



# LoRaWAN® differences et complémentarités avec la 5G

Presentations by Semtech – Rémi LORRAIN



# Presenter



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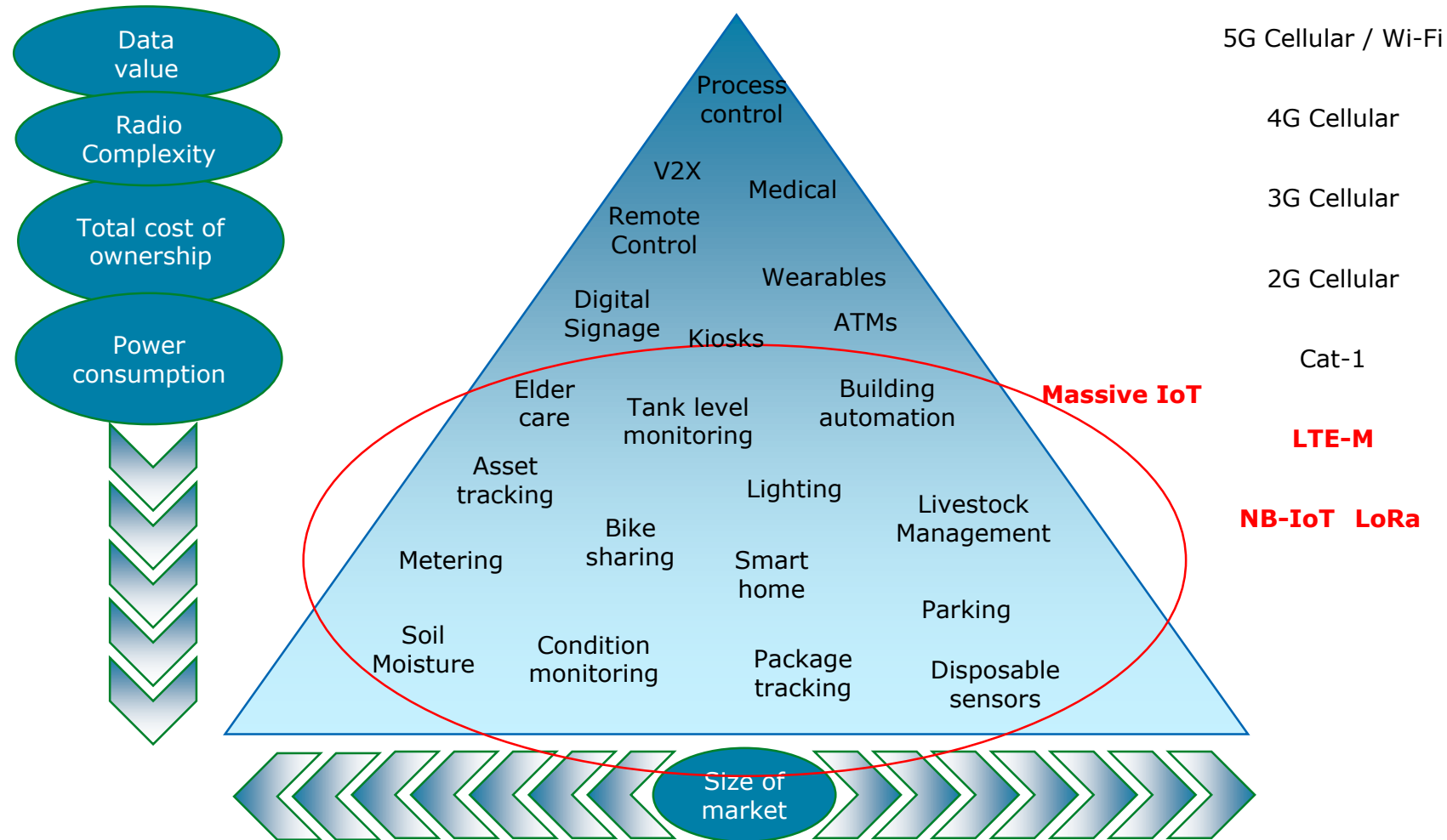


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# Multi Radio Access Network strategy Instrumental for success in IoT

LoRaWAN® perfectly complements Cellular IoT

# Multi-RAN Strategy is instrumental for success in IoT

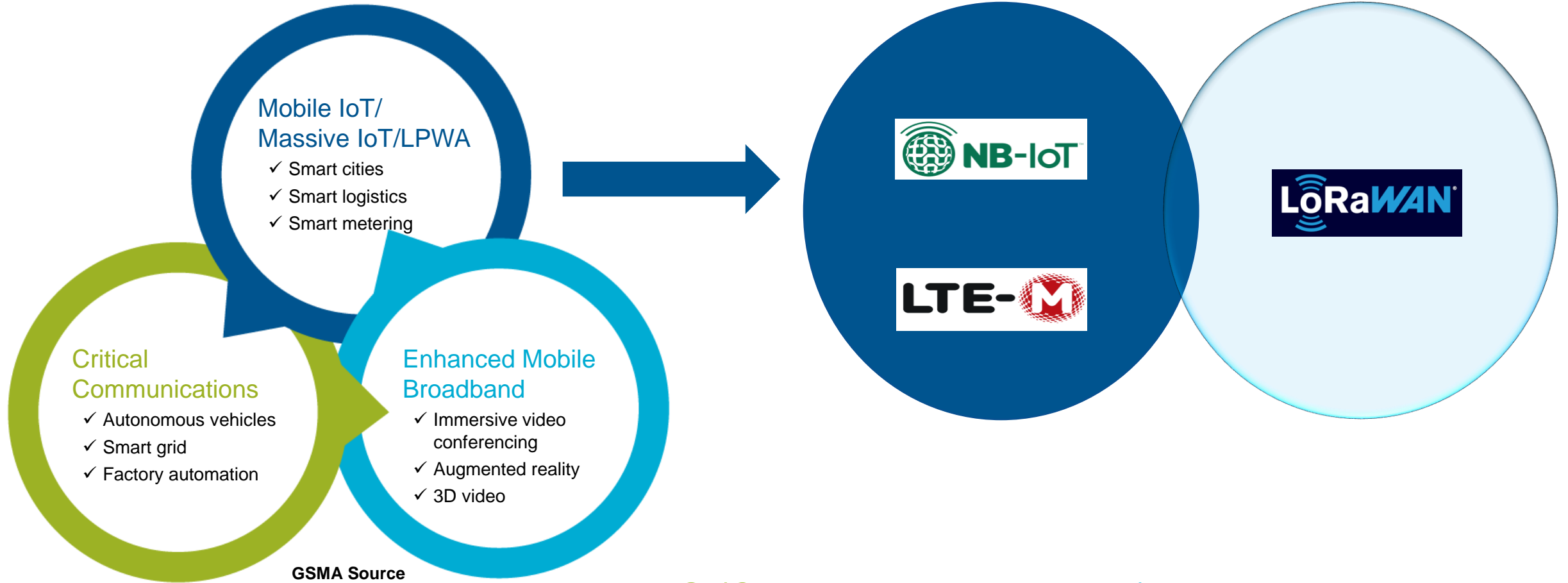


**One single technology cannot fit all vertical needs**

IoT ecosystem shift to **Multi-Radio Access Network** Strategies

LoRaWAN® perfectly complements Cellular IoT

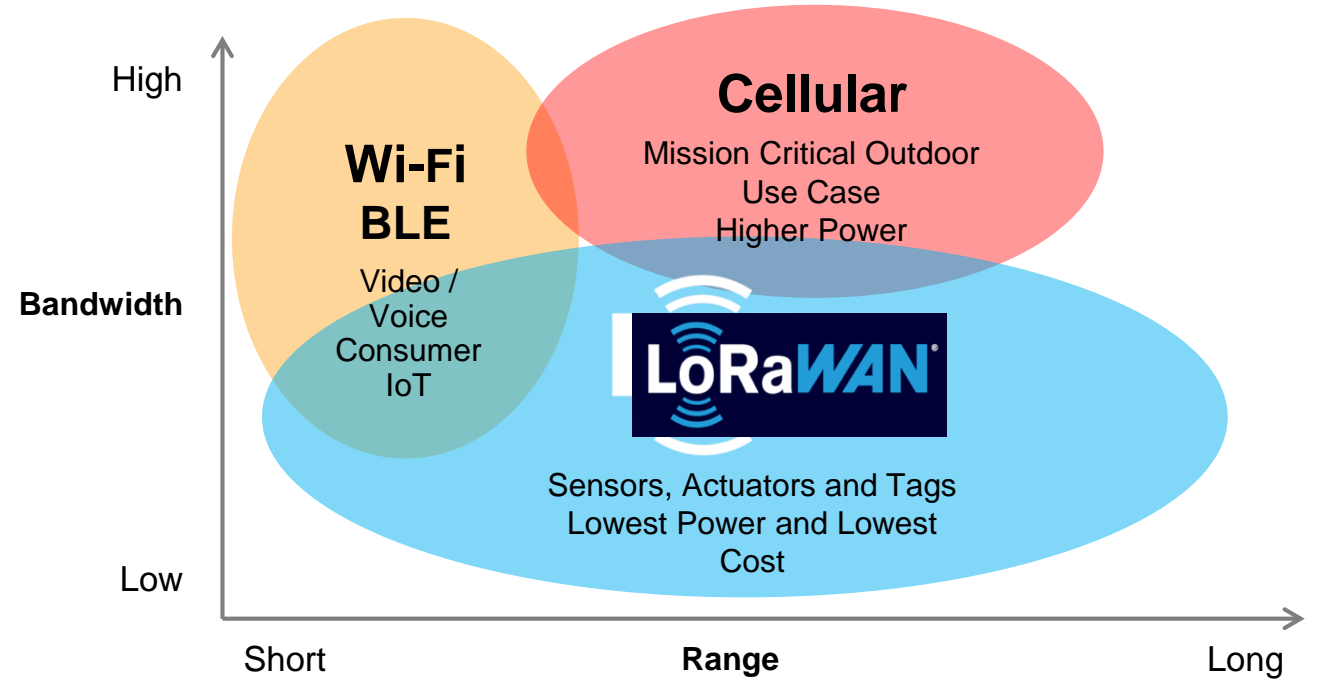
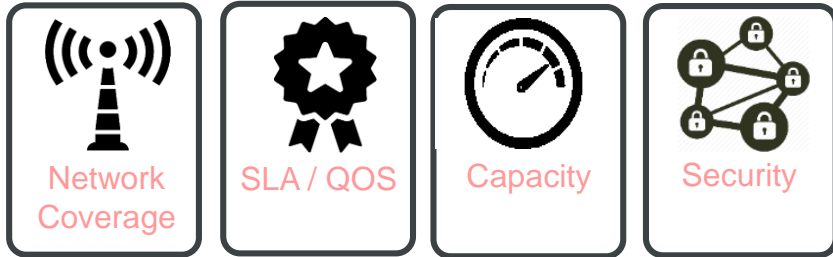
# LoRaWAN<sup>®</sup> fully complements Cellular IoT



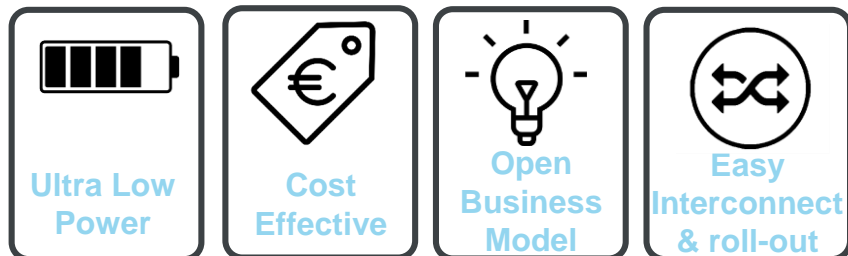
5G (Critical IoT & Broadband) rely on **5G New Radio**  
5G Massive IoT relies on **4G** (LTE-M/NB-IoT)  
LoRaWAN<sup>®</sup> complements **4G** on Massive IoT space

# LoRaWAN<sup>®</sup> fully complements Cellular IoT

Cellular IoT serves Mission critical, Low latency and High volume of data use cases



LoRaWAN<sup>®</sup> enables flexible cost effective roll-out on top of legacy Network



LoRaWAN<sup>®</sup> perfectly complements Cellular IoT

# Use cases drive Technology choice

Usecases	Suitability	Battery	Tracking	QoS	TTM	Operator Incumbency
Smart Meters	LoRa					
Land Agriculture						
Smart Street Lighting						
Pollution/Leak Monitoring						
White Goods		Why?				
Cattle Monitoring						
Smart Parking						
Manufacturing & Processing						
Commercial Automation						
Home Security		Both				
Vending Machines						
Environmental Monitoring						
Fleet Management						
Traffic Management						
Healthcare Eqmt. Monitoring	NB-IoT					
Asset Tracking						
Assisted Living						
Construction Eqmt. Monitoring						
Supply Chain						
Rental & Share Management						
People Pet Tracking						
WellBeing Wearables						
Public Safety						
Emergency Services						
LoRa complements Nb-IoT		High	Low	Best Efforts	Immediate	Low

Source Cable Tech expo 2018

Device life cycle, Business model, & Cost effectiveness criteria's of choice



# Market Overview





# LoRaWAN® Worldwide Deployments

LoRaWAN and cellular IoT lead massive IoT market

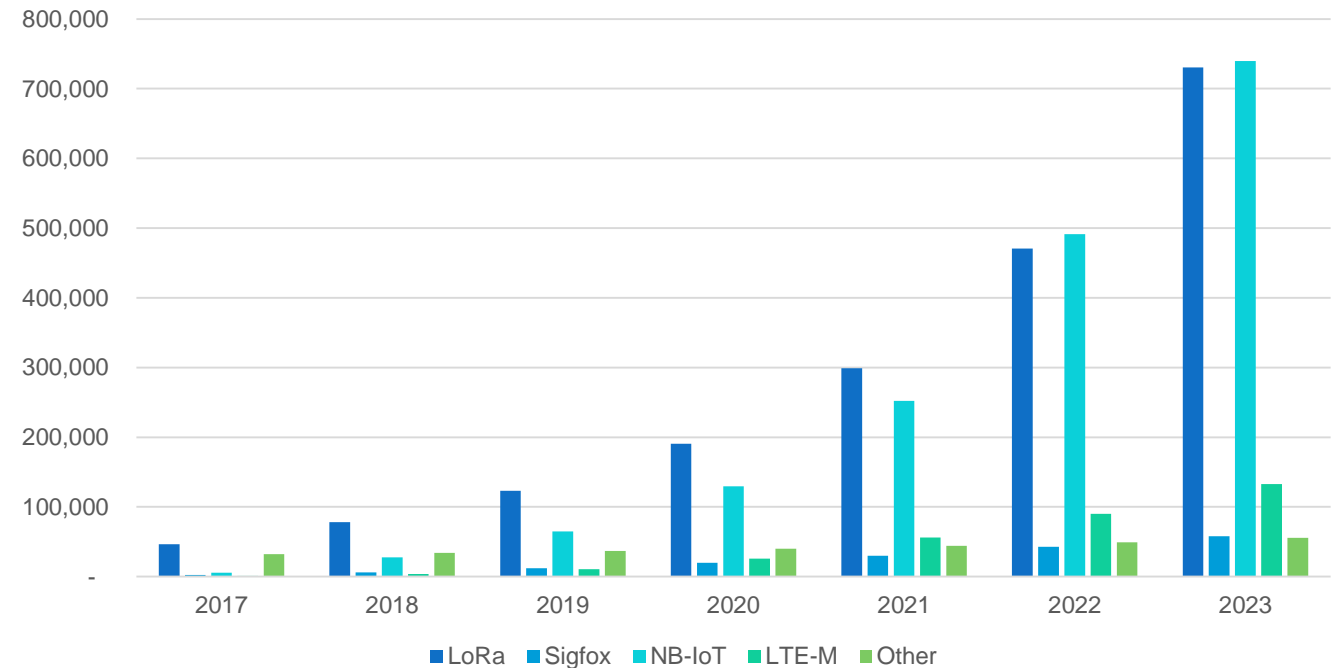
Today, LoRaWAN-based deployments are:

- 162 countries\*\*
- 160M+ end nodes\*
- 148+ operators\*\*
- 1M+ Gateways\*
- 400+ LoRa Alliance® members\*\*

\*Semtech Q2 FY21 Earnings Call

\*\*LoRa Alliance Report, Oct 2020

IHS Report 2019 - LPWA Total Connections by Technology - 2017-2023  
(thousands of connections)





# Mobile Operator Wireless Convergence





30+ MNO's deploy LoRaWAN and Cellular (4G,5G)

Orange, KPN, Proximus, SKTelecom, Swisscom, Bouygues, KDDI, NTT ...  
Andorra Telecom Telekom Serbia, Telekom Slovenia, ....

License exempt Operators as well deploy Private 5G and LoRaWAN like Charter



# Proximus Mobile Operator



CHAPTER 3

## The 3 main IoT networks explained

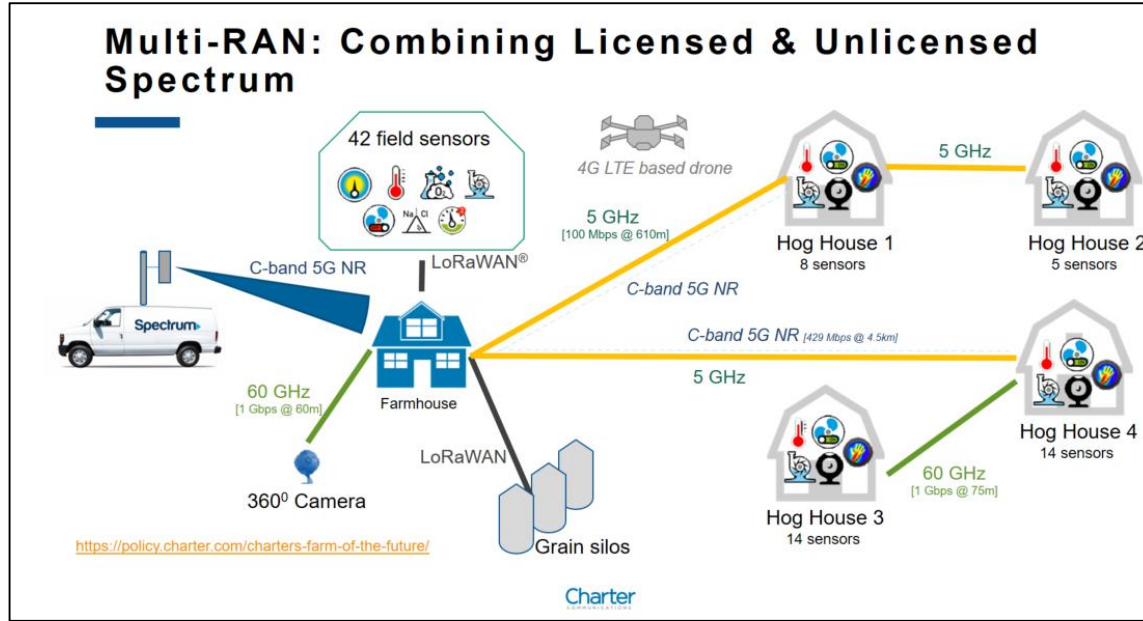
This table contains an overview of the main features of LoRaWAN™ and NB-IoT. For the sake of completeness, you will also find information on the traditional mobile networks and how they differ from LPWAN networks.

Criteria		LPWAN networks		Traditional mobile networks
		LoRaWAN™	NarrowBand IoT	2G/3G/4G (M2M)
Coverage & range		Very high & deep indoor Range > 15 km 156 dB	Very high & deep indoor Range < 15 km 164 dB	High & indoor Range
Mobility		Static & moving objects	Only static objects	Static & moving objects
Performance - energy consumption		Very low	Low	High
Performance - latency <small>Dependent on the network strength and antenna of the sensor</small>		Low/average	Average	High
Performance - data capacity		Low Message up to 50 bytes	Average Streaming up to 250 Kbps	High Streaming more than 1 Mbps
Performance - connection frequency		Occasionally connected	Frequently connected	Constantly connected
Two-way communication		Limited	Fully available	Fully available
Battery life <small>In optimal circumstances</small>		> 10 years	Maximum 10 years	Frequent recharge
Total cost of ownership <small>Strongly dependent on communication need</small>		Low	Low/Average	High
Security		High	Very high	Very high

Source Proximus White paper

NB-IoT and LoRaWAN® nationwide Networks  
NB-IoT or LoRaWAN® choice driven by customer needs

# Charter Communications



Source '5G Semtech Webinar'



Source '5G Semtech Webinar'

Multi-Technology toolbox to serve enterprise use cases (Farm)  
Leverage 4G, 5G-NR, Wi-Fi and LoRaWAN®



Source '5G Semtech Webinar'

# DT Multi Services Operator



Deutsche Telekom intros LTE / LoRa access controls to help retailers regulate footfall

James Blackman • June 17, 2020

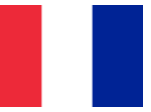
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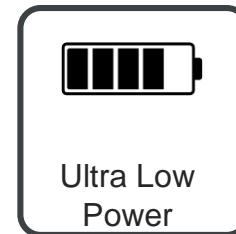
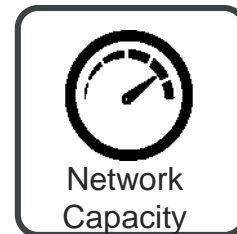
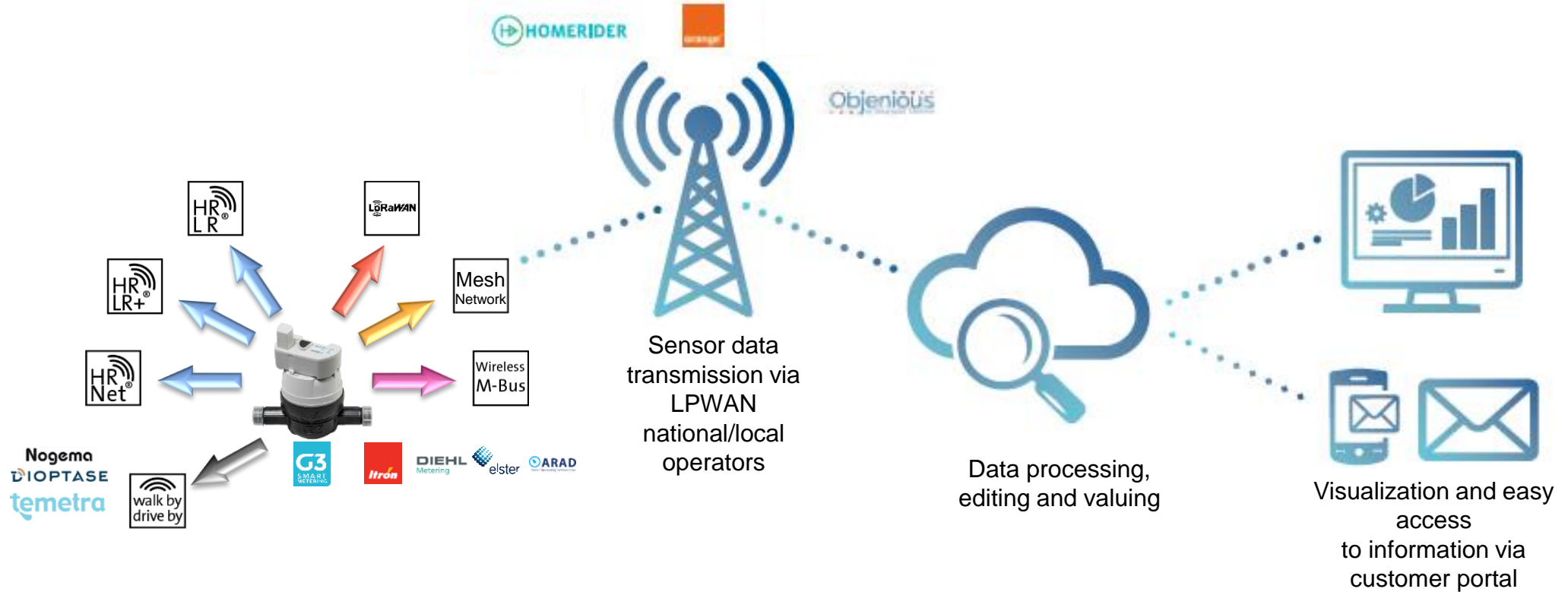
Source Enterprise IoT Insight

People flow tracing for retailers in Germany  
Leverage Private LTE, Wi-Fi and LoRaWAN<sup>®</sup>

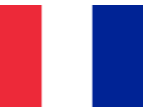
# Birdz utility System Integrator



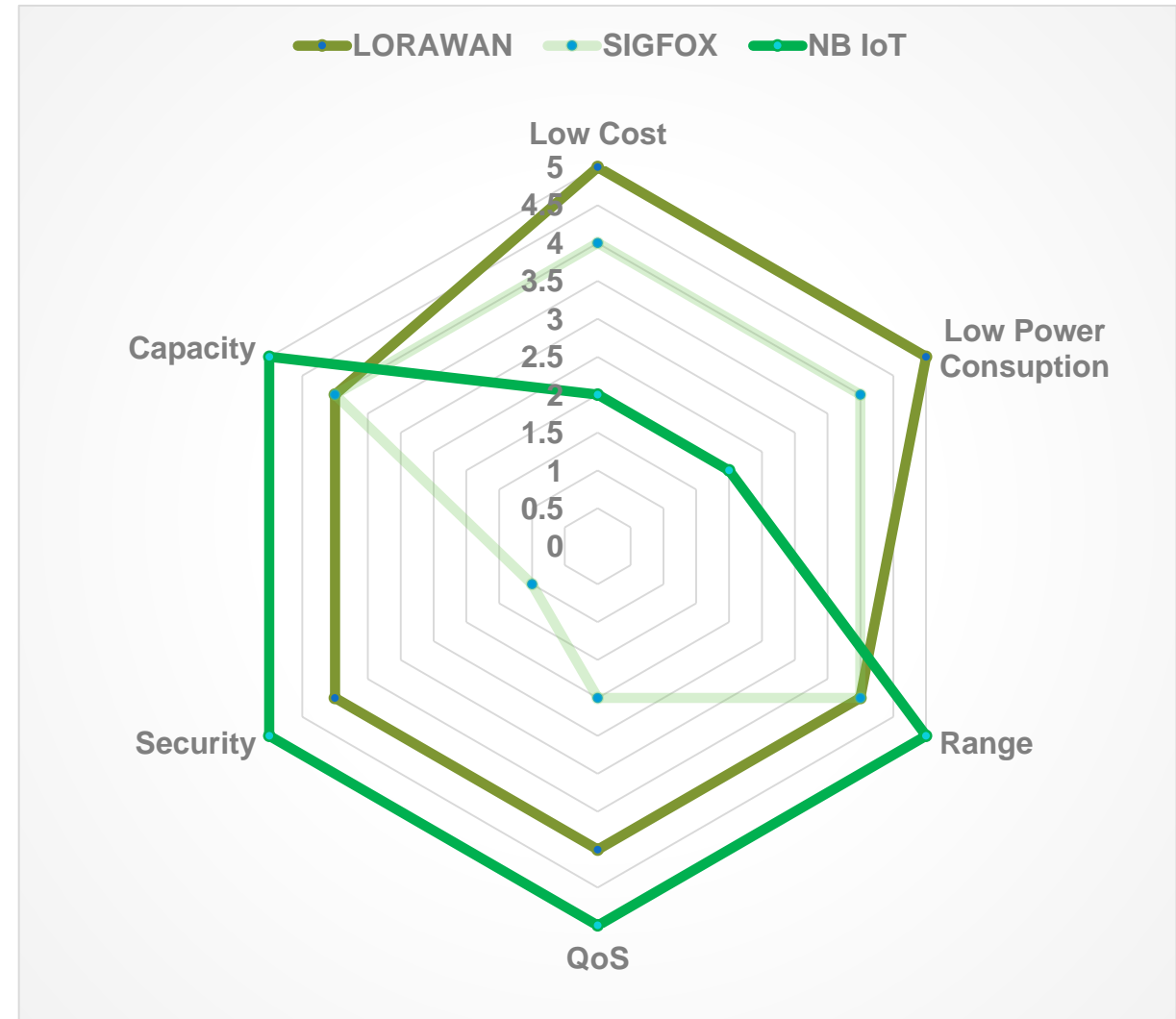
## Birdz's Offerings for Water Management



# Birdz Labs Test (France)



- Aging stress tests simulate 15 years of operation
- 150 bytes of daily payloads (2 Tx Frames per device)
- Functional temperature range: -5°C to 45°C
- Accurately simulates real field conditions



Source: Birdz Labs





# Summary



# LoRaWAN® & 5G Interaction

Interconnection and multi-technology collaboration is structuring the market to deliver the best value proposition to customers (LoRaWAN and Cellular IoT (4G,5G), Wi-Fi6 and 5G)

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5G is an opportunity to scale **critical/broadband applications**

LoRaWAN and 4G **complement to serve massive IoT** use cases

LoRaWAN positioned as **de facto unlicensed standard**

Operators, vendors and enterprises are rapidly developing **Multi-RAN strategies** involving 4G, 5G, LoRaWAN, Wi-Fi, and other technologies



**T h a n k   Y o u**  
**Q u e s t i o n s ?**



**LoRaWAN<sup>®</sup>, differences et complémentarité avec la 5G • Webinar • Oct 15, 2020**

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