



The Italian approach to the licensing of spectrum in 5G pioneer bands

Santo Domingo, 27 August 2019

Italy's 5G pioneer bands spectrum auction



1st European country with simultaneous award of all three 5G pioneer bands



Innovative auction by means of the “use it or lease it”, collective obligations and “club use” clauses



Aimed at ensuring a wide level of 5G coverage and access for all users in the national territory (including most communes affected by digital divide and the touristic and transport areas)



Particular packaging of lots in the 3.6-3.8 GHz band drove the price paid by operators to **€6.5bn**

Italy's multiband auction: a state of the art?

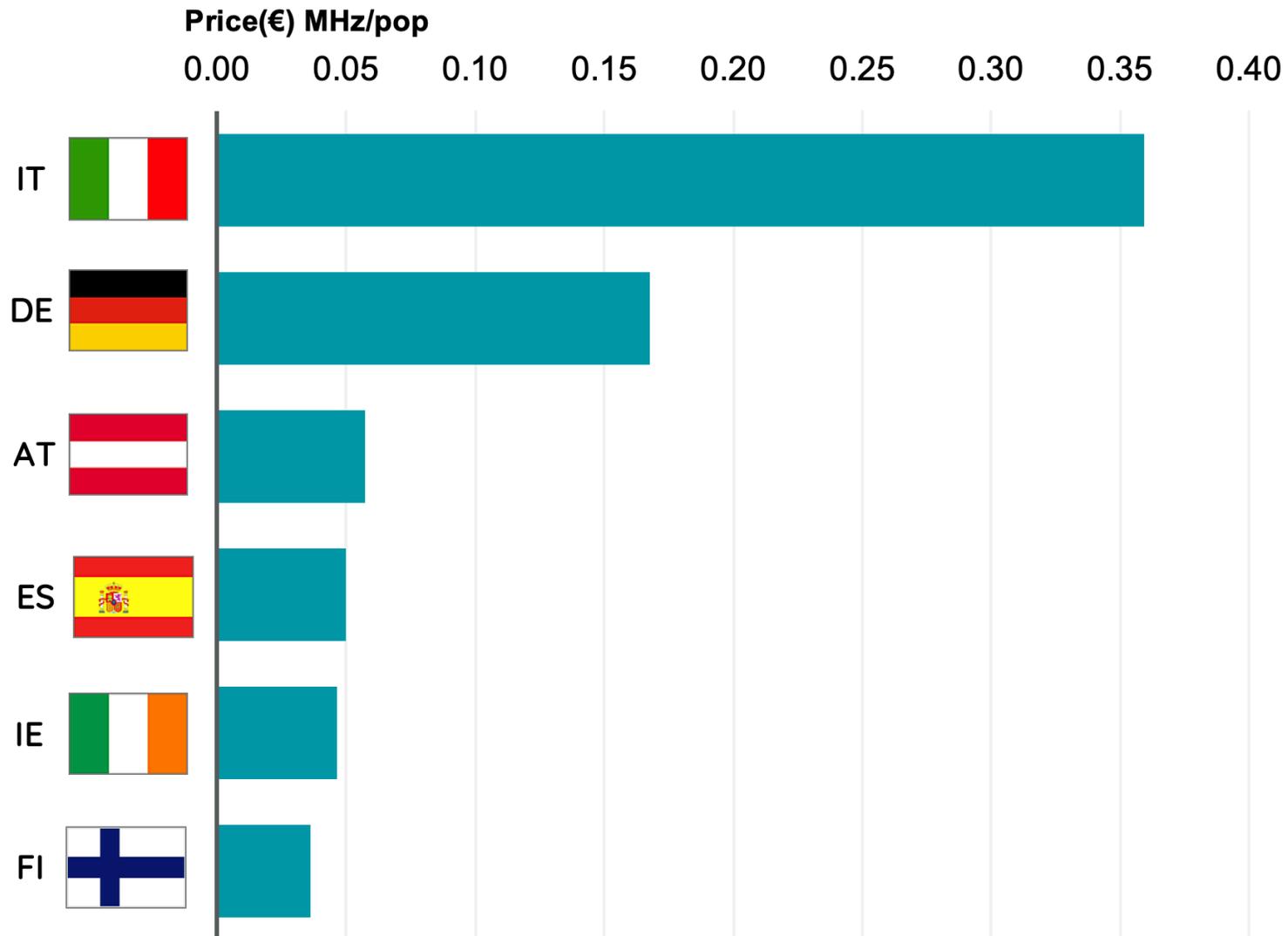


Vittorio Colao: former CEO at Vodafone Group

“The Italian NRA has decided to split-up frequencies in a manner that resulted in a huge expense for telecoms operators.

The final result of the auction is that there are less resources to invest in 5G deployment in Italy and more money ended-up in the pocket of the Ministry of Economy”

Pricing - Italy has the highest price (€) per MHz and population in the 3.4–3.8 GHz band



Auction format

Licence conditions

Packaging & Pricing

Auction format

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Italy auctioned 1275 MHz of spectrum in the 5G pioneer bands:

- 75 MHz in the 700 MHz band
- 200 MHz in the 3.6-3.8 GHz band
- 1000 MHz in the 26.5-27.5 GHz band

Auction format - 5G pioneer bands auctioned in Italy

Band	Spectrum offered
700 MHz	Six lots of 2x5 MHz (FDD) Three lots of 5 MHz (SDL)
3.6-3.8 GHz	Two lots of 80 MHz (TDD) Two lots of 20 MHz (TDD)
26.5-27.5 GHz	Five lots of 200 MHz

Auction format - special rules for new entrants

Issue	Details
Reserved spectrum	700 MHz (FDD) Two lots of 2x5 MHz will be pre-auctioned to new entrants and the remedy taker operator (Iliad)
More lenient coverage obligations	Additional year to comply with the minimum coverage obligations in the 700 MHz (FDD) band
Right to national roaming	Incumbent mobile operators that win spectrum in the 700 MHz (FDD) band must offer national roaming on their 700, 800 and 900 MHz networks to a new entrant on fair, non-discriminatory and transparent conditions for: <ul style="list-style-type: none"><li data-bbox="580 1096 1480 1143">• 2.5 years in the entire national territory; and<li data-bbox="580 1172 1651 1219">• 5 years in the areas not covered by the new entrant; if the new entrant has already covered at least 10% of the population with its own frequencies.

Auction format - spectrum caps & licence duration

SMRA: Simultaneous Multiple Round Auction

Type and validity of licences: national licences expiring on 31 December 2037

Band	Cap	Licence duration
700 MHz (FDD)	<ul style="list-style-type: none">• Intra-band: 2x15 MHz• Inter-band: 2x30 MHz including the 800 MHz and 900 MHz bands	15.5 years
3.6-3.8 GHz	<ul style="list-style-type: none">• Intra-band: 100 MHz• Inter-band: 100 MHz including 3.4-3.6 GHz band	18 years
26.5-27.5 GHz	400 MHz	18 years

Licence conditions

Licence conditions - three kinds of obligations

1. Spectrum usage

2. Coverage

- Applying only to 700 MHz (FDD) and 3.6-3.8 GHz

3. Access

1. Spectrum usage

Starting from the award (or from the availability of the assigned frequencies, if later) licensees must use the awarded frequencies in all the Italian provinces within:

Band	Timing
700 MHz	3 years
3.6-3.8 GHz	2 years
26.5-27.5 GHz	4 years

2. Coverage

Individual coverage obligations 700 MHz (FDD)



2. Coverage - population



- 80% of the population with 5G services within 3 years from the availability of spectrum (4 years for new entrants)
- Coverage must include communes with more than 30,000 people and the main town of every province

2. Coverage – touristic areas



- **Touristic areas:** significant number of tourists with respect to the residents
- **Provide 5G services in a certain number of touristic locations** within 4 years from the availability of the spectrum. The ministry will define the touristic areas to be covered within 2 years from the assignment

2. Coverage

Collective coverage obligations 700 MHz (FDD)



2. Coverage - population



- **99.4% of the population** with 5G services within 4.5 years from the availability of the spectrum
- **Coverage must include at least 90% of the population** of each of 120 communes identified as “deep digital divide” areas
- **Roaming and spectrum pooling** is permitted

2. Coverage – major terrestrial transport paths



- 5G services in the principal national roads and railways through reciprocal agreements within 3.5 years from the availability of spectrum (e.g. motorways, high speed railways, ports and airports)
- Coverage must include **transport corridors identified at European level**
- **Roaming** and **spectrum pooling** is permitted (mandatory in extra-urban areas)

2. Coverage

Individual coverage obligations 3.6-3.8 GHz



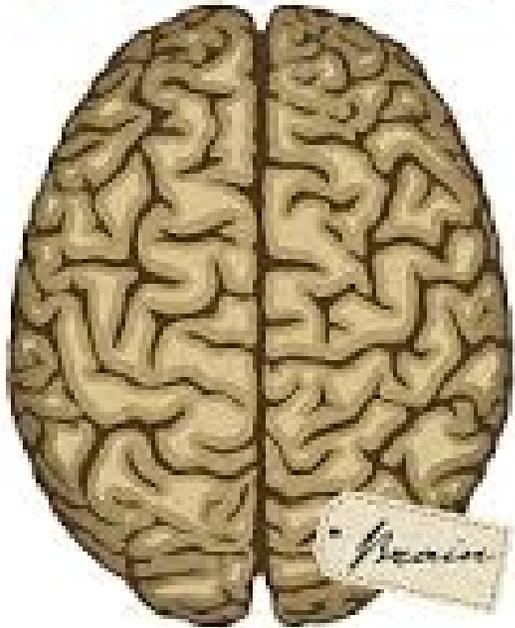
2. Coverage - population



- 80 MHz lots: **10% of the communes in each region with fewer than 5,000 people** and that are not covered by ultra-broadband (obligation list)
- 20 MHz lots: **5% of the population in each region** within 4 years from the availability of the spectrum

2. Coverage - use-it or lease-it

USE IT



OR LOSE IT

- **Other operators** without frequencies in bands up to 3.6-3.8 GHz **can use the frequencies in the 3.6-3.8 GHz band not used by the licensees in any communes of the “*free list*”** by leasing them
- **“*free list*”**: the set of communes with less than 5,000 inhabitants not included in the obligation lists of all licensees

3. Access (3.6-3.8 GHz)

- **Operators holding at least 80 MHz** in the 3.4-3.8 GHz band are obliged to provide access to service providers fostering the development of
- This obligation is aimed at **fostering verticals** (and their service providers) to develop innovative business cases

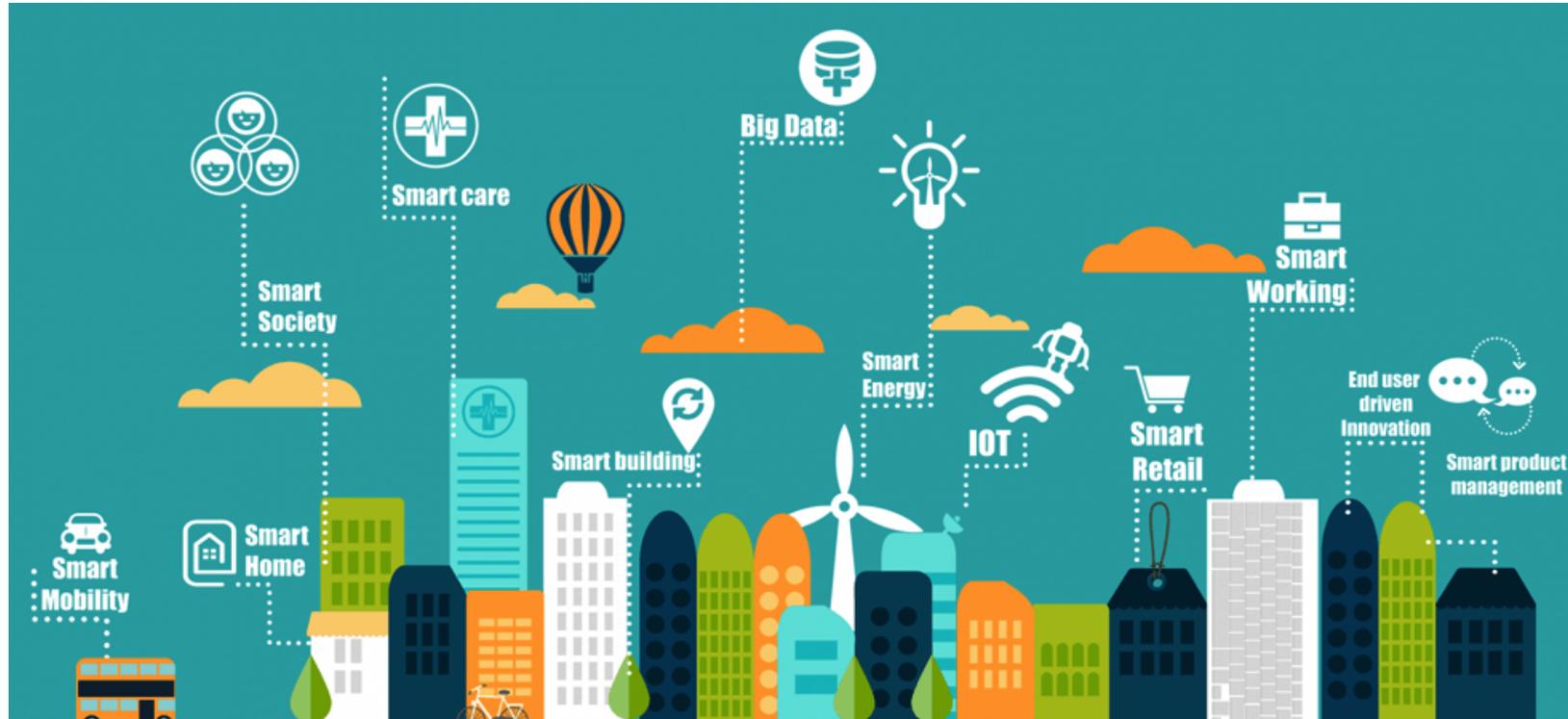


3. Access (26 GHz) - Club use model



- Each licensee **can use all the awarded spectrum (up to 1 GHz)** in areas where frequencies are not used by other licensees.
- Each license holder has **pre-emptive rights** on its assigned lot

3. Access (26 GHz) - Verticals



- Each licensee must provide wholesale **access to other players** for the development of 5G services
- **Non-telcos** (verticals)

Packaging & Pricing

Packaging 3.6-3.8 GHz band - proposed options

Option number	Packaging	Pros	Cons
Option 1	2 lots x 100 MHz	Best technical package	Problems for new entrants/competition
Option 2	4 lots x 50 MHz	Increases the audience of potential bidders	Fragmentation of spectrum and introduction of speculative trading/leasing/sharing risks
Option 3	2 lots x 80 MHz 1 lot x 40 MHz	Consistent with a differentiated service demand + fair compromise with respect to potential competition	No spectrum in the band for 1 of the 4 Italian MNOs

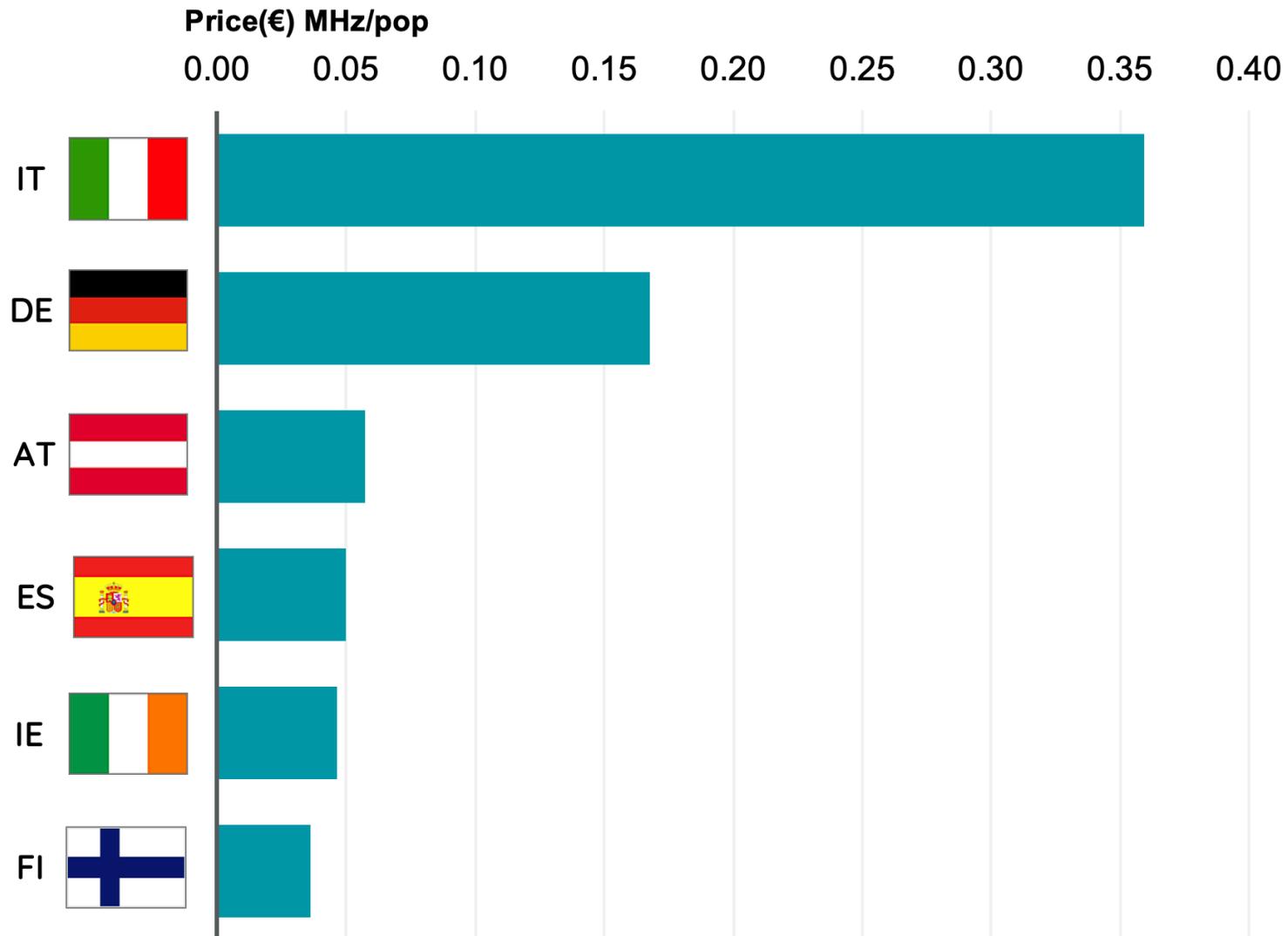
Packaging 3.6-3.8 GHz band – adopted option

Option number	Packaging	Pros	Cons
Option 4	2 lots x 80 MHz 2 lots x 20 MHz	Attenuate the risk of overbidding against new entrants	20 MHz small lots of contiguous spectrum

Packaging flexibility in the 3.4-3.8 GHz band: Austria, Germany, Spain and UK

Country	Band	Blocks	Total MHz	Spectrum caps	Price paid	Duration
AT 	3.4-3.8 GHz	10 MHz	390 MHz	150-170 MHz	€188m	20 years
DE 	3.4-3.7 GHz	10 MHz	300 MHz	None	€4.18bn	18 years
IT 	3.6-3.8 GHz	2 x 80 MHz 2 x 20 MHz	200 MHz	100 MHz	€4.35bn	18 years
ES 	3.6-3.8 GHz	5 MHz	200 MHz	120 MHz	€438m	20 years
UK  (proposed)	3.6-3.8 GHz	5 MHz	120 MHz	416 MHz of all relevant spectrum for mobile	-	Indefinite (initial term 20 years)

Pricing - Italy has the highest price (€) per MHz and population in the 3.4–3.8 GHz band



Italy's multiband auction: a state of the art???





Thank you!

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