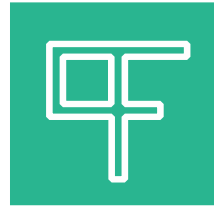


# NB IoT in 6 steps

Pietro Fiorentini NB IoT journey:  
from concept to mass production



**Pietro  
Fiorentini**

Gianfranco De Feo

1

Embracing  
NB IoT

# Specific needs



## Power consumption

- Meter life 15 years
- > 1 communication day
- Making pre-payment possible

## Reachability

- Meter often located in basements
- Meter cannot be moved
- Millions of meter in the field

## Data security

- Data privacy
- Hacker protection

## Long term connectivity

- Meter life > 15 years
- Communication shall be insured during the time

2

Smart  
meter end  
to end

# end to end solution

The screenshot displays the NBIoT web application interface, which is used for managing gas meters and their data. The interface is divided into several sections:

- Commands Page:** Shows fields for User code, District, Brand, Class, and To.
- Meters Page:** Shows fields for User code, Telemetry ID, and Class.
- Totalizers Page:** Shows a form for entering user details (User code, District, Brand, Class, Status) and totalizer information (User, City, Model, Show only installed, From, To, Counter type, Size). It also includes a search bar and a 'Generate' button.
- Data Table:** A table displaying meter data with columns for User code, User, Reading date, Type, Size, and three data ranges (Data Range 1, Data Range 2, Data Range 3). The table shows several entries for user SMGRD34116999045, with readings ranging from 0.000 to 0.005.
- Footer:** Includes the TERRANOVA logo and copyright information: "TERRANOVA - © Copyright 2017 Terranova - Version 2.2.0.10 - Privacy - Contact us".



3

validation

# The support of open labs

Open Lab	Country	Band	Core	Compatibility with Huawei BTS	Connectivity with Huawei Ocean Connect	Field penetration benchmarking Vs GSM	Configuration stress test	Application firmware	Lost UDP packets	System robustness	uplink & downlink	Valve closing	FW upgrade with ACK	Parameter conf. Meet
Huawei Milan	Italy	20	Newbury & Milan	✓	✓	✓	✓							
Vodafone Milan	Italy	20	Newbury	✓				✓		✓	✓			
Vodafone Madrid	Spain	20	Madrid	✓				✓	✓	✓				
TIM Torino	Italy	20	TIM Lab	✓							✓	✓	✓	✓
Tim Torino	Italy	8	TIM Lab	✓		✓					✓	✓		✓
TI JOL Catania	Italy	8	TIM Lab	✓										
T- Mobile - Krakow	Poland	8												Test scheduled in July
Huawei Shanghai	China	8												Test scheduled in July

4

field testing



# Field

€

Place	Milan	Milan	Barcelona	Bilbao	Shanghai
Band	20	20	20	20	8
Core	Newbury	Newbury	Barcelona	Bilbao	Commercial network
TELCO	Vodafone	Vodafone	Vodafone	Vodafone	Unicom
	Module Firmware		E2E system	E2E system	Uplink / downlink
	Compatibility vs various Huawei BTS SW		Send metering reading	Send metering reading	Send metering reading
Test	Device alfa test		Valve closure	Valve closure	
			Remote parameter setting	Remote parameter setting	
			Functioning in basement at level -2	Functioning in basement at level -1	



5

promoting

# Dedicated testing labs

Milan

Shanghai



# Benchmarking the technologies

Comparative communication tests on:

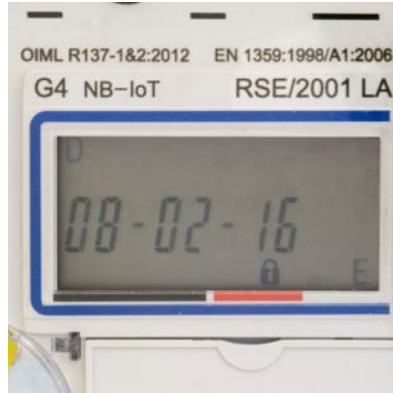
- W Mbus @ 169 MHz
- W Mbus @ 868 MHz
- GPRS
- 3G
- NB IoT



6

ready for  
the market

# Not only meters



Pressure and  
Temperature  
Data Loggers



Smart  
Meter  
Mass  
Production



Pipeline  
Corrosion  
Monitoring  
Units

Thank you



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