



The Standards People

# IoT Conference 2023

## DECT NR+ Standard as Piece in the Energy Transition Puzzle

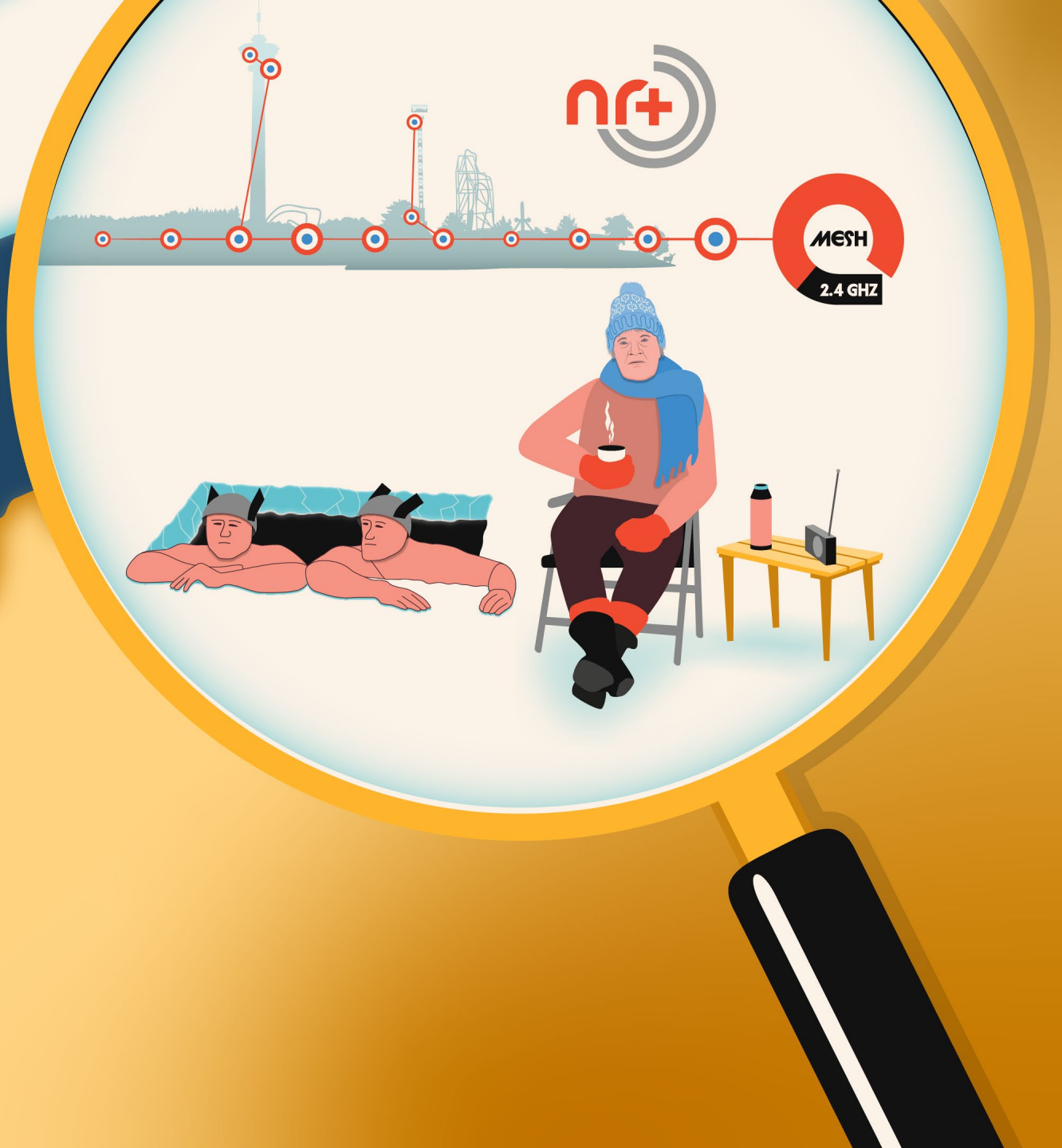
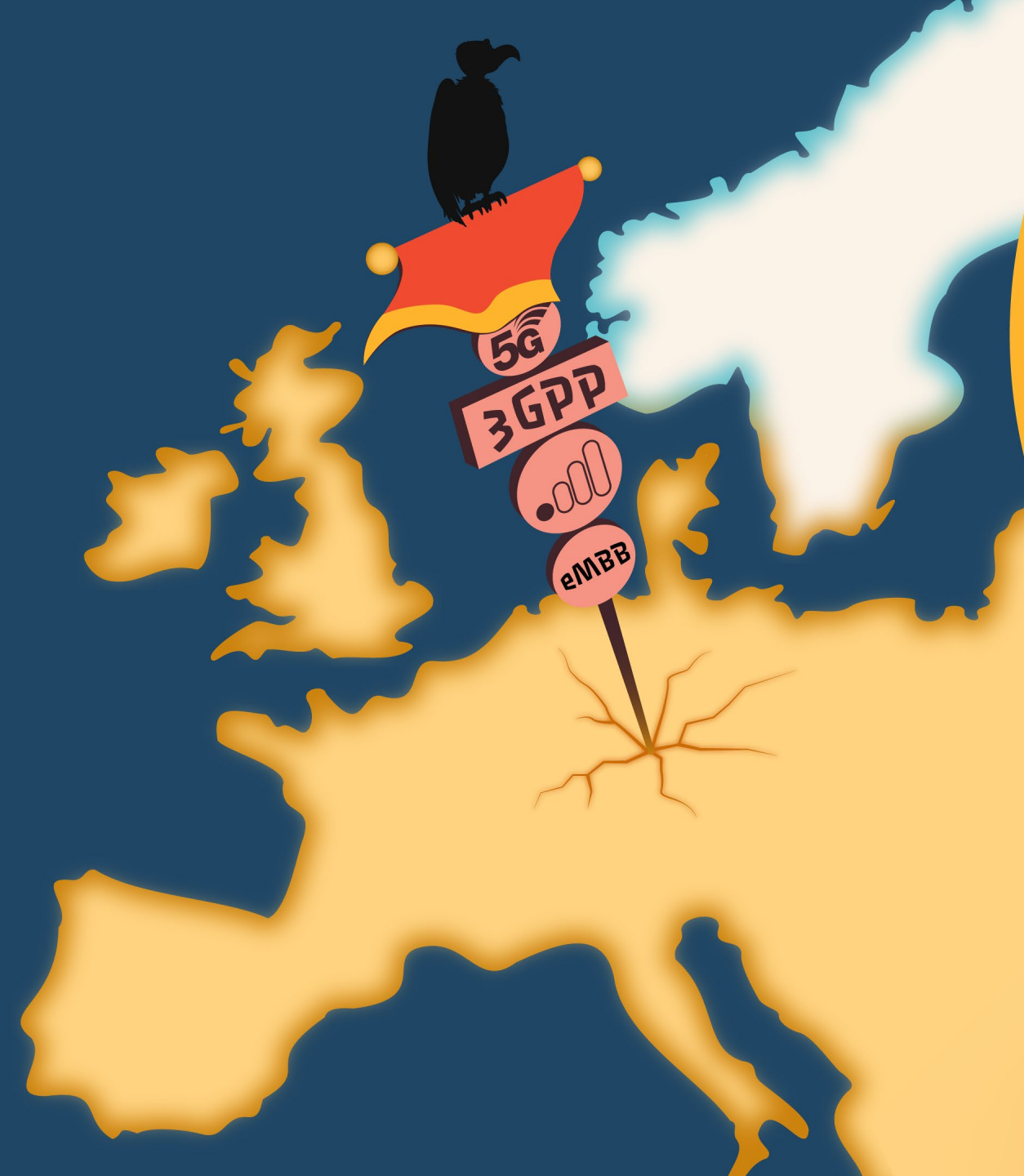
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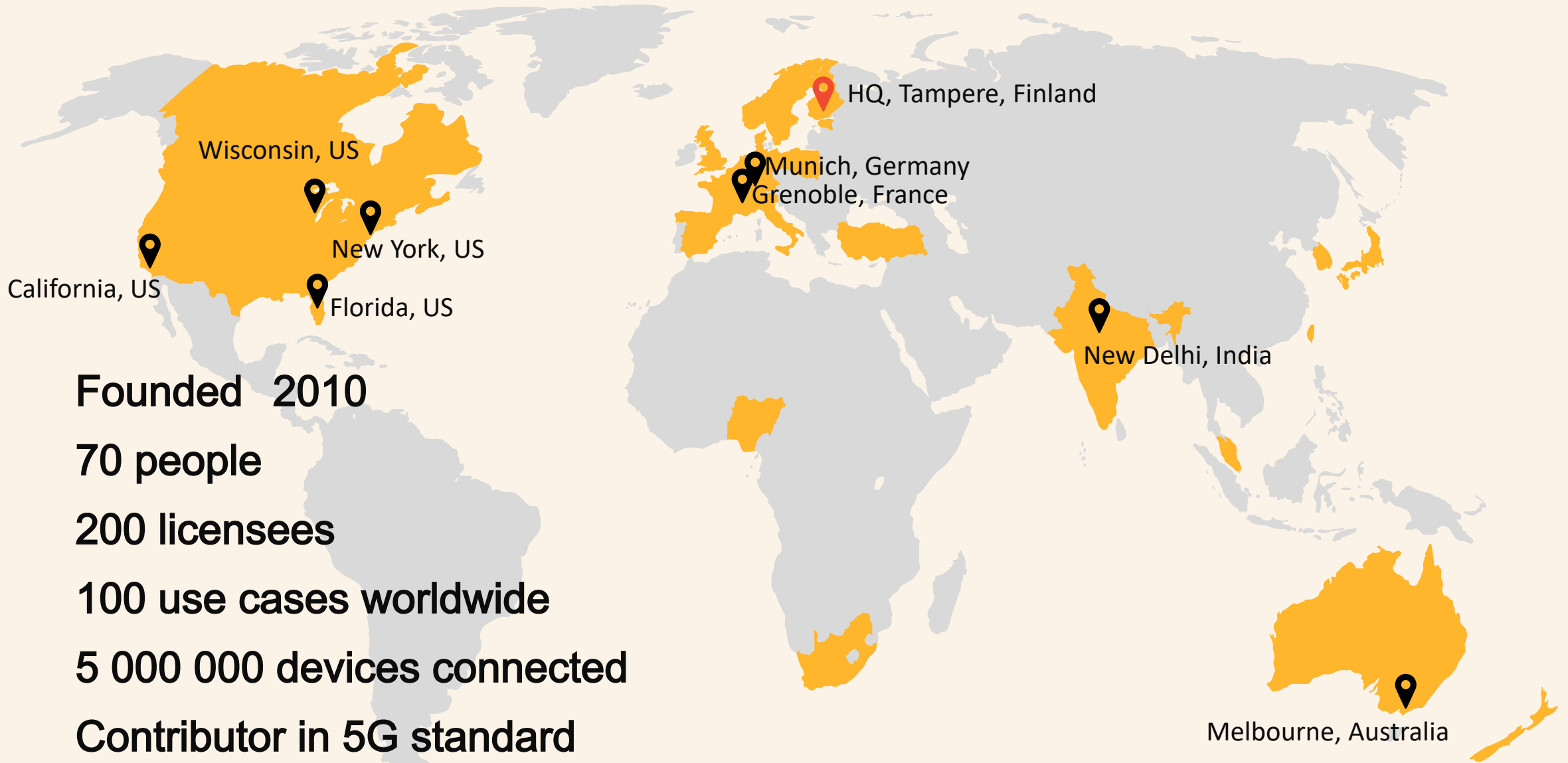


**Wirepas**

05/07/2023







● Connected devices

**Founded 2010**

**70 people**

**200 licensees**

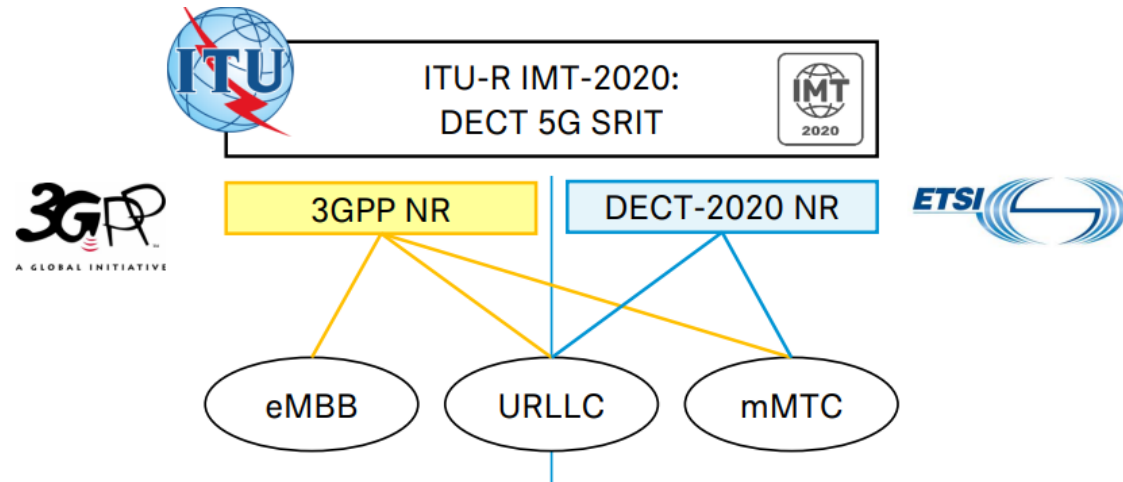
**100 use cases worldwide**

**5 000 000 devices connected**

**Contributor in 5G standard**

**First implementation in 5G NR+**

# WHAT IS DECT NR+ ?

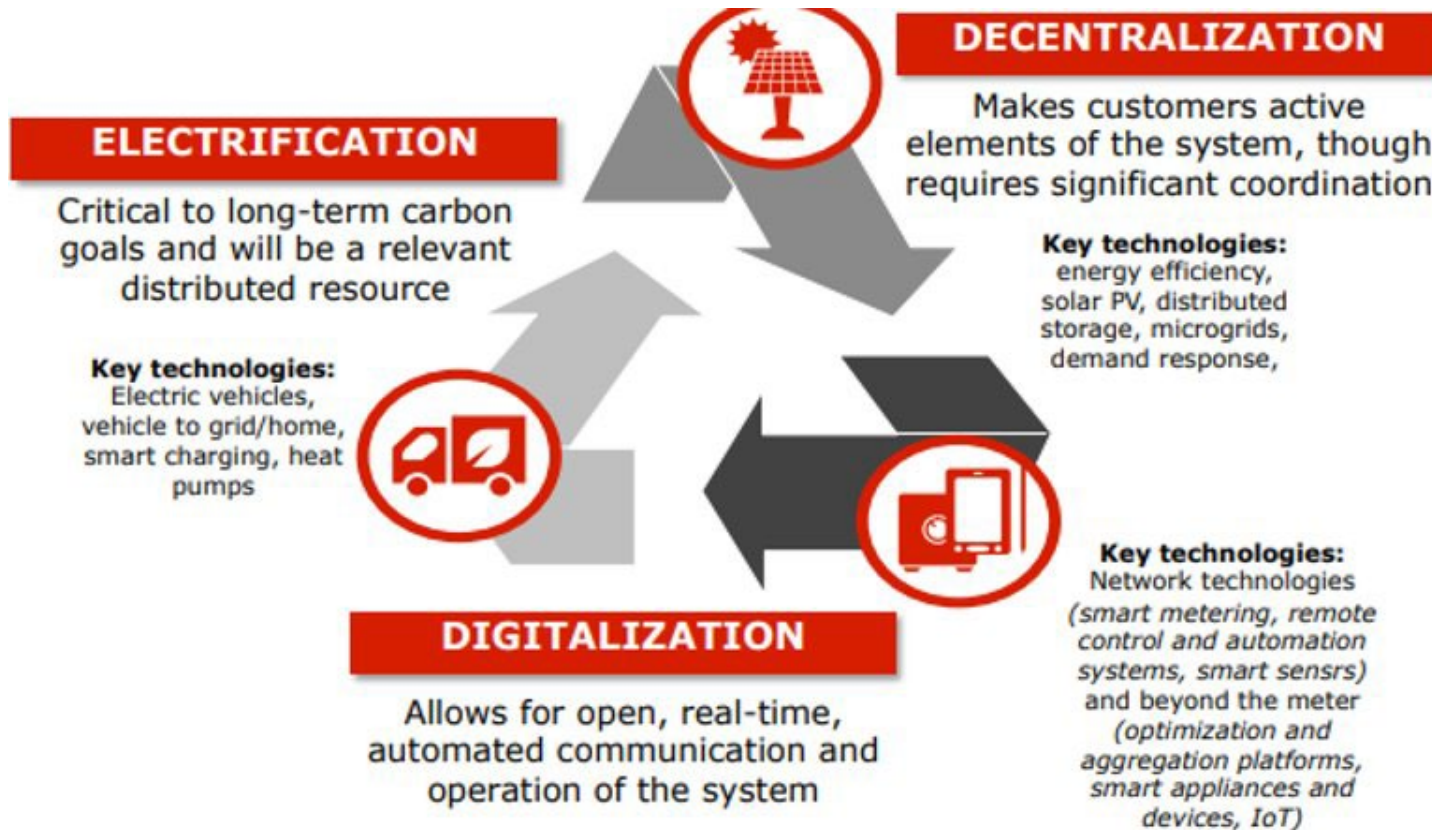


	Private 5G as 3GPP sNPN	Private 5G as DECT NR+
<b>Deployment</b>	Site-based Non-Public Network (indoor/outdoor)	<b>Anywhere, Anytime, Anyone (indoor/outdoor)</b>
<b>Topology</b>	Cellular	P2P, P2M, Star, Mesh Tree
<b>Device Types</b>	BS, UE	<b>RD with context-based roles</b>
<b>Spectrum</b>	Site Licensed (Campus)	1,9 GHz, IMT, Campus, SRD/RLAN
<b>Spectrum Management</b>	Expert / Tool	<b>Local Self-Organizing</b>
<b>Infrastructure</b>	Campus Network by User	User deployed RDs
<b>User devices</b>	UEs	<b>RDs</b>

BS: base station  
 UE: user equipment  
 P2P: point-to-point  
 P2M: point-to-multipoint  
 RD: radio device

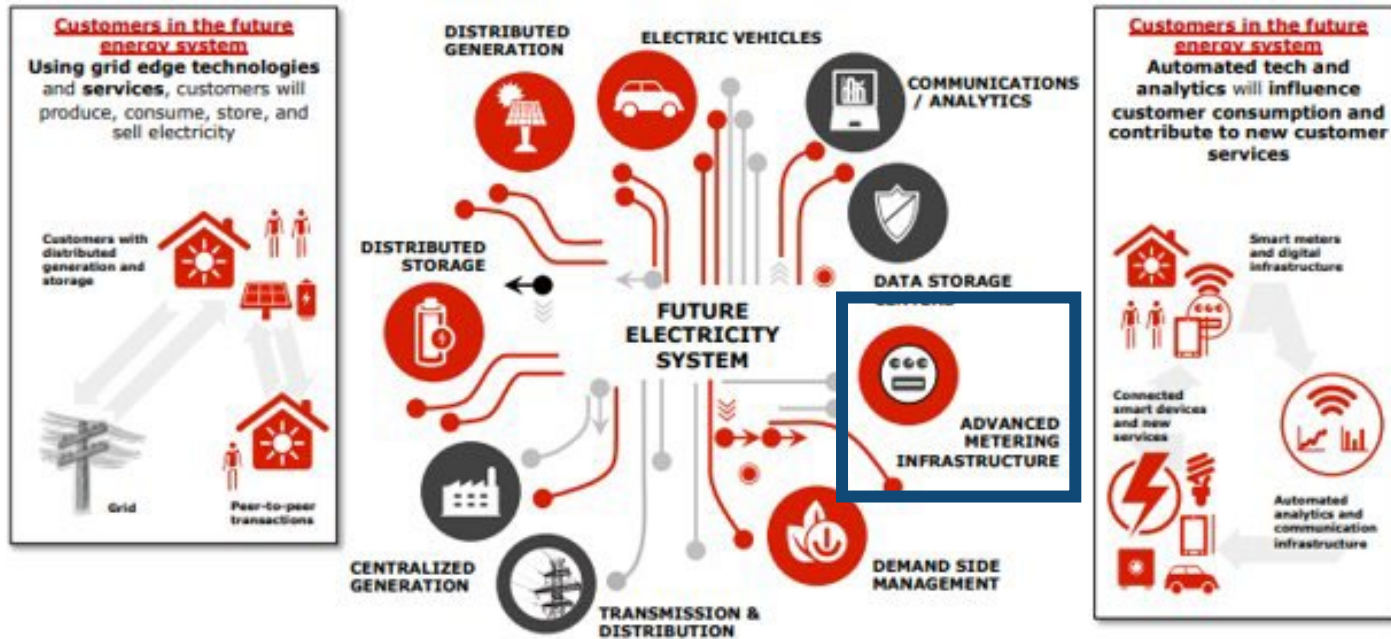


# WHAT POLICY IS MISSING IN THE ENERGY TRANSITION ?



- Undetermined access to communication
- Trusted measurements and standard ontology for d2g communication
- Access to the revenue streams for grid edge micro transactions
- European technology sovereignty

# WHY DECT NR+ AS A STANDARD RIT ? WHY MESH ?



[http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Electricity\\_2017.pdf](http://www3.weforum.org/docs/WEF_Future_of_Electricity_2017.pdf)

Smart grid operational objectives for electricity distribution and transmission systems are:

- Seamless integration of renewable energy production into system
- Integration must be **affordable**, **reliable** and **accessible** for everyone to attend.
- DECT NR+ affordability : **Anyone**
- DECT NR+ reliability : **Anywhere**
- DECT NR+ Accessibility : **Anytime**

5g Mesh implementation adding :





- **Range: Proven**
- **Reliability : Proven**
- **Density: Proven**
- **Scale: Proven**



# DECT NR+ Range

# Range VS Environment

Range does not mean anything without the right model of environment

Model :	Indoor NLOS Thick concrete wall	Urban Micro NLOS Urban <b>no</b> line of sight	Urban Micro LOS. Urban <b>line of sight</b>	Urban Macro LOS Line of sight over rooftops.
Environment:	Metering room	Urban area	Rural area	Unrealistic use case
				
Range:	80 m	320 m	1700 m	7000 m

Same DECT NR+ radio in all models (\*)

(\*) Actual measurements (as of time of this presentation) using Nordic nRF9 160 at 19 dBm TX power (standard allows 23 dBm) are:

- i) 650m Urban Micro NLOS (Chennai-India)
- ii) 6.5km Urban Macro LOS (Finland)





# DECT NR+ reliability

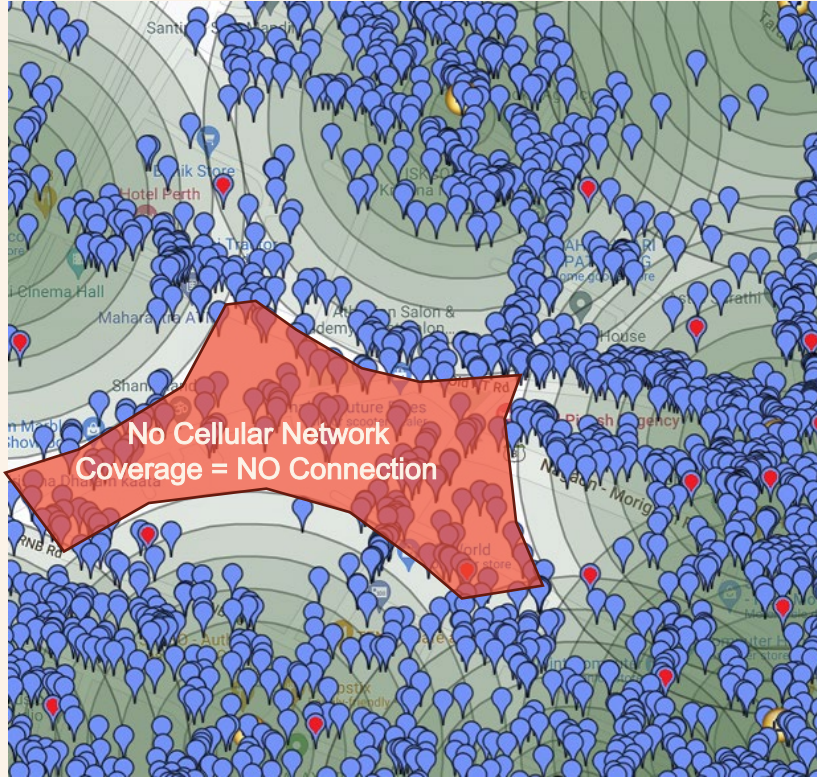
# THE coverage

## Cellular

Some meters won't be able to connect due to the lack of cellular basestations coverage

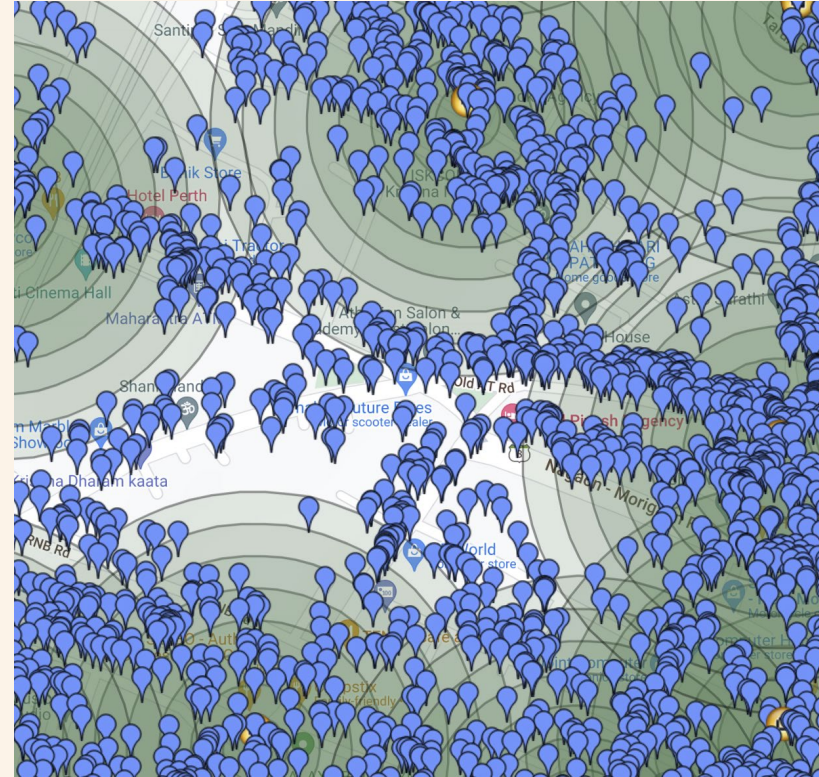


Cellular base station



## DECT NR+ 5G Mesh

Any meter can connect to any meter in its network coverage



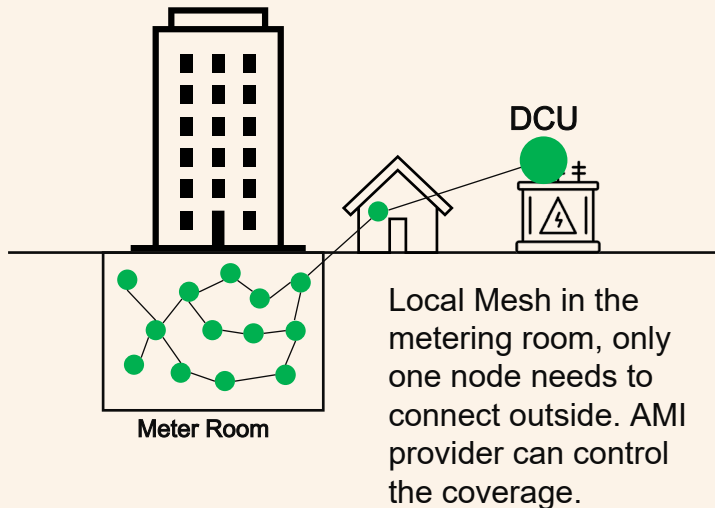
5G Mesh base station

Mesh is the only technology able to connect 99.99% of the meters in a reliable manner during the complete project duration

# Metering room coverage challenge

## DECT NR+ 5G Mesh

Meters will create a mesh network in a metering room and only one meter need to find way out to next building.



## Metering rooms Challenge

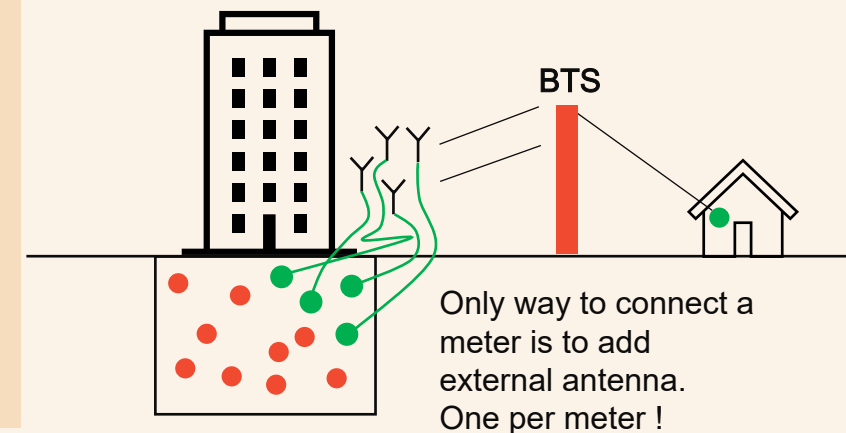
Metering room with several hundred meters are quite common. In addition to the high density, they are usually deep indoor in building basement



## Cellular

Each meters will require external antenna and cable outside of the metering room to connect cellular base station.  
**Cumbersome and expensive solution.**

E.g. in India, external antennas are not allowed, which leads no tools to solve issues.





# No SIM needed. No esim. No iSIM.

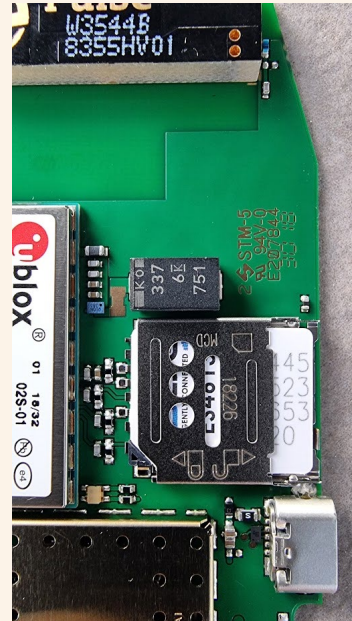
## Wirepas Mesh

No SIM. No eSIM. No iSIM

No extra cost.

No commissioning or service provider service switch complexity.

## SIM hassle or not.



## Cellular

SIM hardware required.  
SIM or eSIM or iSIM.

Hardware cost.

Cloud based management  
service required.





**GOT QUESTIONS?**

# Get in touch

5G Mesh – based on DECT NR+

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