IoT the 4th industrial revolution

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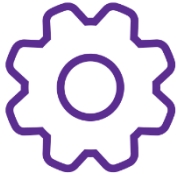
IoT/IoE the revolution of industries and universes…

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.

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All elements are converging and are mature enough to boost IoT

- Cost of sensors ✓
- Wireless connectivity ✓
- Processing power ✓
- Miniaturisation ✓
- Cloud / Storage ✓

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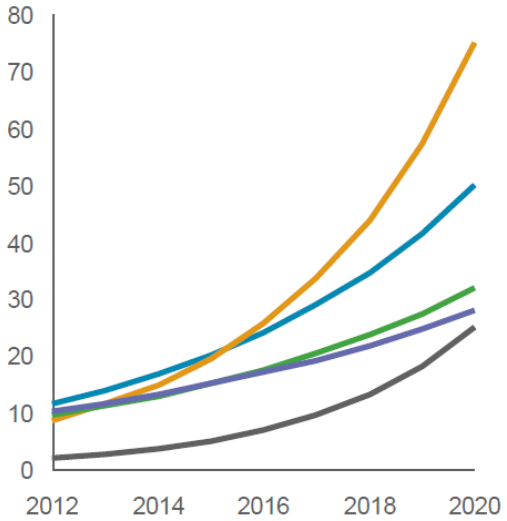
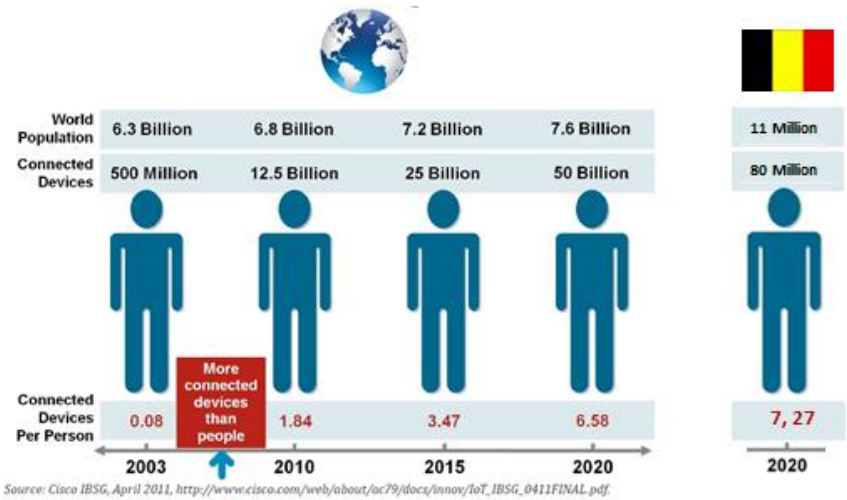
We are today at an inflection point

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



Source : Gartner, Cisco, Morgan Stanley, IDC, Siemens, CrunchBase, TechCrunch, 451 Research, Institut Montaigne/A.T. Kearney



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.

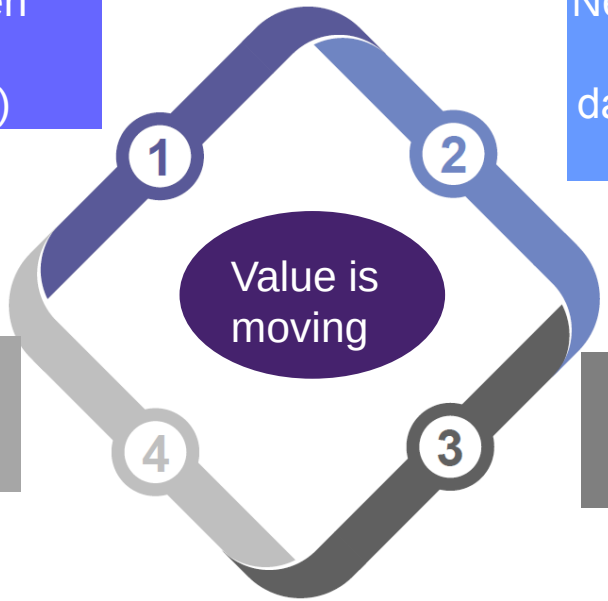
Internet of Things (IoT) based on the inter-connection of everyday objects among themselves and applications. IoT will enable **an ecosystem of smart applications and services**, which improve and simplify business processes.

Source: Roland Berger

Value is moving… there will be winners and losers!

No borders between industries (disintermediation)

New players and solution providers capturing data… and related value



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

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**

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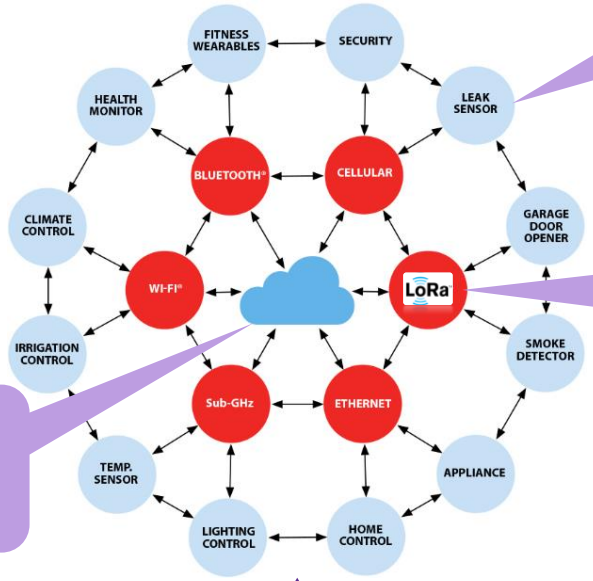
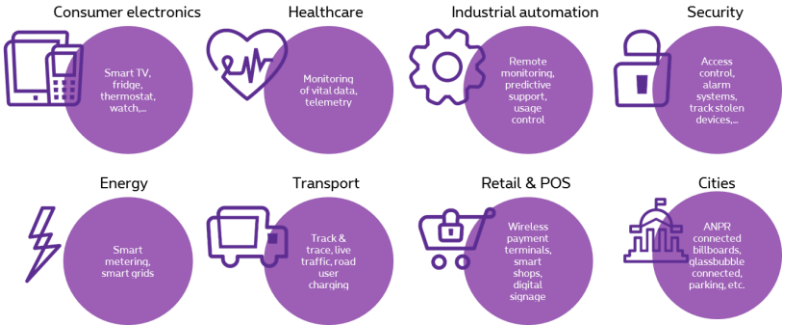
IoT – 3 main building blocks with the application and data model in the center

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,...)

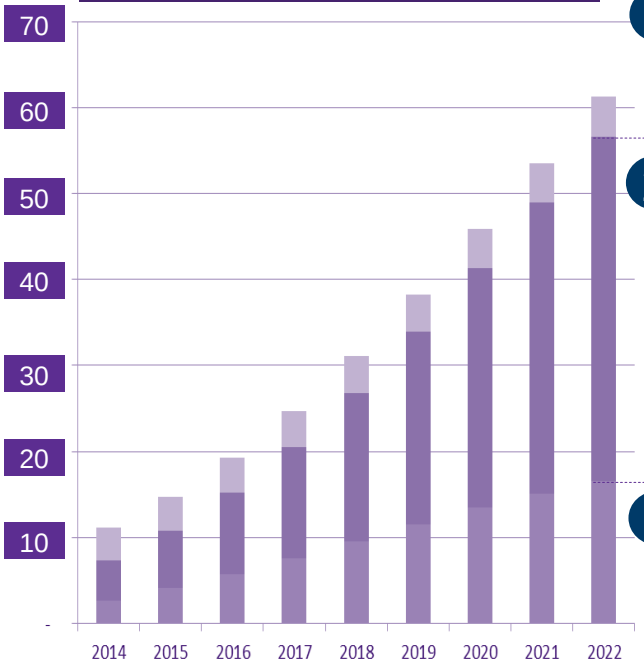




Proximus invests in networks to connect objects with the best technologies…

The connectivity

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



1 Wired

VDSL	Vectoring	Fiber
Up to 30 Mbps	Up to 100 Mbps	Up to 1 Gbps

2 SIM less

(Short range, LPWAN, etc.)

NEW

LoRa™

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

Wi-Fi

3 SIM based

3G Proximus

4G Proximus

5G

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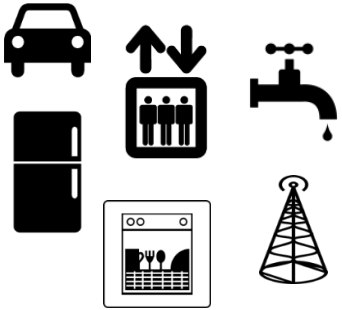
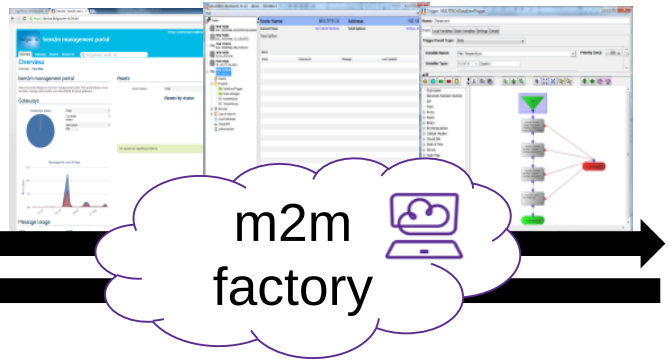
Source: Machina Resarch

… Proximus also goes beyond by enabling a large set of applications together with partners & customers

The application

Things





m2m factory

secured & convergent network

3G 4G Wifi LoRa

Application

> 90 Application Service Providers

Connect any of your devices securely to any business application

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Concrete examples…

1

… storage of beans need to be monitored to guarantee quality

2

… need to improve efficiency of meal & luggage transport in airport

swissport

EUROPEAN DATACOMM
TELEMATICS APPLICATIONS & SOLUTIONS

3

… need for send cleaning technicians only when needed

ISS

MCS
Insight. Impact.

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1 LoRa – Food control

End-Customer: Vollers

Solution provider: Quality Guard

Objective:

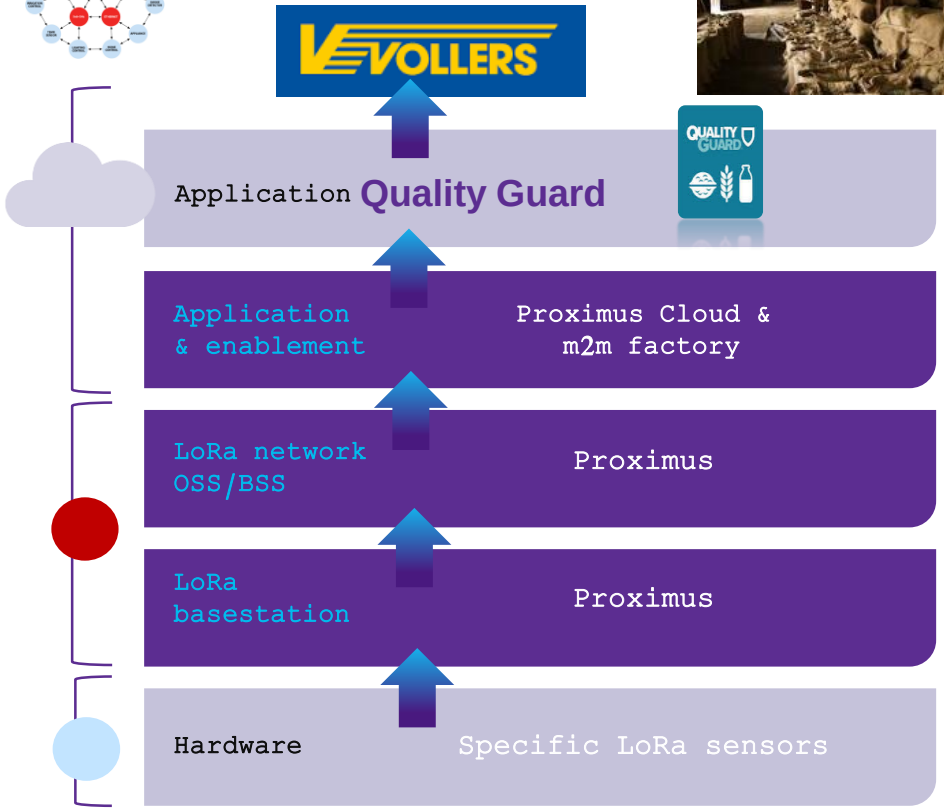
- Quality Guard is active in food legislation/control. For his end-customer (Vollers) in the port of Antwerp, the storage of coffee beans needed to be monitored

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



2 LoRa – Smart logistic

End-Customer: Swissport

Solution provider: EDC (European datacomm)

Objective:

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

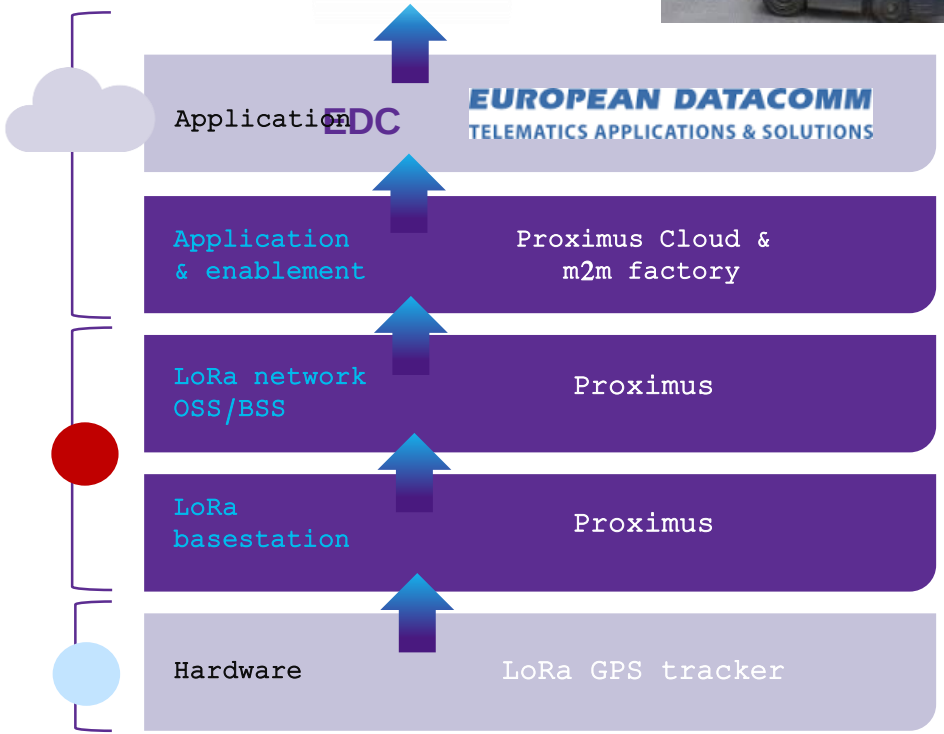
Scenarios:

- 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.

swissport



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3 LoRa – POC food control

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

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

Objective:

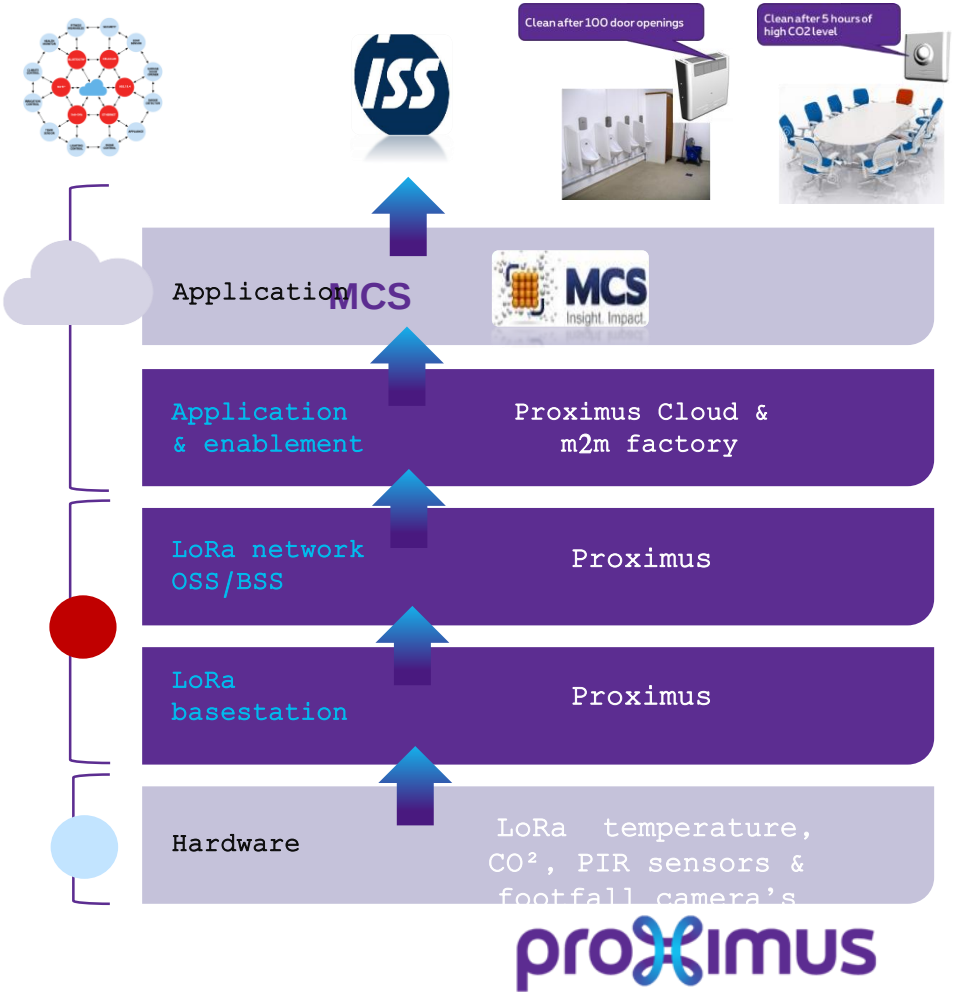
- Improve operational efficiency through integration of sensor data in facility management software.

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)



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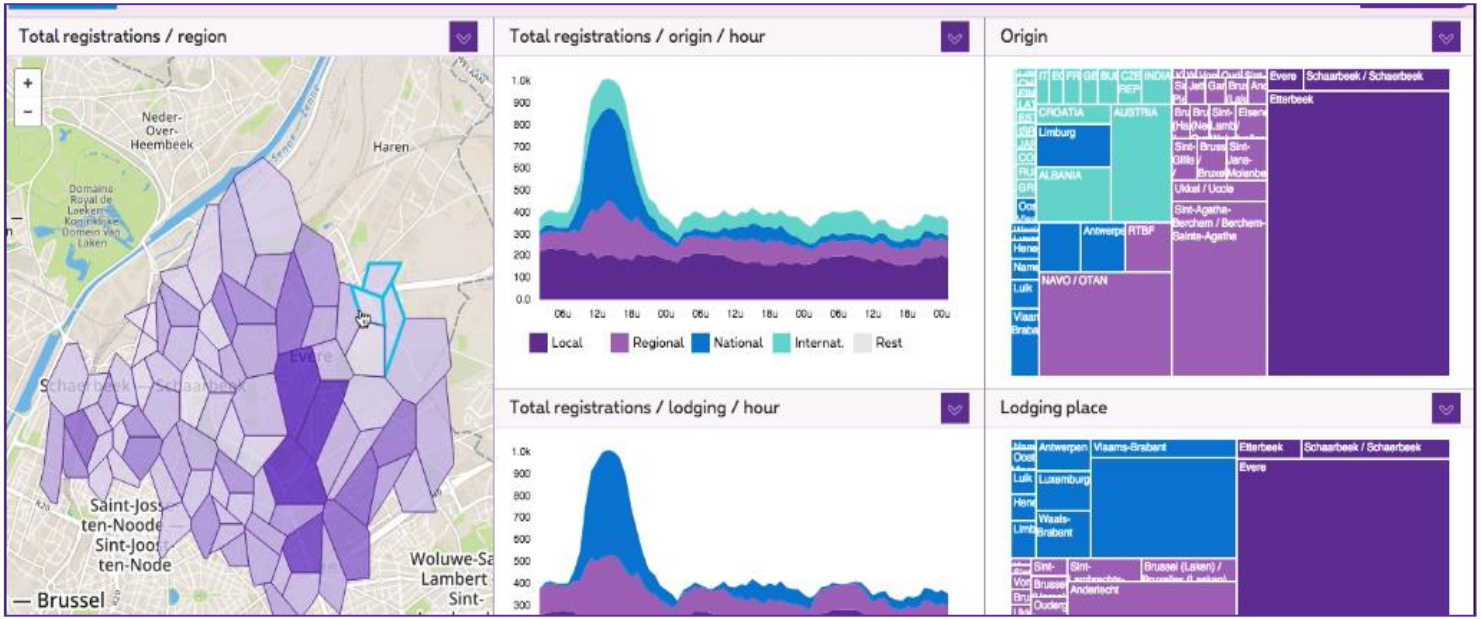
- Big Volumes of connected objects
- Big Volumes of generated data
- Big Volumes of connected people

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



Location insights
“make locations talking”

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Conclusion

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

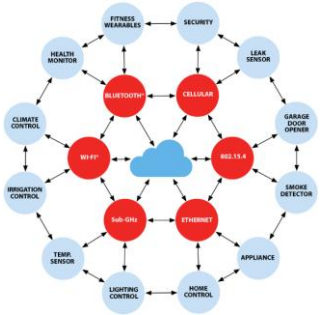
4th industrial revolution

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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