General Session & 18th Annual Meeting of Members

February 23, 2017
The Future of Industrial Automation

Industrial Internet of Things
Important actions that industry can take to accelerate adoption, according to the World Economic Forum
More important actions that industry can take to accelerate adoption

**Leverage Key Enabling Technologies**
- Ubiquitous Connectivity
- Cloud Computing
- Embedded Sensors and Actuators
- Real-time analytics
- Maturing Software Industry
- Investments in big time IT firms
- Adaptive, learning based algorithms
- Situational and geospatial awareness
A survey of more than 1400 C-suite executives found that, although >80% believe that IIoT can transform their business model, only 7% have a strategy in place to do so.

“Winning with the Industrial Internet of Things: How to Accelerate the Journey to Productivity and Growth” Accenture 2015.

Given that we are at the “Early Adopter” stage of diffusion, ODVA’s strategy is based on general Guiding Principles to drive diffusion. Changing customer needs will be the ultimate driver.
Industrial Internet of Things: Unleashing the Potential of Connected Products and Services

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February 23, 2017
Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations.

- **Annual revenues in 2016 (USD Billion):** $32.9
- **Number of clients worldwide:** 5,000+
- **Number of countries served:** 120+
- **Number of deeply skilled professional:** 390,000+
- **Number of patents issued and pending:** 5,500+
- **Number of industries served:** 40+
Example: Connected Ships

- Real-time Location (for planning and tracking)
- Container Handling
- Employee Demographics
- Employee Safety and Comfort
- Process Enforcement
- Predictive Maintenance
- Automated Optimization
- Waterway Inspection
- Facility Inspection
- Increase Awareness
- Operator Alertness
2002
Project Objectives

Industrial Internet of Things:

- Fad or real
- How big and how far
- Which areas that will be most impacted
- What are the implications: business models, industry structures and the role of actors within each of these eco-systems
- What are opportunities – short and long term
- What are the key risks and concerns
- What are societal impact such as privacy, security, and employment
- What are pragmatic steps that can be taken to work towards those benefits and to address risks/concerns
Framework of the study

**Impact on Business, Economy and Jobs**
- What new business models, industry ecosystems and overall economic growth will the Industrial Internet create?
- How will the increasing automation as a result of adopting the Industrial Internet transform the future job market and skill sets required to succeed in the new economy?
- How can businesses and governments best deal with the near- and intermediate-term transitions?

**Opportunities & Disruptions**

### Key Enablers
- Cloud
- Ubiquitous Connectivity
- Embedded Sensors
- Real-time Analytics
- Maturing Software Industry
- Investments by big IT firms
- ...

### Key Inhibitors
- Security
- Legacy OT & Infrastructure
- Interoperability
- Privacy
- New Investment
- Perceived Risks
- ...

**Public Policies**
What are appropriate public policies to accelerate the development and adoption of the Industrial Internet across multiple industries e.g., energy, manufacturing, healthcare, transportation and public sectors?
The Davos Session: From IIoT, IoT to Digital Transformation (Jan 22, 2015)
Industrial Internet of Things: Unleashing the Potential of Connected Products and Services

72% believe that the Industrial Internet is disruptive.

78% say that the disruption will occur within five years.

88% indicate that businesses are not ready for it now.

7% have a funded IIoT strategy.

The adoption of the Industrial Internet will be driven by incremental benefits in a near-term and transformational new business models over a long term.

Industrial Internet could add up to **US$14 trillion** to the global economy by 2030.

- Near-term benefits include:
  - Asset Utilization
  - Operational cost reduction
  - Worker productivity

- Long-term benefits include:
  - New business models
  - Software-based services
  - Data Monetization
  - Pay-per-outcome
  - New connected ecosystem
  - Platform-enabled market place

- Source: Accenture Analysis, 2014
Industrial Internet of Things will enable organizations to drive unconventional revenue

- **Information Services**
  - Soil, plant and equipment analysis results
  - Partner in agricultural information service marketplace

- **Equipment Services**
  - Remote diagnostics and optimization services
  - Partner in agricultural services

- **Products**
  - Farm equipment
  - More Intelligent Farm equipment with sensors
  - Partner agricultural products

- **Pre-digital product line**
- **Digital product line**
- **New market segment**

**Go to market approach**
The adoption of the Industrial Internet will be driven by incremental benefits in a near-term and transformational new business models over a long term.

Industrial Internet could add up to **US$14 trillion** to the global economy by 2030.

- Near-term
  - 1. Operational Efficiency
    - Asset Utilization
    - Operational cost reduction
    - Worker productivity
  - 2. New Product & Services
    - New business models
    - Software-based services
    - Data Monetization

- Long-term
  - 3. Outcome-based Economy
    - Pay-per-outcome
    - New connected ecosystem
    - Platform-enabled marketplace
  - 4. Autonomous Pull Economy
    - End-to-end automation
    - Resource optimization and waste reduction
    - Continuous demand sensing

Source: Accenture Analysis, 2014
The increasing use of connected products & smart machines will transform the job market and the skill mix in the future workforce.

93% agree with the above statement.

Once you are done with your current task, pls contact Andy.

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Ecosystems & Platforms

Workforce Transformation

ROI & Business Models
Adoption of Industrial IoT is a multi-facetted multi-step process
Manual Static

Self Organizing, Dynamic, Demand Driven

Equipment

Workforce

Materials Supply Chain

Business Process

Platform

Facility & Environment

Integrated Flexible

Self-managed

Demand based

Adaptive Platform of Platforms

Dynamic Sustainable

Intelligent and Predictive

Automated monitoring and connected

Largely manual and unconnected

Manual Static

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Today’s Industrial Internet Architecture

Source: Industrial Internet Consortium: https://www.iiconsortium.org/IIRA-1-7-ajs.pdf
Evolution of the Architecture

Integrated Platform

Platform of Platforms

- Loosely Coupled Platforms
- “Google” approach

Analytics at the Edge

- Management at scale
- Long term evolution
- Integrated Security
Other key considerations

Security
- System breakdowns
- Human lives

Ethical and Responsible Computing

https://ics-radar.shodan.io/
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