Digital Transformation: The Business of Connecting the World through the Internet of Everything

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The Race to Become a Digital Enterprise Is Quickening

2012

- Sensors Shipped: 4.2B
- # of Companies Participating in IoE / IoT Consortia: 7

2013

- Sensors Shipped: 10B
- # of Companies Participating in IoE / IoT Consortia: 44

2014

- Sensors Shipped: 23.64B
- # of Companies Participating in IoE / IoT Consortia: 260

- IoE / IoT Developers: 191K
- IoE / IoT Developers: 122K
- Venture Capital IoE / IoT Investments: $1,672M

Venture Capital IoE / IoT Investments: $1,100M

Venture Capital IoE / IoT Investments: $738M

Sources: Machina Research, Cisco VNI, Cisco Consulting Services, Cisco Connections Counter & CBI Insights, Cisco Consulting Services Analysis

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My Top Five Implications of Digital Disruption

5. **Data is everywhere, insights are scarce**

4 out of 5 customers trust a non-bank for their financial needs.
My Top Five Implications of Digital Disruption

5. Data is everywhere, insights are scarce

4. Real-time is too late

98% Early detection survival

27% Late detection survival

80% of biopsies aren’t necessary

Data is everywhere, insights are scarce

Real-time is too late
My Top Five Implications of Digital Disruption

5. **Data is everywhere, insights are scarce**

4. **Real-time is too late**

3. **If it doesn’t work on mobile, it doesn’t work**

- **57%** of 127 Fortune companies rate poor

- **38%** outsource mobile app development

- **17%** in-house mobile app development

If it doesn’t work on mobile, it doesn’t work.

Data is everywhere, insights are scarce.

Real-time is too late.
My Top Five Implications of Digital Disruption

1. Context is king
2. If it doesn’t work on mobile, it doesn’t work
3. Real-time is too late
4. Just because you know my name doesn’t mean you know me
5. Data is everywhere, insights are scarce

81.5% Venture capital funding for predictive analytics startups
My Top Five Implications of Digital Disruption

1. Innovation is more than ideation
2. Context is king
3. If it doesn’t work on mobile, it doesn’t work
4. Real-time is too late
5. Data is everywhere, insights are scarce

= INNOVATION

Invention + Execution
IoE: An Actionable Platform for Innovation
Just Connecting Things Isn’t Enough
IoE as an Innovation Platform

Value is not in the number of things, but in the connections of people, process, data, and things

- **People**
- **Process**
- **Data**
- **Things**

$19.0\text{ Trillion}$

$14.4T\text{ Private} / 4.6T\text{ Public}$

61 use cases
Nice City Increased Parking Revenue 40-60% without Raising Taxes

New Things Connected
- Parking spaces
- Parking meters

New Data Flows
- Space availability

Process Innovation
- Pricing
- Payment
- Finding spaces

People Impact
- Traffic wardens
- Citizens/drivers
- City planners

Value Impact
- Increase compliance by 30%
- Parking revenue increase 40-60%
- City data sales
- Reduced congestion, time-to-park
- Dynamic pricing – revenue increase
IoE in Action: Retail

- IR Motion
- Door Hinges
- Wi-Fi Badge
- Associate Mobile
- Parking Space Sensor
- WiFi
- Gesture Recognition
- Cameras
- Digital Signage
- Wi-Fi Tags
- Weight Mat
- Shelf Weight Sensors
- Customer Mobile
- Wi-Fi
Lighting Up Shopping Carts Can Contribute to 15.6% Profit Increase

1. Things
   - Select and light up dark assets
   - Parking lots
   - Shopping carts

2. Data
   - Determine data to be generated
   - Number of cars and speed, location, and weight of carts

3. Process
   - Collect/analyze data to generate information/insights
   - Shows when customers are ready to checkout, the value of items, and how rushed they are

4. People
   - Change processes to take action on insights
   - Allows store managers to make decisions about real-time staffing and prioritizing customers
How Can IoE Enable the Circular Economy?
Manufacturing Value Chain

INNOVATE
Product Operations

PLAN
Global Planning & Fulfillment

SOURCE
Global Supplier Management

MAKE
Manufacturing Operations

QUALITY EXCELLENCE
Technology & Quality

DELIVER
Manufacturing Operations

SUPPLY CHAIN TRANSFORMATION
Building a Connected Supply Chain
The Five Elements

- Cloud
- Collaboration
- Mobility
- Internet of Things
- Big Data Analytics
- Cloud

COMMON ARCHITECTURE
Internet of Things
Connecting the unconnected across the supply chain

OUTCOMES

We can create breakthrough productivity in the factory and in our warehouses that result in greater customer satisfaction

CRITICAL NEED
Limited visibility to real-time machine data on the factory floor and at our fulfillment centers impeded our ability to identify potential supply chain disruptions and make proactive business decisions

SOLUTIONS
- Sensing
- Real-time analytics
- Personal devices
- Robots / automation
- Security devices / video

Better Asset Utilization  Production Quality Control  Lower Total Cost of Ownership  More Precise Deliveries
Big Data Analytics Use Case
Predictive quality and product history – a “Digital Passport”

**BUSINESS VALUE**

<table>
<thead>
<tr>
<th>BUSINESS VALUE</th>
<th>INTUITIVE</th>
<th>SOLVE PROBLEMS IN SECONDS VERSUS DAYS</th>
<th>OPTIMIZE FACTORY PRODUCTION</th>
<th>COST REDUCTIONS</th>
<th>QUALITY IMPROVEMENT</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>• Detect events, anomalies and trends</td>
<td>• Problem-solving 1,000 x faster than conventional methods</td>
<td>• Fast ID of assembly machine defects • Predict breakdowns</td>
<td>• Early detection quality defects • Avoid product field failures • Effective use test resources</td>
<td>• Holistic view of product quality • Links field data failures with in-line product quality</td>
</tr>
</tbody>
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**CRITICAL NEEDS**

• Velocity, volume and variety of data hinders proactive business decisions

• Limited access to data
• Factory floor machine downtimes

**SOLUTION**

Harness the power of big data analytics to quickly solve assembly machines production and quality issues.
Internet of Things Use Case
Energy management

BUSINESS VALUE

Measure power usage & greenhouse gas output

Reduce energy use
Lower carbon footprint

CRITICAL NEEDS
- Factory energy use visibility
- Power capacity limitations
- Carbon footprint

SOLUTIONS
- On-premises and cloud-based software for factory energy management and analytics to measure, monitor, and manage energy
- Network provides secure, reliable energy management where the network aggregates power-use reporting

- CSR standards
- Energy prices
- Regulatory requirements

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Thank you.