Internet of Things – Why you should care... NOW

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Who we are

“Immediate impact, growing advantage”

- Global – 58 offices in 40 countries worldwide, 2500+ consultants globally
- Telecoms & High Tech = 20% of our global business
Let me start at the end and give you the “answer”

1. Internet of Things will materially change what we do as individuals and enterprises – and that will happen whether you do anything or not

2. High Tech companies – semiconductor, device, hardware, and systems – will be key beneficiaries of the Internet of Things – and so will be the distributors

3. Truly taking advantage of the Internet of Things will require different strategic thinking and new execution capabilities – better prepare now
What is the Internet of Things (IoT)?

We define the Internet of Things as a seamless combination of embedded intelligence, ubiquitous connectivity, and deep analytical insights that creates unique and disruptive value for companies, individuals, and societies.
What is driving the Internet of Things?

Exponential technologies

- Number of sensors: +33% annually
- Bandwidth cost: -25% annually (€/Mbs)
- Equipment cost: -33% annually (€/transistor)
- Storage cost: -38% Annually (€/GB)

Internet model

- +3 billion individuals connected by 2015
- Peering & network neutrality
- IPv6 (340 billion addresses)
- Sharing of infrastructure
- Interoperability
- Platforms

Source: HIS, KBPC, Internet world stats, A.T. Kearney
How do these things work together?

Customer expectations of seamless experience
- Always connected
- Multi-channel usage
- Customer engagement

Technology enabling integration and new use cases
- Sensors everywhere
- Big data analytics
- New devices (e.g. Amazon Dash)

Companies competing for a controlling stake in the future
- New entrant (e.g. Google)
- Platforms (e.g. Qivicon, Jasper)
- Connected appliances
What can IoT do?

1. Transparency on assets
   - In-depth knowledge of all assets, maximizing their use
   - Example: E.g. car-sharing platform for pooling of car travel

2. Monitoring and remote control
   - Sensors continuously collect information on the energy consumption of objects to provide an accurate analysis
   - The objects are controlled remotely using simple rules to avoid waste
   - Example: E.g. thermostat connected to the remote heating control

3. Real-time optimization of the operation
   - Algorithms "Big Data" optimize in real time the operation of an object including analyzing current and historical data on the use and environment of the object
   - Example: E.g. real time optimization systems in the consumption of an airplane engine from thousands of installed sensors

4. Complete automation of a system
   - As a complete system, objects interact, communicate and adapt autonomously functioning to optimize their energy consumption
   - Example: E.g. traffic control system and autonomous cars in a city center
What can IoT do? - Smart Clothing example

Smart Clothing & Braces with embedded sensors, medical monitors, and actuators

Wearables with Bluetooth connectivity that transmit the sensed information to a Smartphone... or two other Wearables

Mobile apps that provide the user interface and tethered cloud connectivity

Data storage and analytics platform

Cloud platform & software stack for new use cases to be developed by multiple providers

User

- Direct feedback
- Therapeutic intervention

Service providers

- Healthcare
- Wellness
- Fitness
- Athletics
- Insurance

- Remote care
- Health & wellness mgmt.
- Emergency services

Visualization
- Services mgmt.

Information flow Services

Source: Pictures from company websites sensoria, djoglobal, fitbit, nod, gowtrainer
What will be the impact in Europe?

- **300 B€**: Increase in purchasing power
- **80 B€**: IoT solutions market
- **210 B€**: Time economies monetized
- **430 B€**: Productivity gains

By 2025, connected objects will represent a value creation potential estimated at ~7.0% of EU28 GDP (~940 B€).

GDP EU28: ~14,000 B€

Source: A.T. Kearney
Which sectors will it come from?

**Impact of IoT on GDP per sector (EU28, B€, 2025)**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Value (B€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility &amp; Transport</td>
<td>245</td>
</tr>
<tr>
<td>Health care</td>
<td>235</td>
</tr>
<tr>
<td>Housing and hospitality</td>
<td>165</td>
</tr>
<tr>
<td>Industry</td>
<td>160</td>
</tr>
<tr>
<td>Retail/Wholesale</td>
<td>60</td>
</tr>
<tr>
<td>Utilities</td>
<td>30</td>
</tr>
<tr>
<td>Public administration</td>
<td>30</td>
</tr>
<tr>
<td>Primary sectors</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>940</strong></td>
</tr>
</tbody>
</table>

Source: A.T. Kearney

**Accidents avoidance, Car sharing, Chauffeur Driven Cars, Driverless cars, Public transport fleet and route management, Telematics, Traffic jam reduction**

**Energy savings, Fire Alarm, House automation, Remote burglar alarm, White and brown goods telematics, Smart kitchen in restaurants, Smart energy in hospitality**

**At-home recovery and rehabilitation, Chronic disease monitoring, Medicine consumption opti., Non-observance reduction, Early identification of diseases or risk factors, Smart pharmaceutical R&D, Time saving from better treatment**

**Express and parcel delivery, Smart construction, Smart logistic: (Container Tracking, Rail (freight) Car tracking, Smart Logistic fleet management), Smart manufacturing**
## What is in it for the high tech sector?

<table>
<thead>
<tr>
<th>Primary Sectors</th>
<th>IoT Solution (2025)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility &amp; Transport</td>
<td>Wireless Car, Gafa, telecom operators</td>
</tr>
<tr>
<td>Health care</td>
<td>IBM, Accenture, ATOS</td>
</tr>
<tr>
<td>Housing and hospitality</td>
<td>Bosch Software Innov., Telenor Connexion, Device insights</td>
</tr>
</tbody>
</table>
| Industry                               | Amazon AWS, CapGemi,
| Retail/Wholesale                       | Orange, Deutsche Telekom, Sigfox |
| Utilities                              | BSH, Withings, Renault, Netatmo/Legrand |
| Public administration                  | Sierra Networks, Telit, Gemalto |
| Primary sectors                        |                      |

| Services and platforms aggregation     | €18                |
| Systems integration                    | €22                |
| System and management software         | €15                |
| Enablers (cloud, analytics, automation, security) | €15                |
| Connectivity (network access)          | €15                |
| Components and modules                 | €10                |

Source: A.T. Kearney
What does it take for Europe?

**EU – Level the playing field**
- Unleash regulated sectors (e.g. health care)
- Protect privacy while supporting innovation
- Enhance data security
- Fund and retain future giant platforms
- Make Europe a player in standardization
- Ensure necessary investments in access
- Direct public investments towards IoT
- Redefine social contract and support employment market transformation

**High tech – Capture the opportunity**
- Understand the customer / vertical issues and value chains
- Allow for mass customization and low cost
- Pursue integrated products and open interfaces for simple integration
- Manage privacy and security carefully
- Build scale, but be able to deliver locally
- Rethink your business model (e.g. service)
- Build data integration & analytics capabilities
What is in for the tech distribution sector?

**New Services**
- New components (sensors)
- Connectivity solutions
- Integrated IoT multi-provider platform
- Cloud & analytics services
- Packaged solutions
- Integration, training
- ...

**New Segments**
- From back-office (esp. IT domain) into front-office
- From enterprise IT into product IT
- From center to the field
- From CIO to CDO/CEO
- ...

**Improved Ops**
- Automated pick & pack
- Real-time goods tracking
- Real-time tracking of trucks
- Real-time goods tracking
- Predictive maintenance
- ...

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Where to expand the value add?

Components (sensors):
- Movement, Proximity, Presence
- Optical, light, video, image, color
- Weight, Pressure
- Position, Angle, Distance, Speed, Orientation, Velocity
- Chemical, Ionization, Electric
- Acoustic, Sound

Connectivity solutions:

Processing Services:
- Multi-Provider IoT Device Mgmt
- IoT Cloud
- DATA enrichment & orchestration
- Smart analytics & presentation

Installation & Maintenance
Service Provision
System Integration
Consulting
Training

(Horizontal / Vertical) Packaged Solutions
Which new segments open up?

New Application Fields

Supply Chain: e.g. goods & vehicle tracking, replenishment
Operations: e.g. Industry 4.0/digital manufacturing
Product Development: e.g. embedded systems, connected products
Marketing & Sales: e.g. in store people tracking, personalization
Service: e.g. predictive maintenance, field service

(More decentral, more front office, more product)

Traditional Focus

IT as a support function (more central, more back office, more enterprise)
How to improve operations?

**In-bound logistics**
- Real-time tracking of arrival time
- Automated scanning of tagged products
- Automated inventory mgmt. with connected shelves
- Automated pick & pack

**Warehousing**
- Automated replenishment
- Predictive maintenance of equipment
- Optimized routes
- Transport forecast & optimized routes (traffic, weather)

**Out-bound logistics**
- Monitoring of product conditions (vibration)
- Monitoring of driving conditions (speed, safety, driver)
- Real-time updates on goods movements & est. delivery time
- Real-time goods tracking
- Collaborative forecast

**Sales / Customer Service**
- Real-time goods tracking
- Automated vending

**OEM**
- Real-time tracking of arrival time
- Automated replenishment

**VAR/Retailer**
- Monitoring of product conditions (vibration)
- Monitoring of driving conditions (speed, safety, driver)
- Real-time updates on goods movements & est. delivery time
- Collaborative forecast
- Automated vending
What does it take to succeed?

1. Understand the needs of your customers & your customers’ customer – including **vertical markets**

2. Establish relationships to the new players (sensors, connectivity, software, analytics...) and engage into the ecosystem

3. Develop relevant skills in consulting, training, integration and service and build **relevant platforms and skills** (cloud, mobility, analytics)

4. **Innovate** yourself and with your customers and **package** the learnings into repeatable packaged solutions
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<th>Atlanta</th>
<th>Bogotá</th>
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