

# NETWORK OPERATOR PANEL

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**Ronan Le Bras**, Orange

**Steve Dyett**, BT

# Minol ZENNER Connect

Marcus Kirchdörfer



**Creating  
Valuable**

**IoT**

**Connections**



# Minol ZENNER Connect – what we do



- Operating and building a Germany wide customer owned LoRaWAN<sup>®</sup> network



- Planning and Installation support



- LoRaWAN Coverage estimation/simulation
- On Site evaluation
- Compatibility Testing



- Gateway- and Backhaul Monitoring



- Network Performance and Fraud Prevention



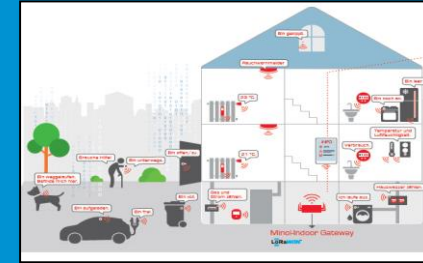
- Fault Clearance and Incident Reporting
- Hosting and IT Infrastructure

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# Minol ZENNER Connect – use cases that drive the rollout

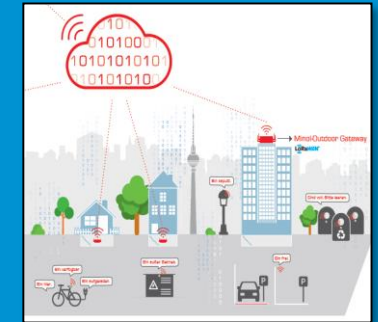
## Productive Use Cases

1. Sub Metering: 400,000 devices (online)
2. Security: 250,000 devices (online)
3. Utility Metering: 50,000 devices (online)



## P.o.C Phase

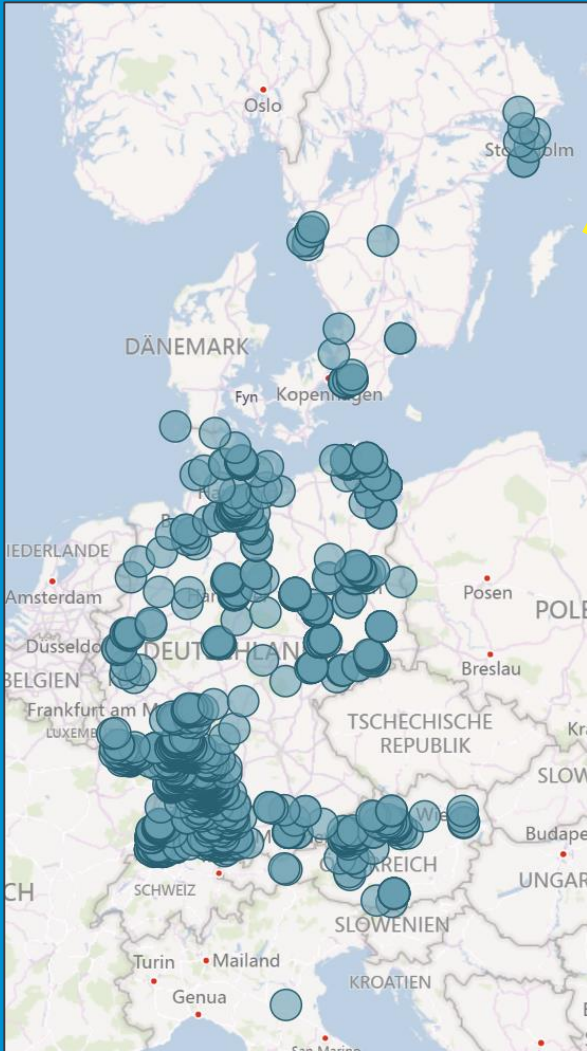
1. Smart City Use Cases: P.o.C Phase 2,000 devices (online)
2. Smart Home/Building: P.o.C Phase 500 devices (online)
3. Industrial UseCases: P.o.C Phase 500 devices (online)



## Not yet in P.o.C Phase

1. Logistics Tracking
2. Asset Management and localization
3. Smart Agriculture

# Minol ZENNER Connect – where we are



- 3.000 Gateways Live (Indoor and Outdoor)
  - 80% Indoor Gateways
  - 20% Outdoor Gateway
- Planned for 5.000 New Gateways in 2019
- Live Operations in Germany, Sweden, Austria, Italy
- Live this Month: Poland, Denmark
- Live in 2019: China, Asia/Pacific, Americas

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# Netzikon

Wolfgang Krüger



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# NETZIKON, GERMANY'S PUBLIC LORAWAN® NETWORK

get



from things

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## Netzikon - Who we are

- Nationwide public LoRaWAN<sup>®</sup> network operator in Germany
- LoRa Alliance<sup>™</sup> Member since 2015
- Founded in 11/2016
- 100% subsidiary of telent GmbH



# Netzikon – Our pretension

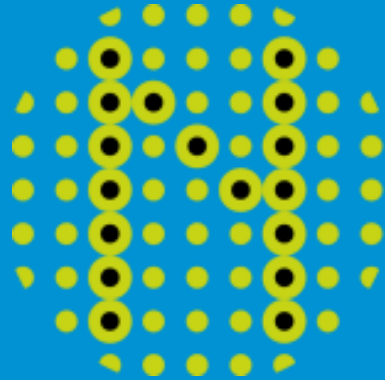
- E2E data security for privacy and confidentiality
  - Own LRC in own premises, hardened GW interfaces, GW-VPN, AS-Security, HSM
- High network availability and reliability
  - HW + geo-redundant Tier3 computing center, 24/7/365 NOC, own field force
- High network quality
  - Demanding certified devices, tool-based coverage & network planning, HW testing
- Roaming (national, international)
  - National with strategic roaming partners > to enhance and densify our network
  - International > demand for boarder-free international use cases
  - Roaming Hub > time to market, reduced effort and costs, many roaming partners

# Our strategy

- Progressively set up a full-coverage LoRaWAN<sup>®</sup> network all over Germany
  - Target: Nation-wide full-coverage LoRaWAN network by the end of 2020
  - Main Rollout: Concentration in the beginning on larger cities in Germany
  - Flexible Rollout on customer demand
- Secure, reliable, highly efficient, intelligent and innovative LoRaWAN Services
  - LoRaWAN is global! Large business customers are global!
  - LoRaWAN works thinking big with regard to volume of devices!
  - Use cases like tracking and localization require internationally connected networks with many roaming partners!

Therefore we go for a future-proof public network approach!

We bring your IoT to the edge



Netzikon  
*DAS NETZ DER DINGE*

Digital IoT Infrastructure for Germany

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Creating Valuable IoT Connections | [lora-alliance.org](http://lora-alliance.org)





# IoT bei Unitymedia Business

Matthias Emmerman



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# OUR FOOTPRINT



LIBERTY GLOBAL®

56 mm  
HOMES PASSED

59+ mm  
RGUs

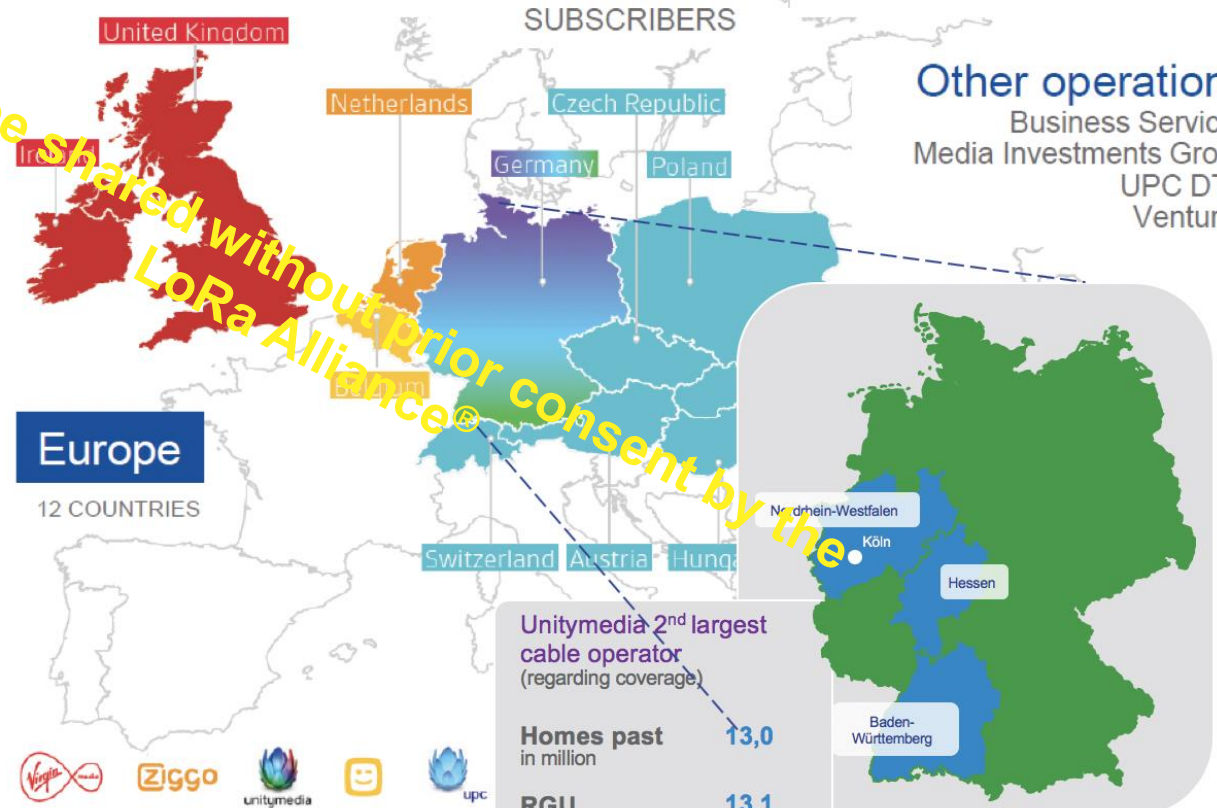
11+ mm  
MOBILE  
SUBSCRIBERS

\$19.3 bn  
REVENUE

45,000  
EMPLOYEES

## Other operations

Business Services  
Media Investments Group  
UPC DTH  
Ventures



Unitymedia 2<sup>nd</sup> largest cable operator (regarding coverage)

|                       |       |
|-----------------------|-------|
| Homes past in million | 13,0  |
| RGU in million        | 13,1  |
| Revenue in million €  | 2.382 |

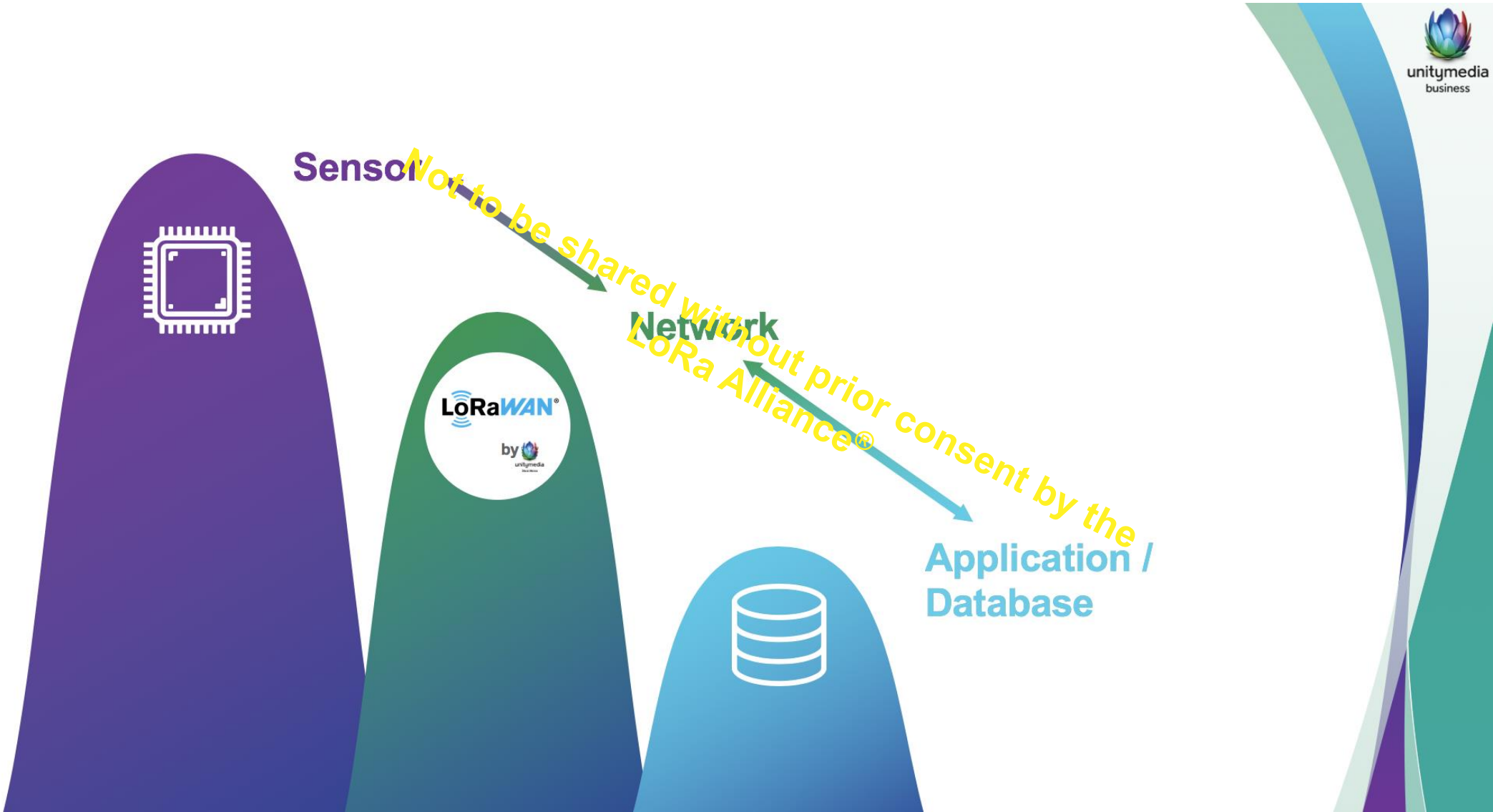
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Revenue is presented as annualized results for the six months ended June 30, 2016. All other fact & figures as of June 30,

Unitymedia IoT Connect – die Infrastruktur für das Internet der Dinge!



# LoRaWAN® by Unitymedia: Network, just the Network







unitymedia  
business

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# Building up the Network with Infrastructure Partners

## Gaining Revenue via EcoSystem Partners

### EcoSystem Partners

- Today's lack of connectivity in sales pitch is solved
- End user contract with direct payment between partner and end user
- Use the Unitymedia network to offer their use case to customers
- Pay Unitymedia for using connectivity

- Use Unitymedia network to offer their e2e solution to their customers
- Hold the end user contract



### Infrastructure Partners

- Utilizing the partners' infrastructure (buildings, internet access, power) for gateway locations
- Partner approach allows Unitymedia to rapidly build up the network nation-wide
- The infrastructure partner receives a revenue share, based on the connectivity revenue being generated via its gateway locations



- Providing their infrastructure to build up network
- Asking for a massive number of use cases themselves

# Objenious

Arnaud Vandererven



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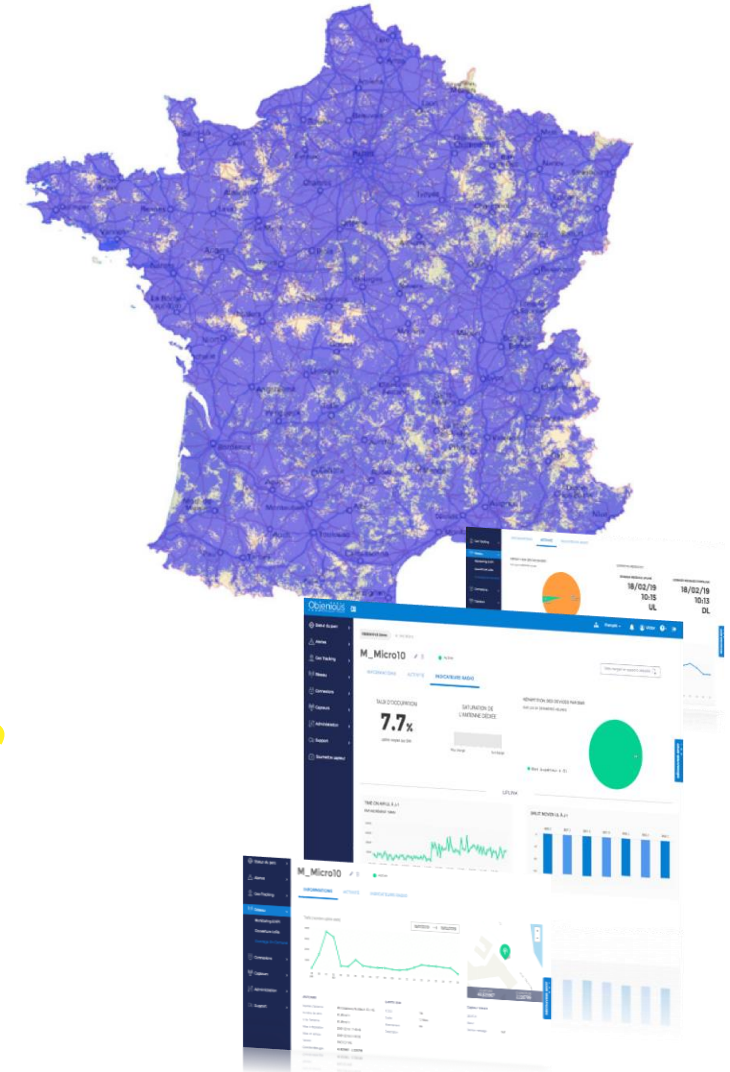
**Connections**





# WHAT IS OBJENIOUS

- Objenious is the Bouygues Telecom brand focused on IoT
- Co-founder of the LoRa Alliance™ in 2015
- A LoRaWAN® nationwide network in France since 2016
  - 4200+ antennas on air
  - 93% coverage of the French population (outdoor)
  - A carrier grade operator SLA & State of the art security level
- Home made IoT platform SPOT (Smart Platform of Things)
- 150k devices which generate 5 million messages / day
- Capability to roll out dedicated LoRaWAN infrastructure
- Some big customers



AIRBUS

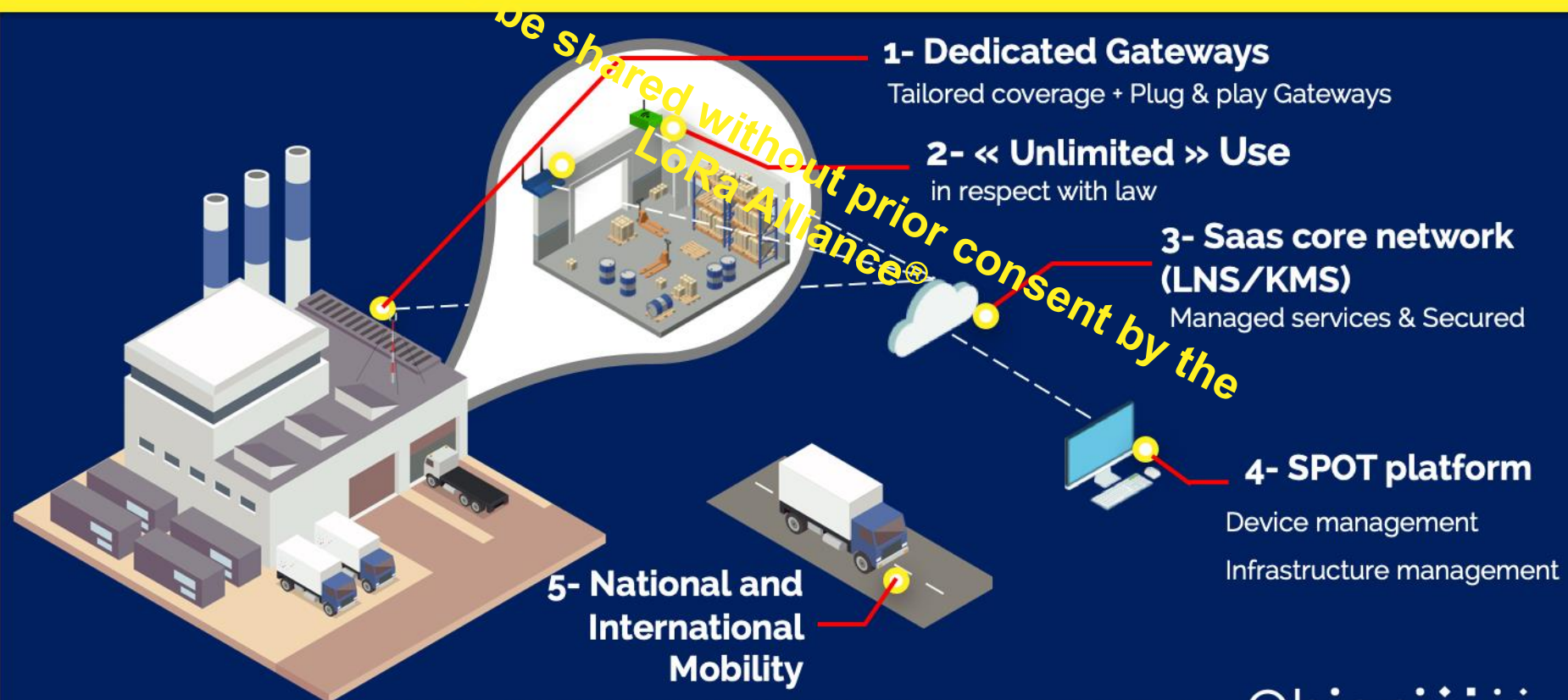
antargaz

SNCF

Carrefour

## What is the main competitor of Objenious in France ?

### OBJENIOUS LoRaWAN® DEDICATED NETWORK IN 5 COMPONENTS



# Orange IoT Network LoRaWAN®

The Internet of Things is going to change the world. For everyone.  
Ronan Le Bras



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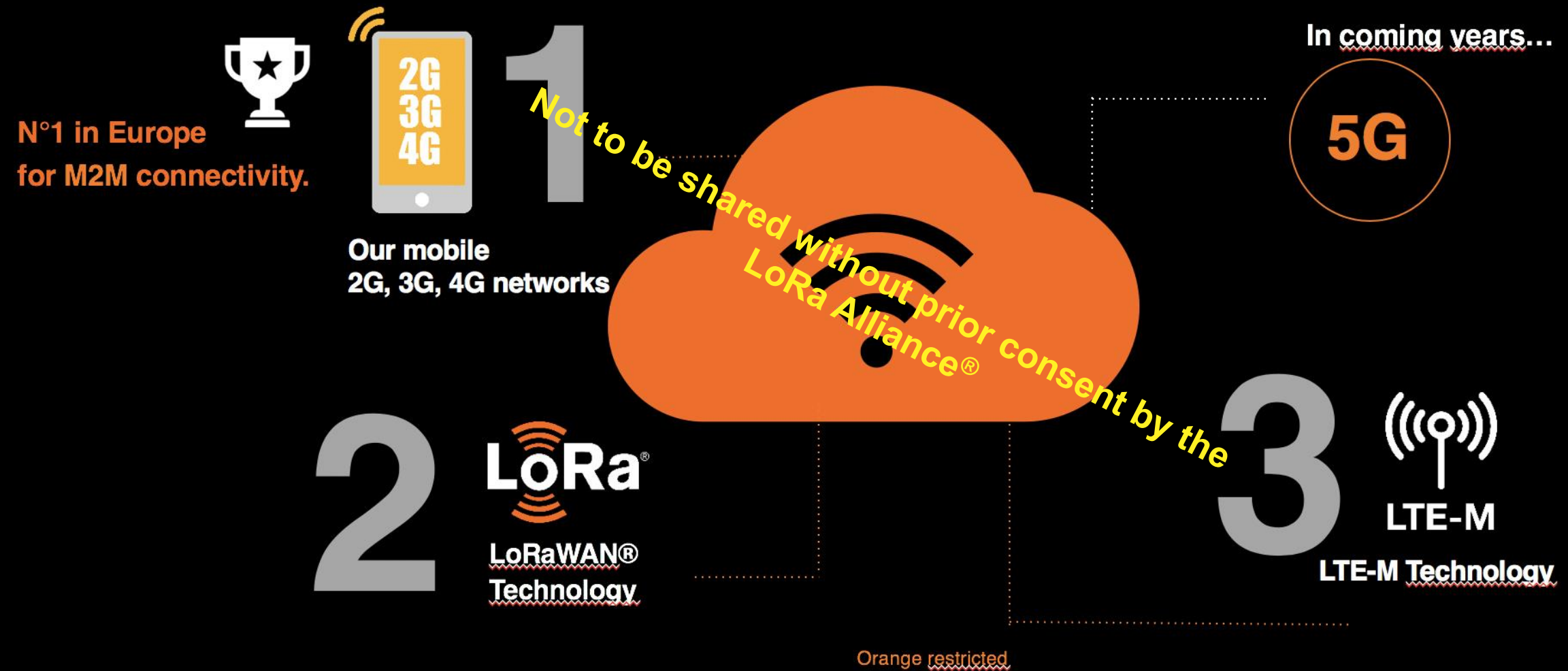
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# To address variety of use cases, Orange deploys a portfolio of **complementary technologies**



# Orange selected LoRaWAN® beginning 2015 as first LPWA solution to address B2B customer connectivity needs

### LoRaWAN, an unlicensed LPWA technology...

Non-cellular technology based on a new network

- ✓ Available now
- 🌐 Easy to deploy, anywhere in the world on-demand
- 🇫🇷 National deployment in France
- 🌍 World Wide Eco-system

### LoRaWAN Model

Specifications of LoRaWAN MAC by LoRa Alliance

Regional Specific Band 433 / 868 / 915 MHz

Private and Public operators deployment

Certification program by LoRa Alliance and Orange to ensure interoperability

Roaming under definition by LoRa Alliance

### LoRaWAN Key Strengths

- 💰 Low cost modules available Now
- 🔋 Proven Low power consumption
- 📶 Long Range: Deep Indoor
- ↔️ Bi-Directional
- 📍 Geolocation
- 💰 Small size Gateway and Nano-gateway
- 🌐 Light Backhaul (LTE / Ethernet)

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# Orange IoT LoRaWAN® network deployments

- France : Nationwide coverage in 2018.
- 95% population coverage, 30 000 cities
- 4900 Gateways deployed on mobile site
- Densify our networks on demand depending on customers needs



(1) Figures as of early July 2018



A targeted LoRaWAN coverage in other countries, in cities, airports, ports or industrial sites for B2B Market



# LoRaWAN® technology: the first LPWA (Low Power Wide Area) network dedicated to the Internet of Things

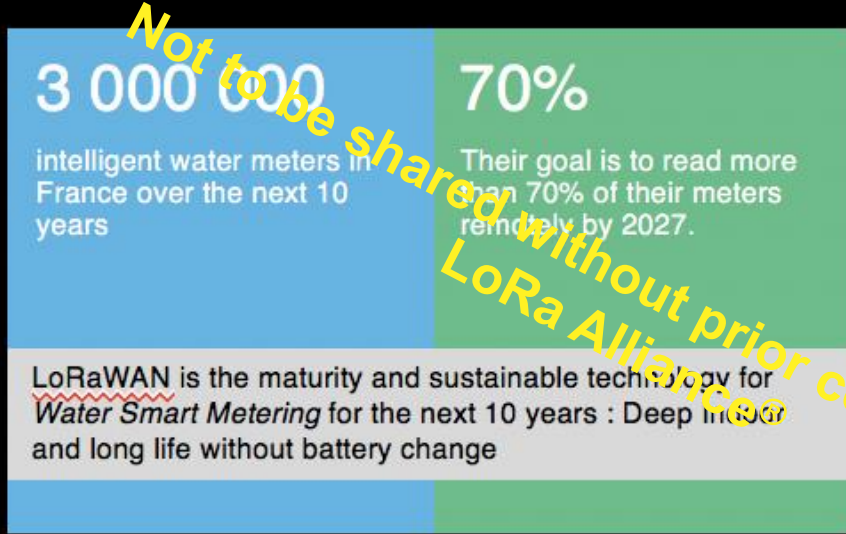
## Nova Veolia - Birdz

Connected sensors to predict water consumption and detect atypical consumption



“Birdz has chosen Orange Business Services to help it make a strategic shift from a technology requiring deployment of a radio network infrastructure to a solution that is open, interoperable and reversible and also a solution which meets the needs of our customers.”

Xavier Mathieu  
CEO of Birdz



LoRaWAN is the maturity and sustainable technology for Water Smart Metering for the next 10 years : Deep insight and long life without battery change

## City of Alba Iulia

Alba Iulia Smart City 2018 project, in Romania.



The smart lighting solution is connected to the LoRaWAN network. The use of smart lighting, whereby streetlights are dimmed when there is no one around, has reduced related energy consumption by 50-70%.

