IoT the 4\textsuperscript{th} industrial revolution

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IoT/IoE the revolution of industries and universes…

- Consumer electronics
- Healthcare
- Industrial automation
- Security
- Energy
- Transport
- Retail & POS
- Cities
First use cases are there…

**Consumer electronics**
- Smart TV, fridge, thermostat, watch,…

**Healthcare**
- Monitoring of vital data, telemetry

**Industrial automation**
- Remote monitoring, predictive support, usage control

**Security**
- Access control, alarm systems, track stolen devices,…

**Energy**
- Smart metering, smart grids

**Transport**
- Track & trace, live traffic monitoring, road user charging

**Retail & POS**
- Wireless payment terminals, smart shops, digital signage

**Cities**
- ANPR, connected billboards, connected glass container, smart parking, etc.
All elements are converging and are mature enough to boost IoT

- Cost of sensors
- Wireless connectivity
- Processing power
- Miniaturisation
- Cloud / Storage
We are today at an inflection point

Number of connected objects in the world *in Bio* (2012-2020)

In Belgium prospective analysis forecast more than 7 connected devices per person.
IoT the 4th industrial revolution!

Mechanical production assets based on water and steam

Introduction of a "moving" assembly lines" at Ford Motors

Digital revolution. Proliferation of digital computers and digital records keeping with higher automation and production.

Internet of Things (IoT) based on the inter-connection of everyday objects among themselves and applications. IoT will enable an ecosystem of smart applications and services, which improve and simplify business processes.

Source: Roland Berger
Value is moving… there will be winners and losers!

No borders between industries (disintermediation)

Co-creation and Hybrid customer relations (B2B, B2C and B2B2C)

New players and solution providers capturing data… and related value

IoT accelerating the development of new services

Source: Oliver Wyman
To be a winner... you have to surf on this new wave

Innovative companies re-invent themselves and engage into a transformation process to become smarter through new applications (putting data analytics at the core of innovation)

These new applications will enable innovators to:

- Comply to legislation
- Optimize processes
- Create new business models
IoT – 3 main building blocks with the application and data model in the center

1. **The things, objects & sensors that can send/receive data**

2. **The connectivity to be able to transport data**

3. **The application that will create the final value (combines data, puts logic in it, can act on objects,...)**
Proximus invests in networks to connect objects with the best technologies…

Number of connected objects in the world in Bio (2012-2020)

1. Wired
   - Long range (+10kms) with deep indoor coverage without consuming too much power (>5 years battery life)
   - Narrowband in complement to SIM based

2. SIM less
   - (Short range, LPWAN, etc.)

3. SIM based

Source: Machina Resarch
... Proximus also goes beyond by enabling a large set of applications together with partners & customers.

Connect any of your devices securely to any business application.

The application

secured & convergent network

> 90 Application Service Providers
Concrete examples...

1. ... storage of beans need to be monitored to guarantee quality

2. ... need to improve efficiency of meal & luggage transport in airport

3. ... need for send cleaning technicians only when needed
LoRa – Food control

End-Customer: Vollers
Solution provider: Quality Guard

Objective:
- Quality Guard is active in food legislation/control. For his end-customer (Vollers) in the port of Antwerp, the storage of coffee beans needed to be monitored.

Scenarios:
- The warehouse with the coffee beans was equipped with LoRa temperature & humidity sensors.
- Automatic measurement and display via a customer app.

Status:
- In service. It only took 2 weeks to deliver.
- Similar setup can be replicated for all food production & distribution companies that need to comply to food legislation.

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LoRa – Smart logistic

End-Customer: Swissport

Solution provider: EDC (European datacomm)

Objective:

- Improve the efficiency of meal & luggage transport in the airport

Scenarios:

- Meal & luggage transport cars are equipped with LoRa GPS tracker
- Track the meal & luggage cars, localize and optimize the logistic process

Status:

- POC ongoing and now also approved by Belgocontrol. Tracking of 500 meal transport cars to be extended with 1000 à 2000 transport cars.
LoRa – POC food control

End-Customer: ISS (facility, cleaning, catering, etc.)

Solution provider: MCS, a company active in Real Estate, Facility & Workplace Management

Objective:

- Improve operational efficiency through integration of sensor data in facility management software.

Scenarios:

- Number of door openings in toilet triggers a cleaning/paper replacement intervention.
- Temperature and/or humidity rise triggers a technical maintenance intervention (WO).
- Workplace occupation during a defined minimum duration triggers a cleaning intervention (WO)

Status:

- Ongoing POCs for end-customer ISS in London (30 sensors) and Barclays London (180 sensors)
• Big Volumes of connected objects
• Big Volumes of generated data
• Big Volumes of connected people

We collect about 1 Billion records per day

...Big data is here!
For connected people, we also develop capabilities and eco-systems of partners to enrich data and to provide valuable insights to take smarter decisions

“make locations talking”
Conclusion

• All elements are converging to boost IoT/IoE
• IoT/IoE is accelerating the development of new services

4th industrial revolution

We are at a point of inflexion

Winners will have to re-invent themselves
• Transformation to become smarter
• Creations of new applications, services, business models

… Proximus supporting you in this journey
Thank you

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