The Industrial Internet
Bill Ruh, CEO of GE Digital & Chief Digital Officer of GE
December 2015
SOFTWARE IS IMPACTING EVERY INDUSTRY

<table>
<thead>
<tr>
<th>Company</th>
<th>Number</th>
<th>Industry</th>
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<tbody>
<tr>
<td>airbnb</td>
<td>20BN</td>
<td>Hotel Service</td>
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<tr>
<td></td>
<td></td>
<td>The world's largest accommodation provider that owns no real-estate</td>
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<tr>
<td>Apple</td>
<td>18BN</td>
<td>Consumer App Economy</td>
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<td></td>
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<td>The world's largest consumer hardware company only creates a few apps</td>
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<tr>
<td>Uber</td>
<td>50BN</td>
<td>Taxi Service</td>
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<tr>
<td></td>
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<td>The world's largest taxi company that owns no vehicles</td>
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#industrialInternet
NEXT-GEN ARCHITECTURE IN PLAY

1. Technology economics falling rapidly, removing cost of entry barriers – open source, cloud ...

2. Entry cost of a start-up dropped from $5M in 2000 to $5K in 2011

3. Winners value speed, agility, risk-taking

4. Disruptive differentiation based on domain knowledge, business models, ecosystem and ability to leverage scale

Falling cost of components
Falling cost of business capabilities

Source: Mary Meeker / Research Board
Industrial Internet no longer is a probability, but an inevitability...
II MARKET BY 2020: $225BN

CONSUMER (IT) ~$170B

Enterprises (IT) ~$206B

INDUSTRIAL (OT) ~$225B

APPLICATIONS

Google
Apple
workday
salesforce
IBM
Amazon Web Services
Alibaba.com
Windows Azure

PLATFORM

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THE DIGITAL TRANSFORMATION

Increased opportunities for software-defined everything; & data as a revenue generator

Speed of change requires months to days, scalability

Building on current IT investments and assets

New Business Models

Cloud-based Platform

Convergence of IT & OT

GE Digital Wind Farm Current, Powered by GE

Predix Industrial Internet Operating System

GE Digital
GE AS DIGITAL INDUSTRIAL

Customer Outcomes
Increased productivity for our customers

Technical Leadership
Merging physical & analytical science

Digital Thread
Common systems strategy leveraging Predix

Ecosystem Approach
Co-creating with customers, developers, partners

Culture of Simplification
Act with speed & new business models

$1 Trillion
value of managed assets in aviation, healthcare, transportation, power & water and oil & gas

14k+ developers
supports customers in
100+ countries

$5B in revenue
30k+ staff globally

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AVIATION: LEAD IN ON-WING RELIABILITY

Applied analytics: detect engines at removal risk

Cumulative distress

Harsh environment

Abate

Nominal environment

Cycles

Segment

Recent successes...

GE90

120

removals saved

CFM56

40

removals saved

Water wash

$7M/yr

fuel savings at one GE90 operator

#IndustrialInternet
INTELLIGENT INFRASTRUCTURE

- Software Defined HA Turbine
- Predix™
- Digital Twin
- Suite of Apps
INTELLIGENT ENVIRONMENTS

Goal
Smarter Systems
Operation optimization

Apps
Image Recognition
Public Safety & Security

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Multiple technologies drive better outcomes

- Sensor-enabled Technology
  flexible, customizable tech solutions
- Software & Services
  dashboards, analytics & apps for continually improved performance
- Solution Financing
  including a PPA
- GE Capabilities
  to design, build, manage tailored solutions to meet your needs

- Solar
- LED & Intelligent Environments
- Onsite Gas
- EV Chargers
- Load Mgmt
- Energy Storage
- HVAC/ BMS
- Multiple technologies drive better outcomes
What differentiates Current?

Reduce Energy Costs
Sensor enabled eco hardware platforms (LED, EV ... Power of the GE Store)

Produce Power Onsite
Onsite power platforms (Solar, Storage, CHP)

Monetize & Optimize
Predix enabled configurable assets

Shift Thinking
Real-time information, supporting energy and non-energy applications
Co-creating Industry Apps for Better Outcomes

Regional Digital Foundry

1. Software Excellence
2. Scale Innovation
3. Collaborate & Crowdsource
4. Commercialize Services

- accelerate integration of digital + physical
- drive new business model adoption: asymmetrical outcomes
- build differentiated industrial app portfolio faster
- cross the chasm to grow revenues and lower cost

Predix Labs
Dojo + Incubator
Professional Services
Customers + Partners
Wurldtech: Operate Asset + Operations Safely

- Secure & Certify Operational Infrastructure
  - Security enhancements delivered through Predix and GE Products
  - Certify operational products & customer environments

- Bring Operational Availability & Governance with IT
  - Establish secure & trusted connections from OT to IT & Clouds
  - Visibility to mixed information assets

- Protect OT/IT in an APP Factory Enterprise
  - App Factories with Privacy and Security by Design
  - Data Security and Compliance across the OT-IT Enterprise

- Establish User-Based World for Industrial Clouds
  - Drive Protection from the User to the Machine
  - Maintain chain of custody for the data communities
WHAT DOES THIS ALL MEAN?

- Opportunities exist in efficiency, productivity
- Opportunities exist in all industries
- Must be led from the top down
- Business / IT relationships are key