industrial internet CONSORTIUM

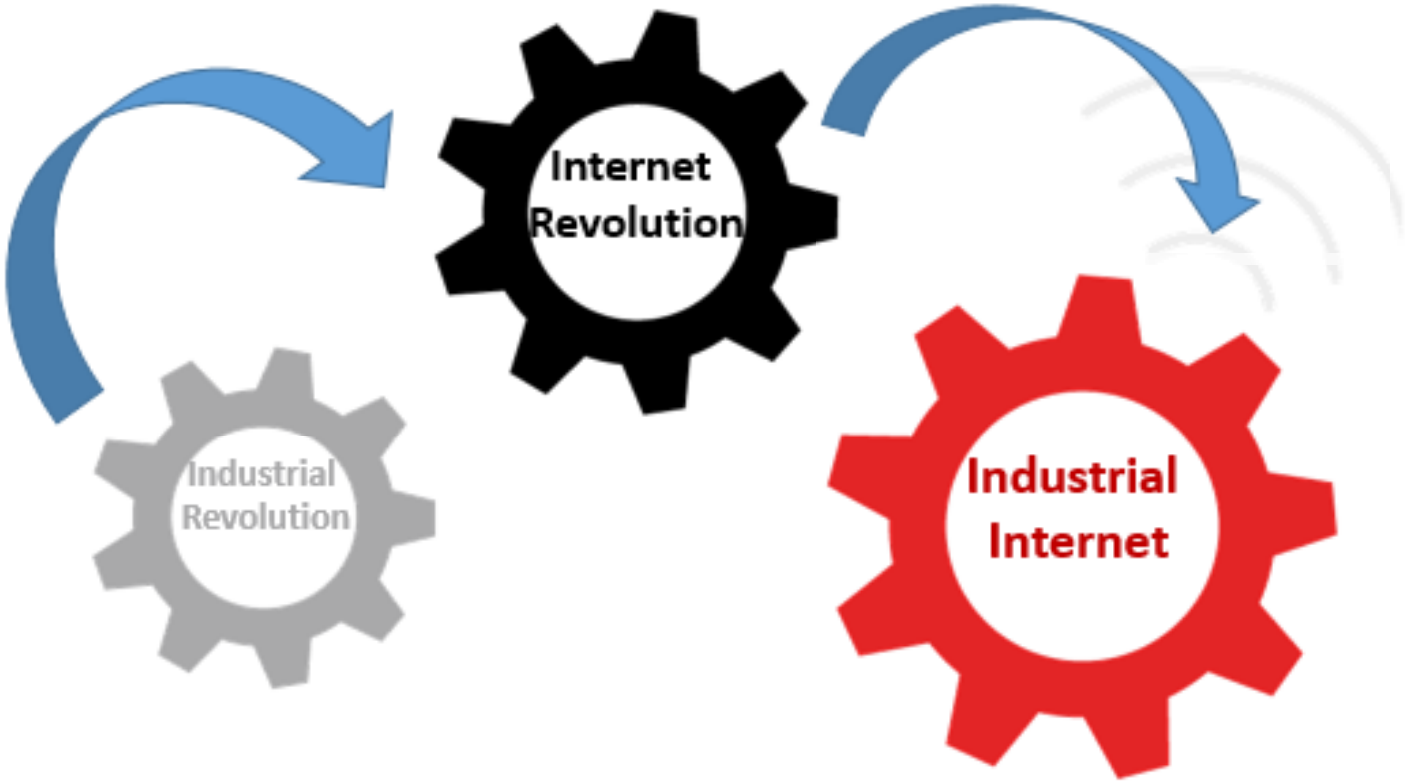
The Industrial Internet: Creating Ties Throughout the Value Chain

11 July 2017

OMG®

OBJECT MANAGEMENT GROUP

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

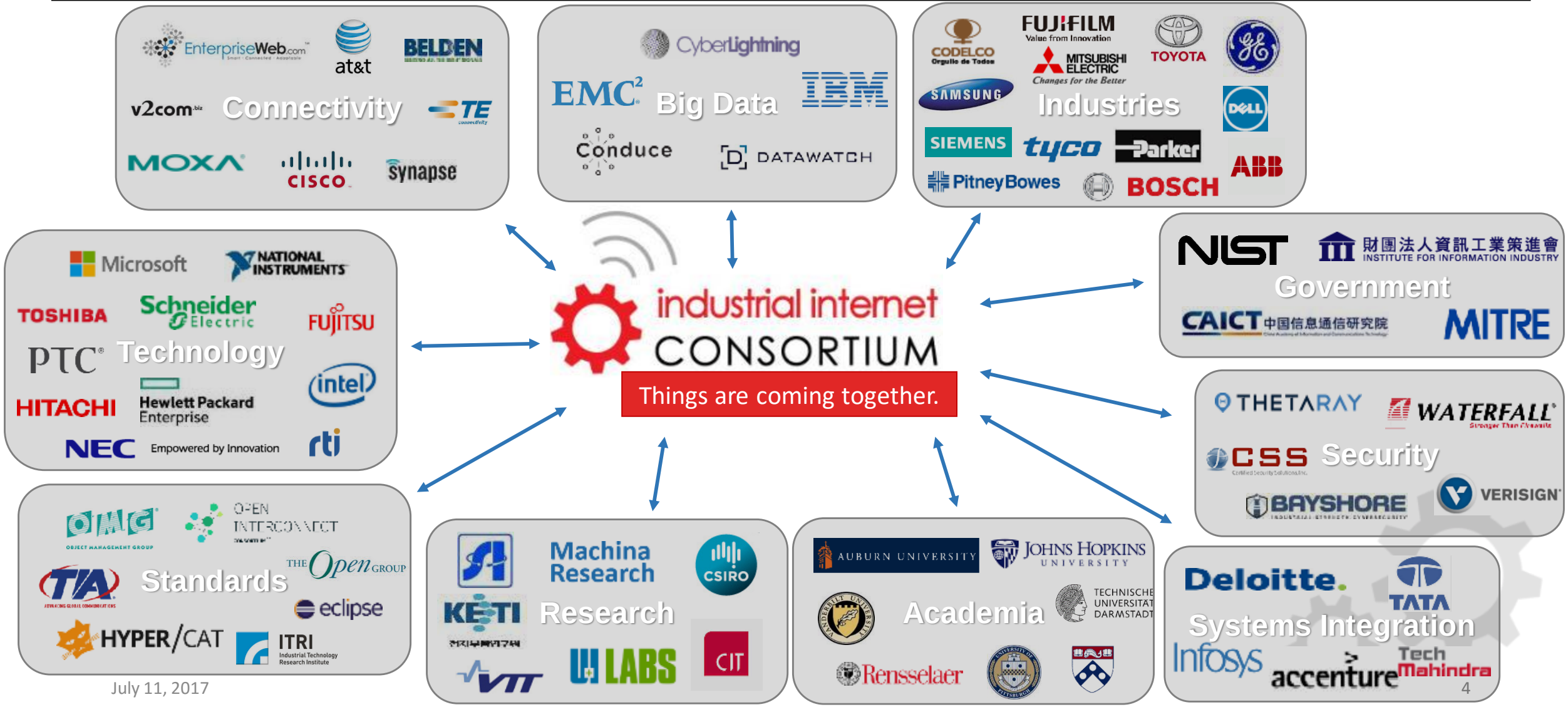
Gartner: IoT product and service suppliers will generate incremental revenue exceeding $300 billion in 2020.

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, Industrie du Futur, Internet+* presents an enormous opportunity.

Sources: GE, Cisco, Gartner, McKinsey

The IIC: Things are coming together



Industrial Internet Consortium

Mission

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 by OMG in March 2014 with five founding companies:

at&t CISCO IBM intel

Approaching 300 Member Organizations
Spanning Dozens of Countries

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

IIC Founders, Contributing Members, & Large Industry Members

IIC Founding and Contributing Members

IIC Small Industry Members

IIC Small Industry Members

IIC Nonprofit, Academic, & Government Members

Why now?

Driving the OT – IT Convergence:

Low cost, powerful technology

- Cheap sensors & devices
- Low-cost processing power, data storage

Connected everything

- By 2020, the number of things connected to the internet will be approximately 7x the number of people on earth today.[1]

Big Data

- Collecting, storing and analyzing data is now more cost effective

Smarter Machines

- Equipment is increasingly embedded with sensors & software

[1]Source: Cisco Systems

The IIC and Standards Organizations

The IIC is ***not*** a standards organization. We evaluate and organize existing standards to :

- advocate for open standard technologies, and
- influence the global standards development

The IIC has a formal Liaison team that evaluates potential formal agreements with other organizations.

We are an open membership organization and we work collaboratively on an informal basis with many other organizations, including Industrie 4.0.

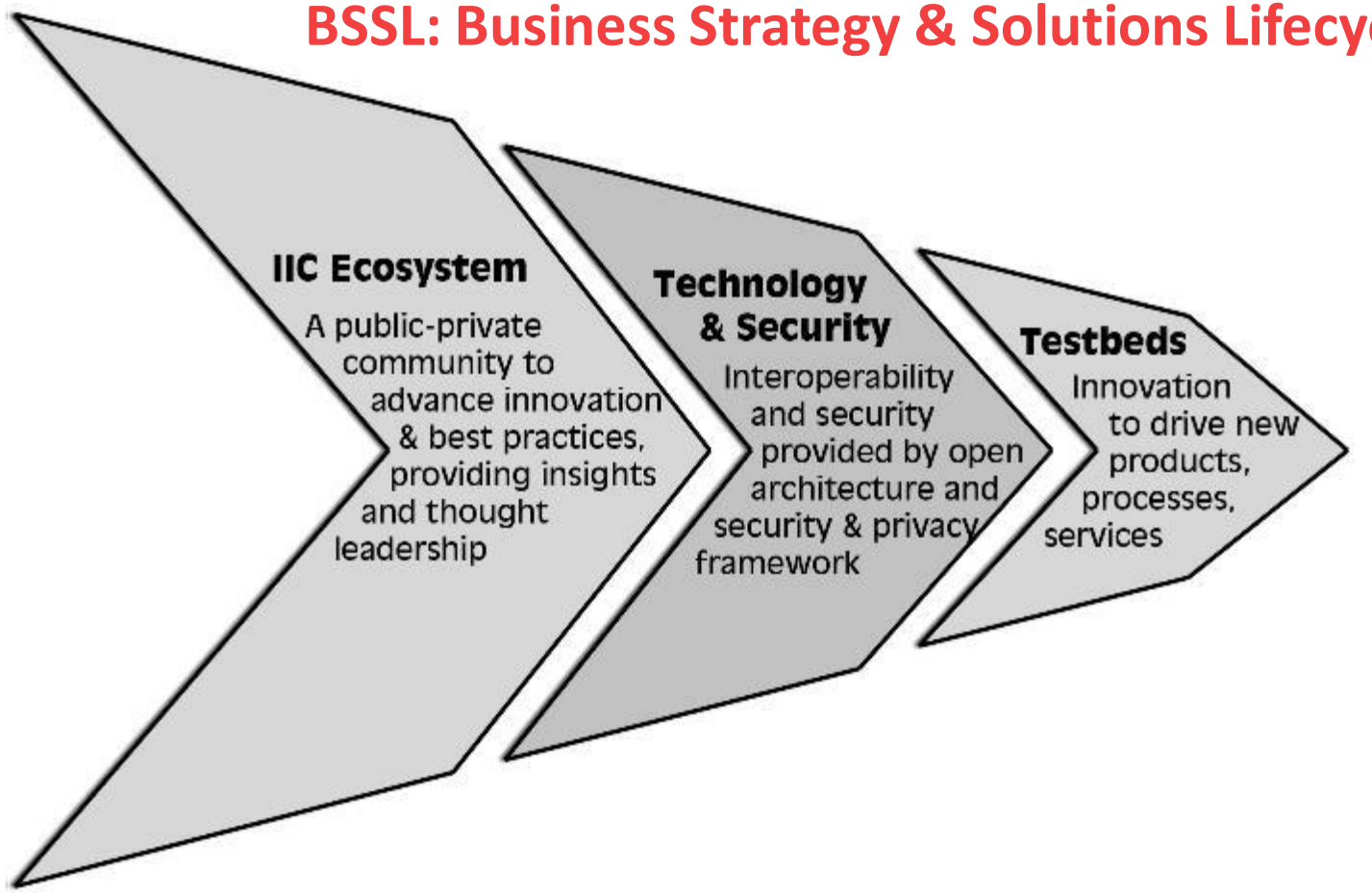
The Technology Working Group is currently:

- Evaluating existing standards
- Identifying requirements for the Industrial Internet

IIC Formal Liaisons as of June 2015

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

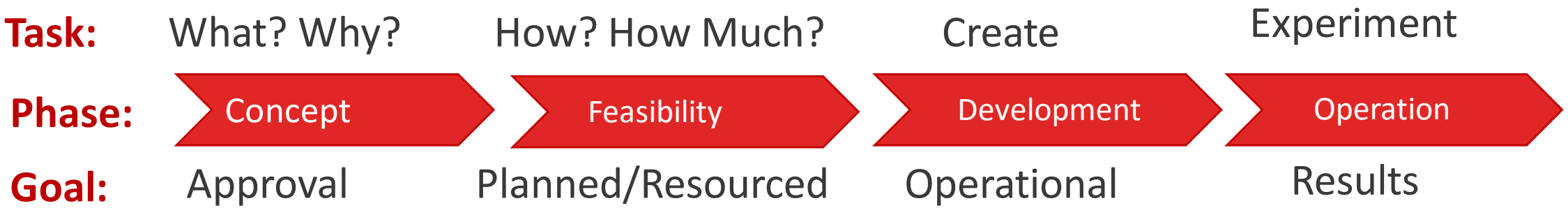
BSSL: Business Strategy & Solutions Lifecycle



Testbed Working Group

Charter: To accelerate the creation of testbeds for the Industrial Internet.

IIC Testbed Lifecycle Phases



Current Priorities:

- Assist members in identifying, defining and gaining approval for their testbeds
- Identify and communicate funding resources for IIC testbeds
- Provide processes and infrastructure for efficient & effective operations

Current Publicly Announced Testbeds

Track and Trace: Results from our first testbed

Example IIC Testbed: Track & Trace

Industrial Internet Consortium Member participants:

- Bosch, TechMahindra, SAP, 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

INFINITE: Learning from the data

Example IIC Testbed: International Future Industrial Internet (INFINITE)

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

Designing a new testbed: top-down or bottom-up?

The Future: Enabled by Systems Engineering

How will we reduce jet engine failure & maintenance costs?

How will we minimize unplanned factory downtime?

How will we save lives through better patient care?

Things are coming together.

How will we reduce passenger fatalities?

How will we reduce waste of natural resources?

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Community. Collaboration. Convergence.

Things are coming together.

www.iiconsortium.org

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For more IIC information

- **About IIC:** http://www.omg.org/intro/IIC-flyer.pdf
- **IIC Fact Sheet:** http://www.iiconsortium.org/pdf/IIC_FACT_SHEET_2015.pdf
- **IIC Smart Factories:** https://workspace.iiconsortium.org/kws/public/download/5350/IIC-Smart-Factory-1-pager.pdf
- **IIC Quarterly Update:** http://www.iiconsortium.org/pdf/IIC_Progress_Report_2016_July.pdf
- **IIC and Industrie 4.0:** https://workspace.iiconsortium.org/kws/public/download/5351/IIC-4-0-1-Pager-web-Final.pdf
- **Industrial Internet Interoperability Coalition:** http://www.iiconsortium.org/accelerating-innovation.htm
- **IIC meetings and on stage:** http://www.iiconsortium.org/events.htm

For information about OMG

- **About OMG: http://www.omg.org/intro/OMG-Backgrounder.pdf**
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