Major Trends Influencing Product Design, Manufacturing, Operation and Service

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Headquartered in Boston, Massachusetts
Israel, the largest R&D center in Europe

More than 6,000 employees worldwide

Next-generation technology platforms for smart, connected products, operations, and systems

Leading provider of enterprise applications to:
  • Create
  • Operate
  • Service

Market leading IoT platform vendor:
Best technology, recent awards, large customer base, partners and ongoing investment

$1.3B total revenue (2014)
25+ years of Digital Product software creation

Next-generation technology platforms and enterprise applications

Transforming how customers…

CREATE
CONNECT
ANALYZE
OPERATE
SERVICE

…smart and connected products, operations and systems
Manufacturing world Shaped By Macro Forces

Value is shifting from hardware to software
Value is shifting from embedded to cloud
Value is shifting from product to service
External forces are creating new threats and opportunities
Smart Connected products (SCP) & IoT
The Evolution of Smart, Connected Products

- **Many to Many**
- **One to Many**
- **One to One**

**Smart, Connected Product**
Connected through a wire or wireless

**Enhanced UI**
Ability to Interact

**Software**
Ability to Think

**Sensors**
Ability to Sense

**Electronics and Controls**
Ability to Process

**Physical Product**
- **Electrical**
- **Mechanical**
By 2020, experts predict there will be 50 billion “things” connected to the Internet

$6.2T

Estimated potential economic impact of The Internet of Things in 2025, range from $2.7 – 6.2 trillion annually
– McKinsey Global Institute

Manufacturing industry will be the #1 industry sector by share of global economic value-add.

“Smart, connected products will give rise to the next era of IT-driven productivity growth at a time when the impact of earlier waves of IT has largely played itself out.”
– Harvard Business Review
"The changing nature of products is disrupting value chains, forcing companies to rethink and retool nearly everything they do internally."
Implications on Technology Requirements

**Digital PRODUCT CLOUD**

- Smart Product Applications
- Rules/Analytics Engine
- Application Platform
- Product Data Database

**COMMUNICATIONS**

- Network Communication

**Physical PRODUCT**

- Product Software
- Product Hardware

**Identity & Security**

**External Information Sources**

**Integration with Business Systems**
New Reality: Distinct but Inseparable

INTERNET
Digital World

OF THINGS
Physical World
Smart, Connected Product Examples

John Deere FarmSight
- Harvesting sensors measure dry matter content and other soil nutrient factors
- Farm owner and dealer can proactively monitor equipment and fields to ensure peak agricultural efficiency (fertilizer, watering)
- Automatic, remote software updates and technician initiated solution implementation

GE’s Smart Engines
- Data is used to predict inefficiencies, engine maintenance, fuel consumption, crew allocation and scheduling when these smart aircrafts can communicate with operators
- Operators know what maintenance is required before plane reaches service center
- Real-time monitoring of and communication with 30,000 engines simultaneously

Philip’s IntelliCap
- Controls the release of medicine and provides rich, detailed patient data to better inform drug development
- incorporates pH sensor, temperature sensor, RF wireless transceiver, fluid pump
- Records the location in the intestine using sensors and communicates wirelessly
- Physicians can interact with the capsule in real-time to provide further instructions
How ‘Smart Connected products’ impacts Products:

• Optimize Design
  • Design to Real-World Conditions
• Optimize Product Operations
• Optimize Service and Support