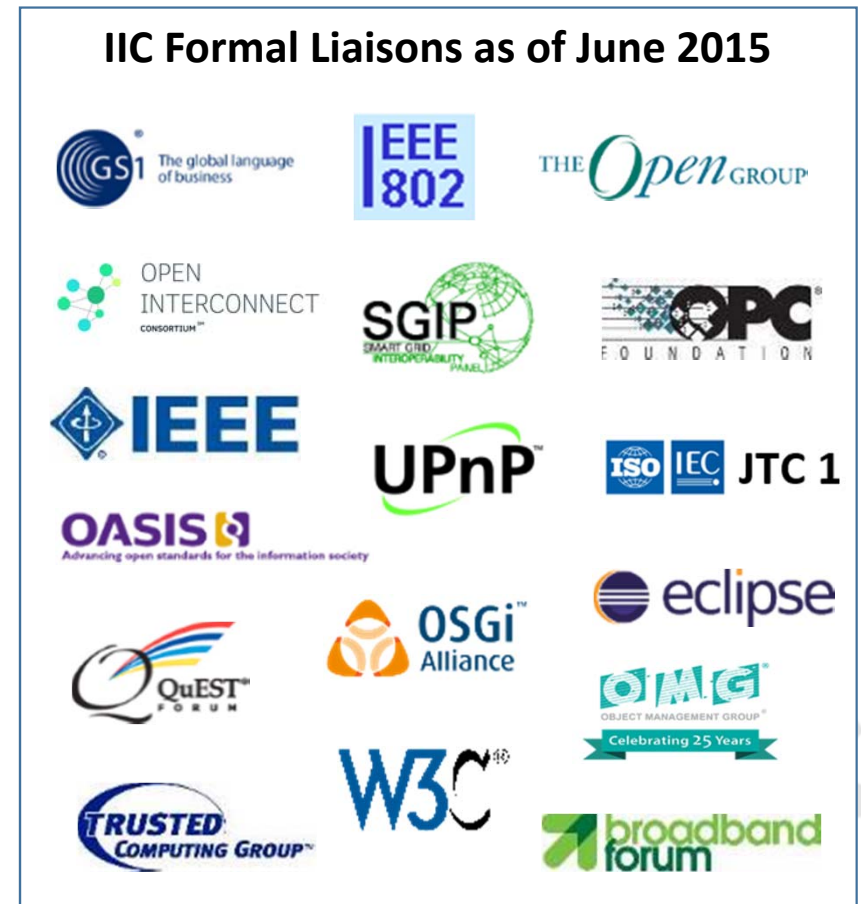
The IIC is *not* a standards organization.

It evaluates and organizes existing standards to:

- Advocate for open standard technologies
- Influence the global standards development

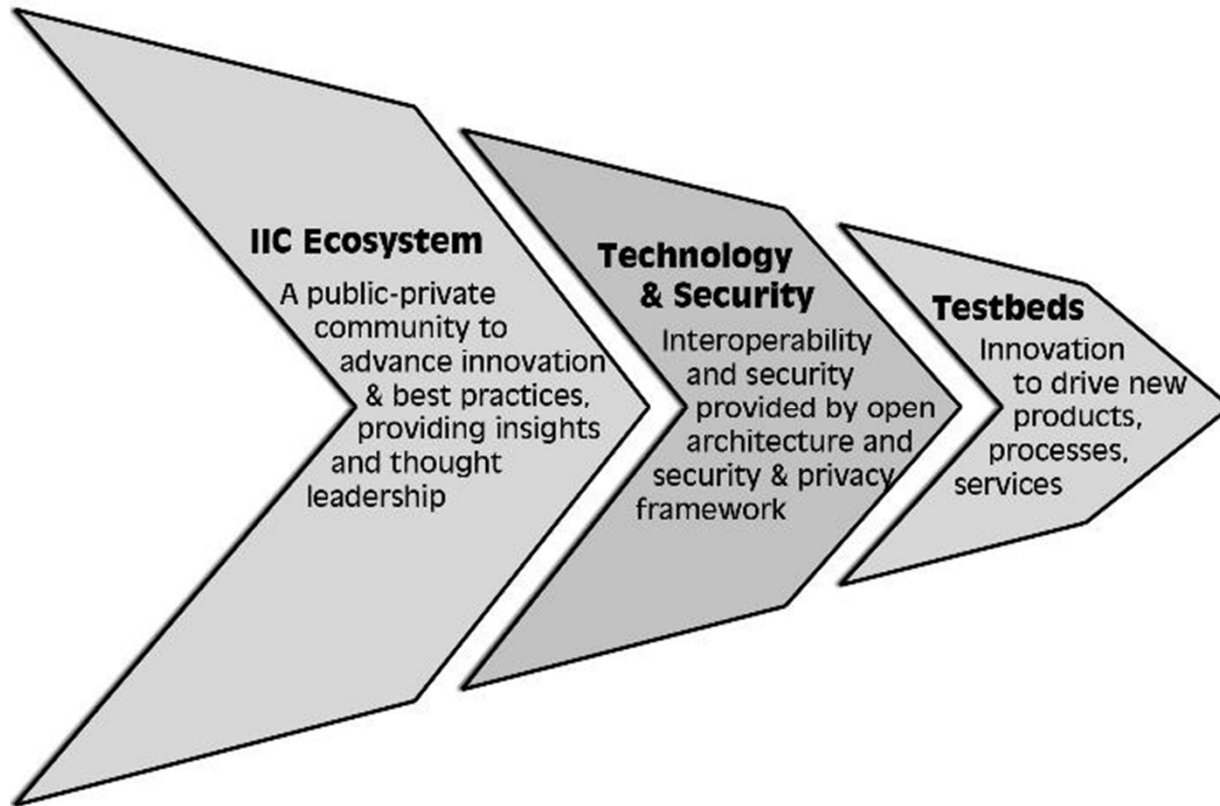
The Technology Working Group is currently:

- Evaluating existing standards
- Identifying requirements for the Industrial Internet





The IIC has three primary areas of activity: Community Engagement, Technology & Security, and Testbeds



IIC Testbed: Overview approved Testbeds



IIC Testbed: Track & Trace

Industrial Internet Consortium Member participants:

- Bosch, TechMahindra, Cisco, National Instruments

Market Segment

- Industrial Manufacturing
- Power Tool Fleet Management

Goal

- Manage smart, hand-held tools in manufacturing, maintenance and industrial environments

Features & Commercial Benefits

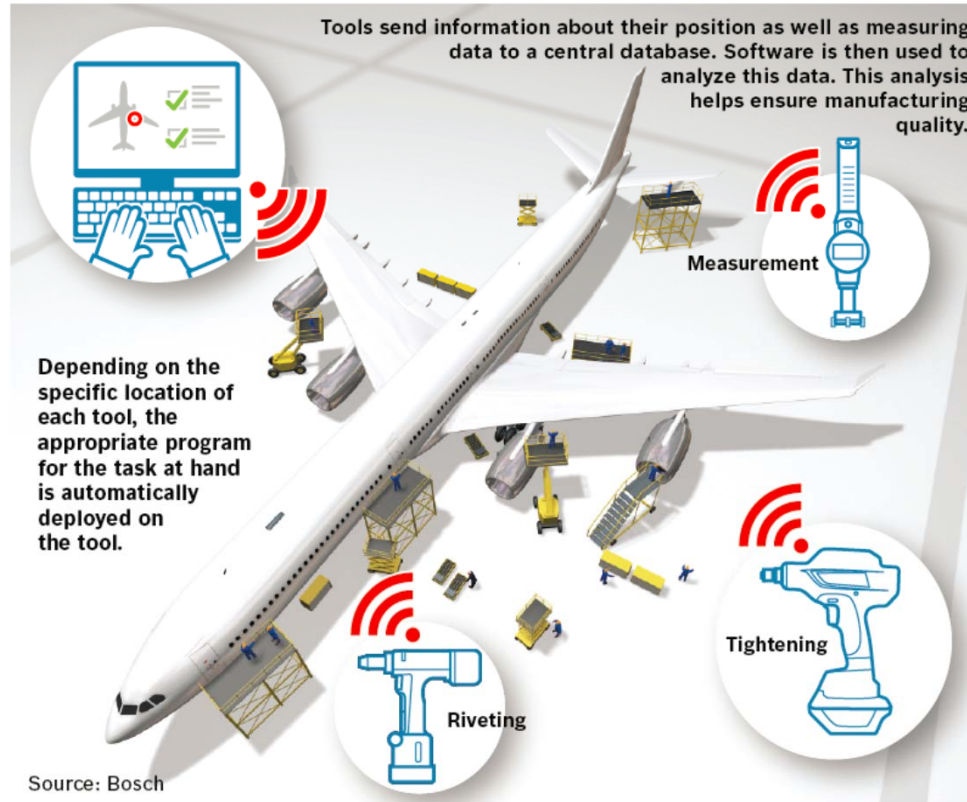
- Asset Management, Work Management
- Integration with Factory Manufacturing Systems
- Improved Safety and Operational Performance
- Monitor/Control Quality



IIC Testbed: Track & Trace

Connected tools in manufacturing

In the international Track and Trace project, Bosch and its partners in the Industrial Internet Consortium are exploring the interconnection and management of industrial tools.



Source: Bosch



IIC Testbed: Communication and Control for Microgrid Applications

Collaborators

- Leads: RTI, National Instruments, Cisco
- With: CPS Energy (San Antonio), Southern Cal Edison, Duke Energy, SGIP

Market Segment

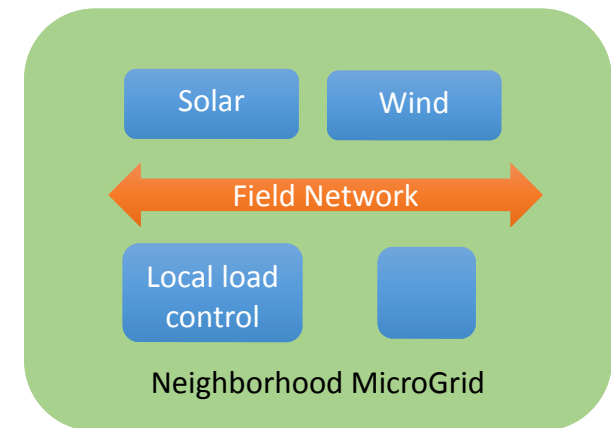
- Energy Industry

Goals

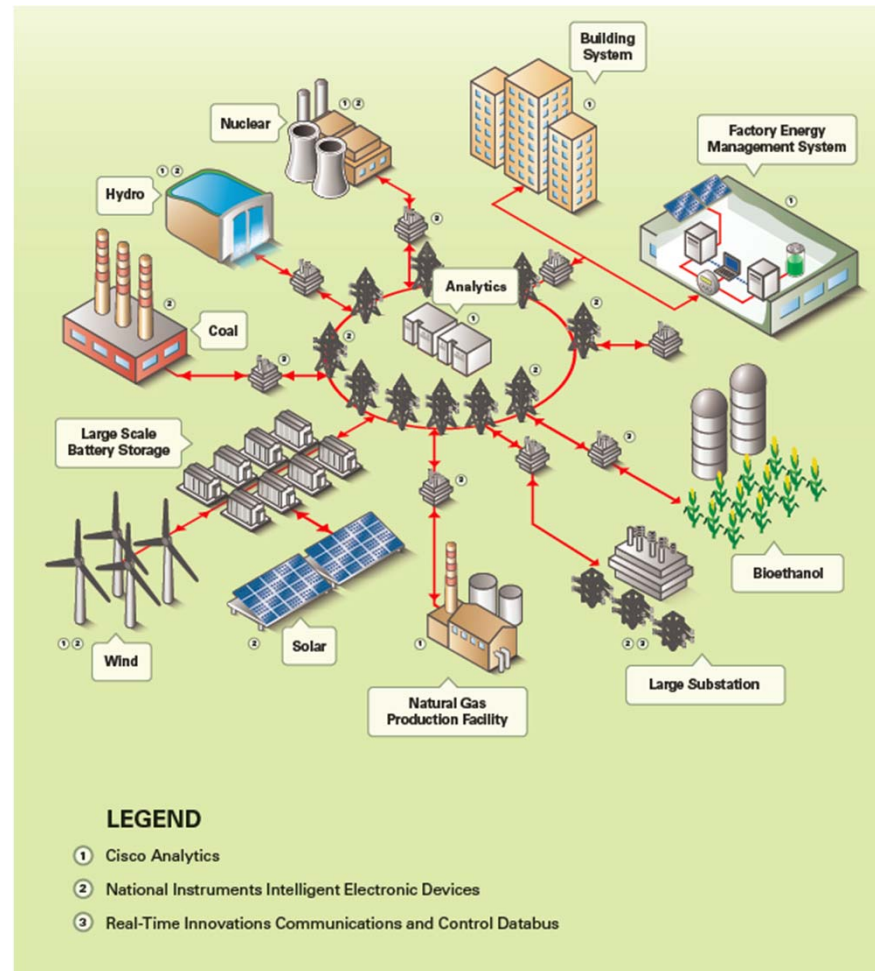
- Introduce the flexibility of real-time analytics and control to increase efficiencies and ensure that power is generated accurately and reliably to match demand

Features & Commercial Benefits

- Enable efficient integration of solar and wind into the grid
- Create a dynamic, open marketplace for smart grid vendors
- Prove the viability of a real-time, secure DataBus distributed-control architecture in real-world grids



IIC Testbed: Communication and Control for Microgrid Applications





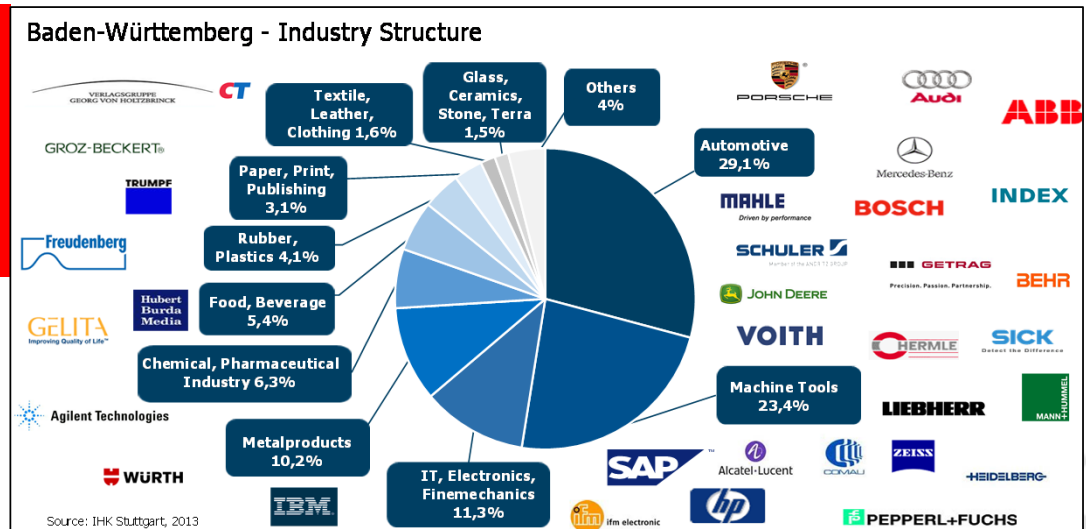
IIC German Country Team

The Management Board consists of

Dr. Richard Mark Soley | Prof. Dr. Hans-Georg Kemper | Viktor Paland | Prof. Dr. Heiner Lasi

The IIC German Country team focuses on the unique needs of our German members with specialized use cases and testbeds, collaboration with Industrial subject matter experts, local marketing, and the establishment of liaisons with local groups.

Steinbeis has a strong relationship to industrial players and governmental organizations. Therefore, the brand of Steinbeis features access to especially industrial SMEs, to government sources as well as to research funds.



A Country Team, being a part of IIC, does not have a separate legal or financial existence.



IIC GERMAN COUNTRY TEAM ACTIVITIES:

- testbeds
- specialized use cases
- collaboration with industrial subject matter experts
- local marketing
- establishment of liaisons with local groups

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Would you like to be updated about our newest activities and stay in touch with us?

Sign in for the IIC German Country Team Newsletter on our website
steinbeis-fsti.de/iic/



Steinbeis-Transferzentrum
Innovationsforum Industrie
(STCI)



Things are coming together.

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