

An aerial view of a city, likely Chicago, with a dense network of blue lines representing data or communication connections overlaid on the urban landscape. The lines are most concentrated in the center and spread out towards the edges of the frame. The sky is blue with scattered white clouds.

# Ziua Comunicatiilor



## 5G & Romania's Recovery Time for a step change

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Ericsson



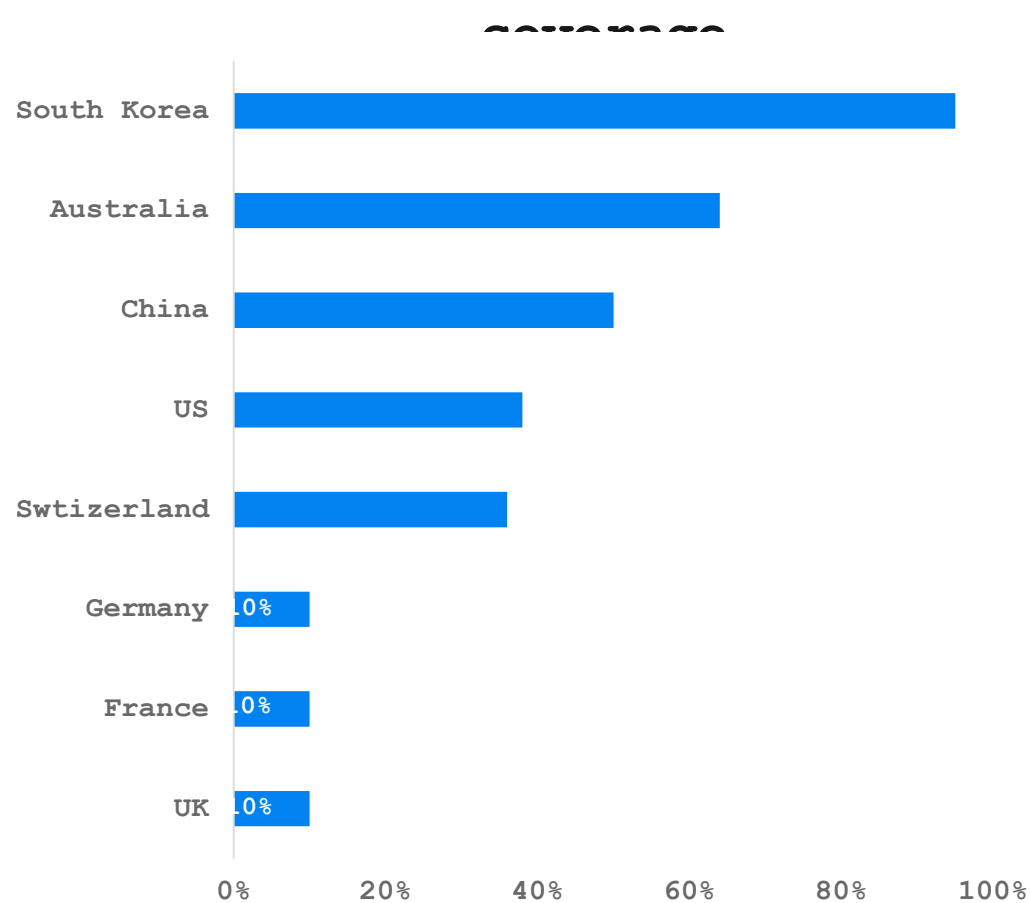
# The path to limitless potential



# 5G: Europe's position today



## 5G mid-band population



April 2021

Source: various, Ericsson analysis

- The pace of real 5G deployment (mid-band) across Europe is falling behind leading countries
- Europe will unlikely catch up until ~2025
- The leaders are driving large scale mid-band deployment enabling their customers to experience a step change in performance, differentiation and value
- Some European deployments use narrower spectrum carriers which limits the differentiation, and the lower coverage compounds slower momentum
- Robust mid-band 5G is critical for digital transformation, to realize the green deal & boost Europe's competitiveness



# The step change: massive MIMO mid-band



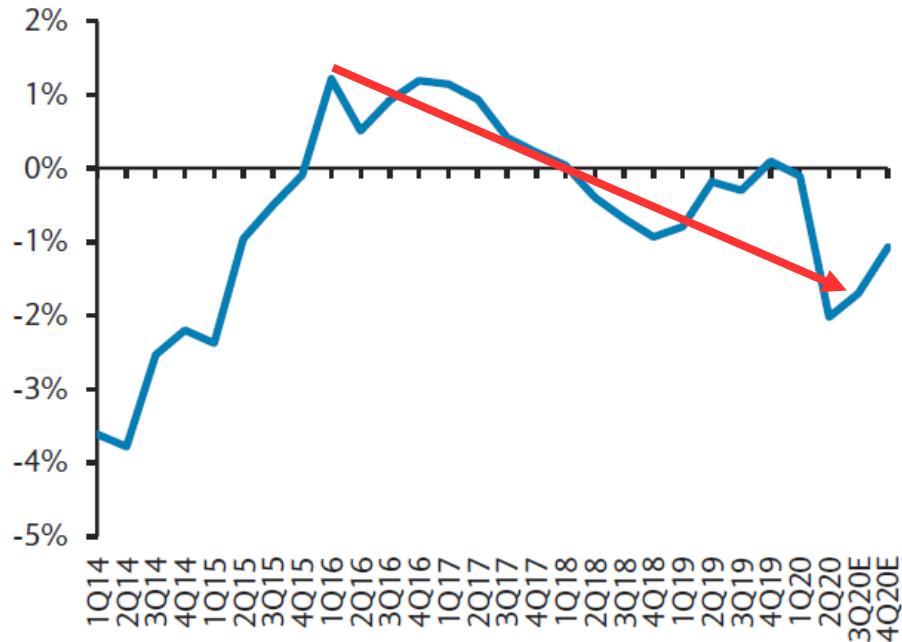
- ▶ Foundation for 5G Stand Alone use cases/ digital transformation
- ▶ Romania has the full mid-band available: huge opportunity to lead Europe
- ▶ But spectrum pricing and license length are key levers

# Enabling innovation: investment friendly



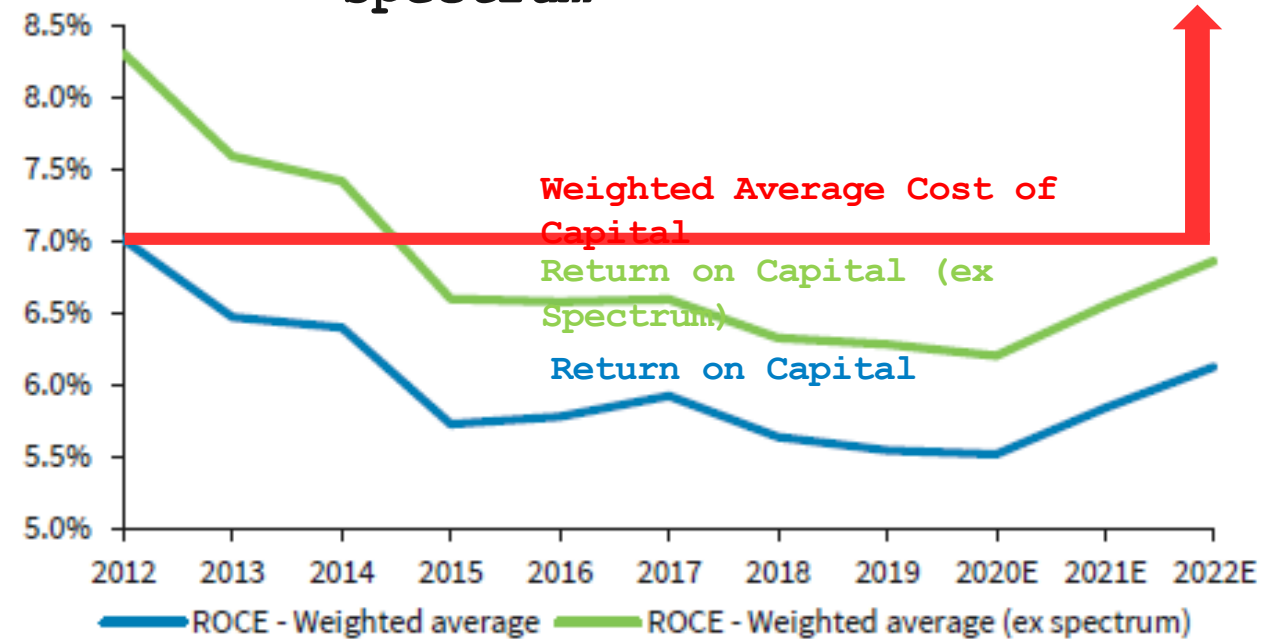
Return on Capital < Cost of Capital

EU consumer service revenue growth %



Source: Company data, Barclays Research estimates

EU Telcos ROCE inc/ ex spectrum



Source: Barclays Research estimates

Spectrum fees depress returns ~ 20%, account for ~ 30% of mobile capex

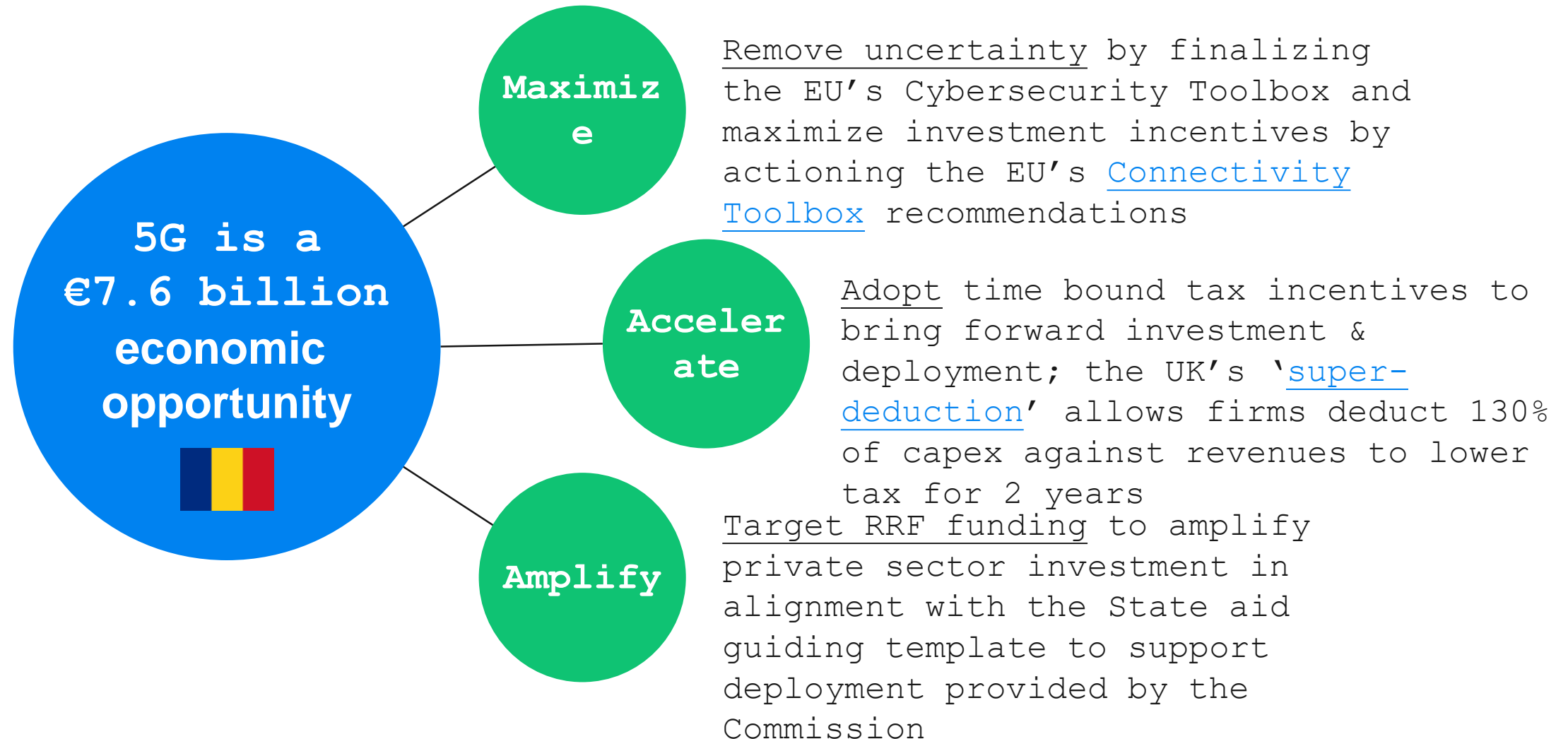
# Spectrum



<b>Incentives for investment.....</b>	<b>28</b>
24. Promote adequate reserve prices .....	28
25. Timely availability of 5G harmonised bands.....	29
26. Review National Spectrum Plans on a regular basis .....	30
27. Enable payments of award fees in instalments .....	30
28. Individual authorisation regime for the 24.25-27.5 GHz frequency band.....	31
29. Combine coverage obligations with financial incentives .....	33
30. Promote the opportunity of infrastructure sharing.....	34
31. Structure of recurrent spectrum fees to incentivise roll-out .....	35
32. Use financial aid as a complement to incentivise investments.....	36

Optimizing spectrum  
assignments to deliver  
expansive 5G connectivity

# Investment is key to realizing 5G's potential



# RRF realizing new opportunities – State aid



#1

Is 5G a step  
change  
technology?

— Mid band 5G meets the updated **BEREC** criteria and 5G is included in the **RRF State Aid template**



#2

Will aid crowd  
out private  
investment?

— Governments must assess whether the market will deliver gigabit connectivity in three years



#3

Will new  
externalities be  
realized?

— Governments must estimate if the benefits outweigh the costs and which tech is the most efficient



To secure the >€40 bn for connectivity, governments must provide the EC with answers for #2 and #3 asap

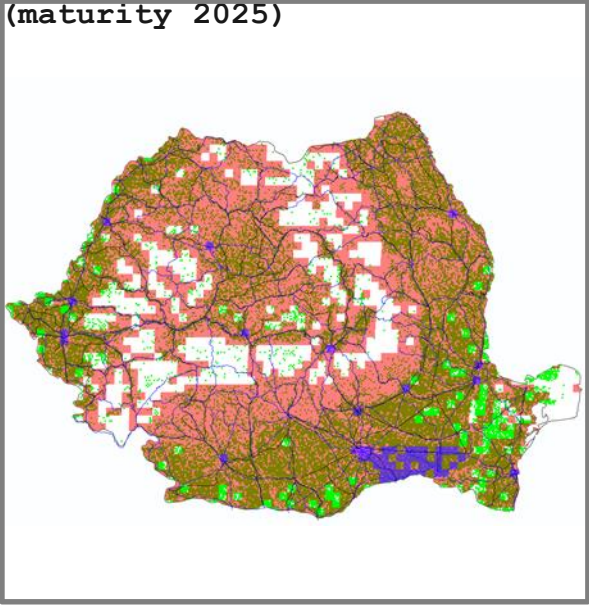




# 5G deployment mapped, costed, benefitted

5G for consumers

eMBB Base-case coverage  
(maturity 2025)



Mid band spectrum 2025

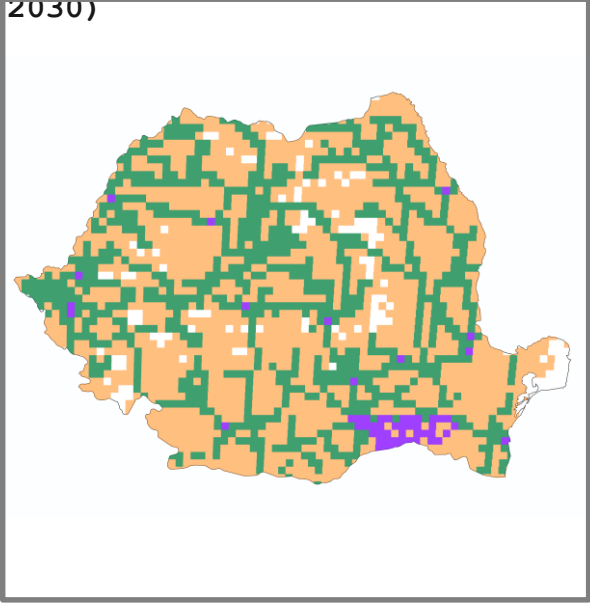
- Population 55%, Area 2%
- Agri 3%, Road 3%, Rail 7%

Low frequency spectrum 2025

- Population 99%, Area 79%
- Agri 90%, Road 92%, Rail 12%

5G for verticals

Full 5G: 3.5GHz coverage (to 2030)



Mid band eMBB Base-case


Additional commercial mid band to 2030


- Population +28%, Area +35%
- Agri +42%, Road +47%, Rail +91%


Additional subsidized mid band to 2030

- Population +18%, Area +58%
- Agri +54%, Road +50%, Rail +12%

Benefit to costs x4

 €1.4 bn private investment

 €0.4 bn public subsidy

 €7.8 bn economic boost (€4.7 in rural areas)

Cost Benefit Analysis suggest:

- Fibre has a ratio of 1-2
- 5G ratios are mostly

Source: [5G and Europe's recovery](#)

# Summary



Mid-band 5G provides a step change in performance and is critical for digital transformation which can drive €7.6 bn for Romania's economy

1. Spectrum pricing, long license terms and removing deployment barriers will be critical to maximising private sector investment
2. Implementing time bound tax incentives to accelerate investment will bring forward deployment
3. Private sector investment can also be amplified via targeted public funding and the RRF is a

