



The potential of digital connectivity to strengthen the cooperation between urban and rural areas

Digital Alps Conference 3 May 2022

Dr. Gerasimos SOFIANATOS, Deputy Head of Unit B5 – Investment in High Capacity Networks
DG CONNECT, European Commission

The views expressed in this presentation are those of the author and do not necessarily represent those of the European Commission or its services

Connectivity at the centre of the EU policy agenda



Next Generation EU

Recovery and Resilience Facility

Common values,
goals, plans

Digital
Decade

Twin
transition

Competitive EU
digital supply

Investment in secure
connectivity, 5G-6G, fibre

20% investment
in Digital

European cloud
and data space

Secure digital
identity

Digital
sovereignty

Filling-in
connectivity gaps

“In an unprecedented manner, we will invest in 5G and fibre.”

President Ursula von der Leyen

State of the Union speech, Strasbourg, 15th September 2021

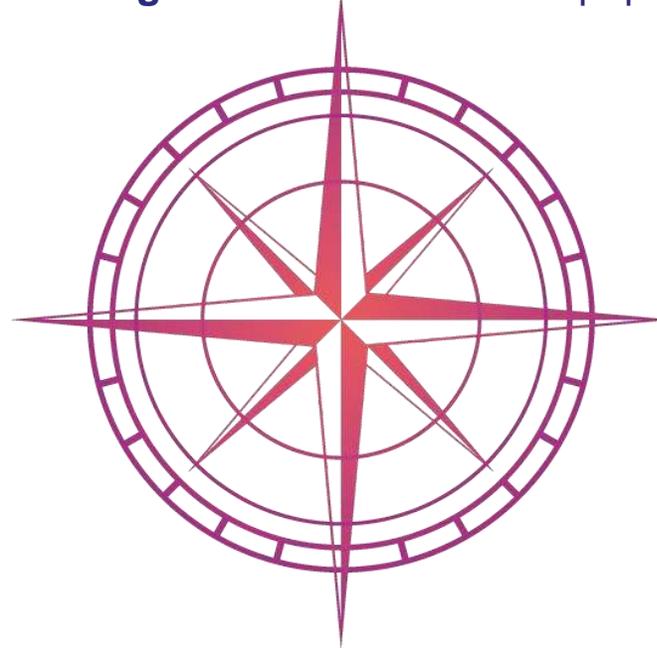


Europe's Digital Compass towards 2030

Skills

ICT Specialists: 20 million + Gender convergence

Basic Digital Skills: min 80% of population



Government

Key Public Services: 100% online

e-Health: 100% availability medical records

Digital Identity: 80% citizens using digital ID

Infrastructures

Connectivity: Gigabit for everyone, 5G in all populated areas

Cutting edge Semiconductors: double EU share in global production

Data – Edge & Cloud: 10,000 climate neutral highly secure edge nodes

Computing: first computer with quantum acceleration

Business

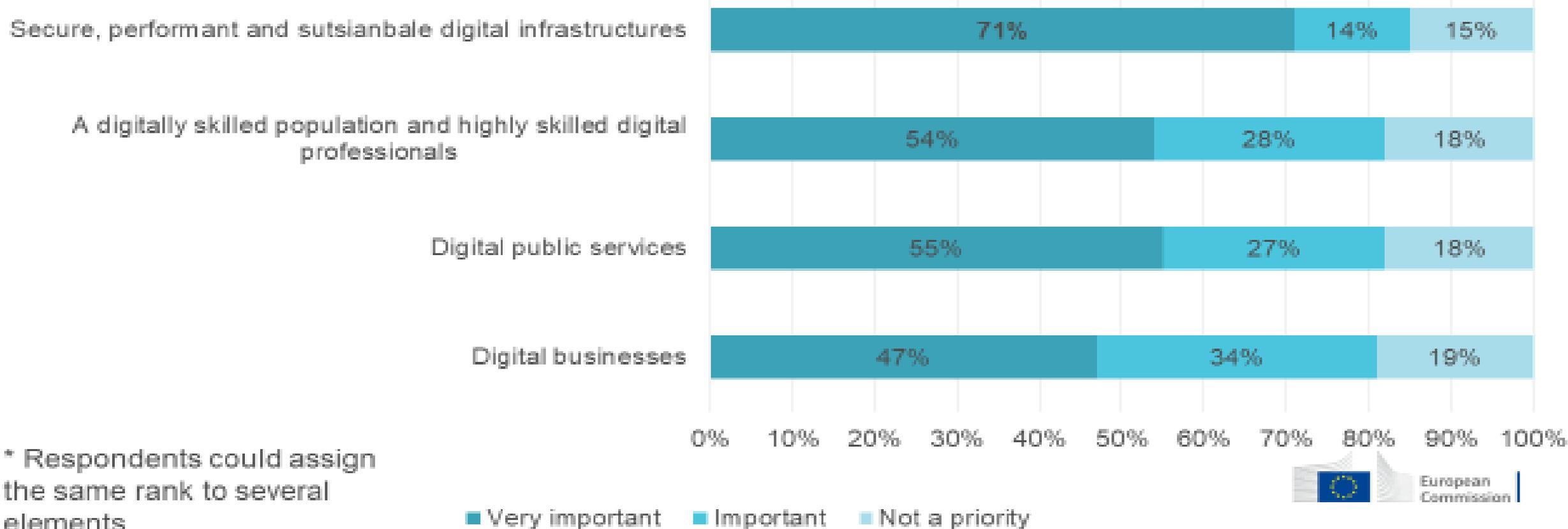
Tech up-take: 75% of EU companies using Cloud/AI/Big Data

Innovators: grow scale ups & finance to double EU Unicorns

Late adopters: more than 90% of European SMEs reach at least a basic level of digital intensity

Consultation Results: Connectivity as Key Enabler

In your opinion, how important are the following elements for accelerating the digital transformation?



Connectivity in rural areas and investment gaps

In 2021, the rural areas significantly lagged behind:

- Rural FTTP coverage: 33,3 % compared to 49,1 % total
- Rural NGA coverage: 67 % compared to 89,5 % total

Investment gap to achieve the EU's 2025 5G and Gigabit connectivity targets: at EUR 65 billion per year (EIB study)

Out of which private funding will cover about one third, leaving an estimated investment gap on an annual basis of around EUR 42 billion until 2025.

The key instruments to reach this objective are:

- a) Smart regulatory approaches
- b) Reduction of the cost of deployment
- c) Publicly supported infrastructure investments and
- d) Sharing of knowledge to implement these investments => network of national and regional Broadband Competence Offices (BCOs).



Long-term vision for digital connectivity in rural areas: achieve a complete coverage with Gigabit and 5G.

Incentivising private investment via smart regulation

The **European Electronic Communications Code**: a significant step towards predictable and investment-friendly regulation:

- Favourable treatment for new business models, such as **co-investment** and **wholesale-only** models
- **Appropriate returns** to be allowed by regulation, taking into account **investment risk**
- **Ensuring predictability of spectrum assignment procedures (20-year duration of RoU).**

Updated guidance on key access provisions of the EECC in a new “**VHCN Recommendation**”

- Promoting **pro-investment and pro-competition** approaches in access regulation
- Guidance on how to reward/incentivise uncertain investments in fibre through **risk premium**
- Guidance on conditions where **less intrusive regulatory approaches** should be applied
- Guidance on how regulation should take into account **commitments and commercial agreements**
- Ways to accelerate the **migration** of operators and users **from copper to VHC networks**

Accelerating investment & deployment of networks

Toolbox of best practices to promote connectivity:

Member States led development of toolbox of best practices to address **acute problems hindering network deployment** - based on the Commission's Connectivity Recommendation (2020/1307):

- Overall cooperative process, but **challenges** ahead:
 - Some best practices emerge, what remains difficult is their acceptance that they are valid for all Member States;
 - Resistance to additional spectrum assignment harmonisation;
 - Difficulties in adopting a coherent spectrum assignment approach to cross-border verticals' use cases.

Broadband Cost Reduction Directive Review:

Proposal for a **new legislative instrument**, building on the experience of the 2014 Directive and aiming at the **long term** requirements of network deployment:

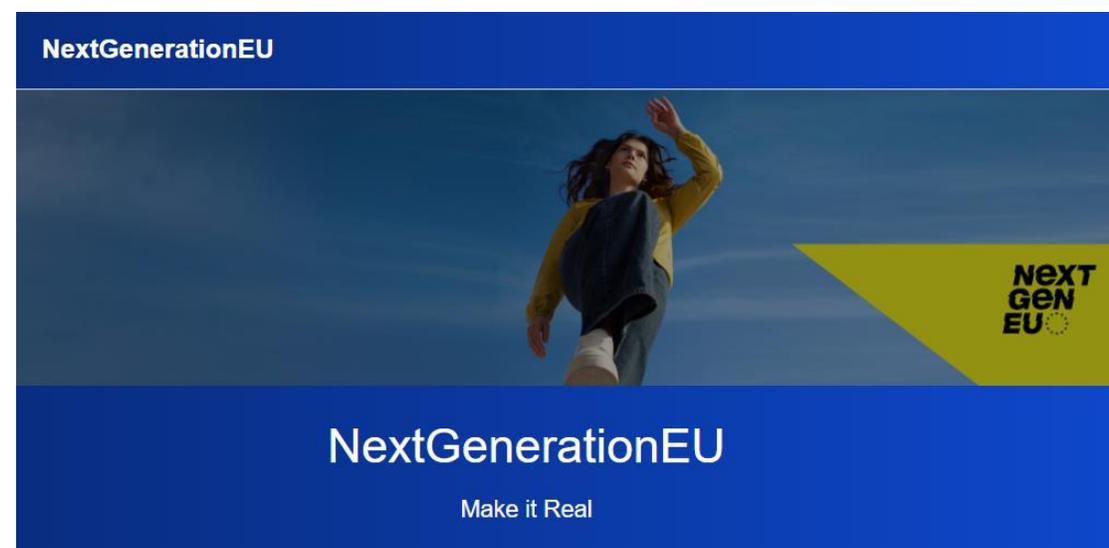
- Intended Scope:
 - Focus on **5G** and **fibre**
 - Expand the scope of **access** to physical infrastructure for network deployment
 - Enhance **availability of information** on existing infrastructure
 - Accelerate **permit granting** procedures
 - Incentives for **green** deployment
- Planned adoption of proposal by **Q2 2022**

Recovery & Resilience Facility

- [RRF](#) is central to [NextGenerationEU](#)
 - 26% (EUR 117bn) Digital
 - EUR 13bn Connectivity

Cross-border projects:

- Microelectronics
- Cloud
- 5G corridors
- Very high capacity submarine cables



- All 27 national plans refer to a 5G strategies
- 11 plans with 5G investments:
 - 5 on 5G Corridors
 - 5 on the Fibre for 5G in broad areas, including rural zones
 - 5 target municipalities or business parks and
 - 1 targets public safety

Connecting Europe Facility - Digital

Actions supporting 5G infrastructure deployments

5G corridors along transport paths

5G for Smart Communities: 5G connectivity for socio-economic drivers

Actions supporting pan-EU backbone infrastructures

Connectivity for Digital Global Gateways

Pan-European cloud federation

Quantum Communication Infrastructure

Terabit connectivity for HPC

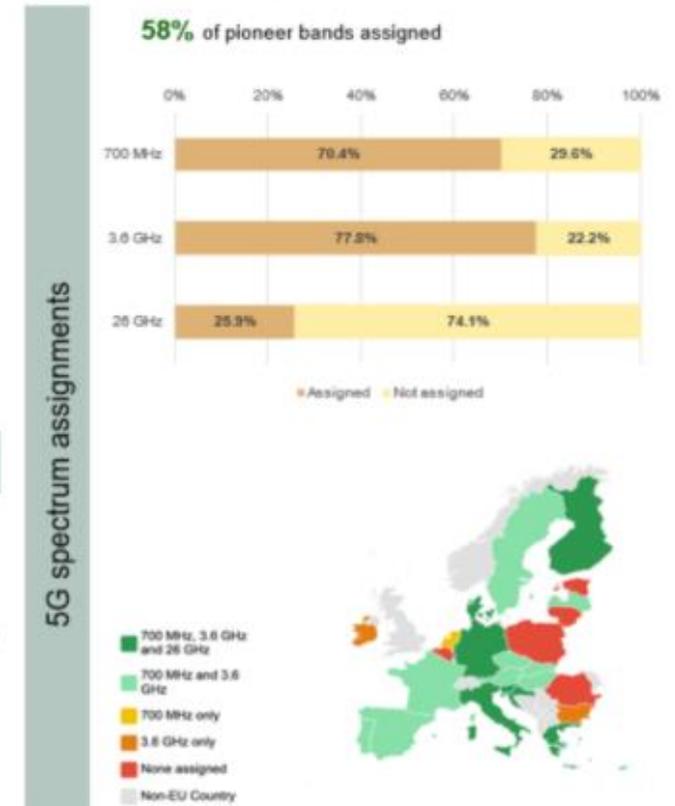
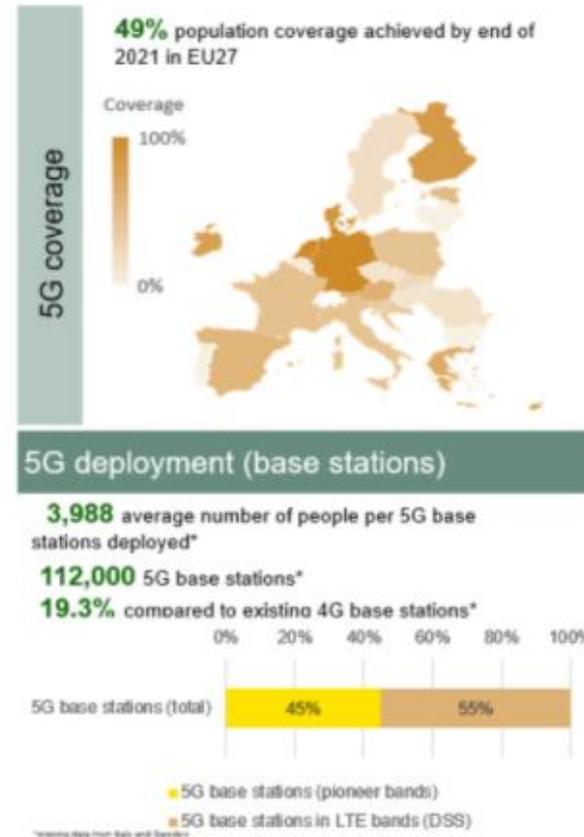
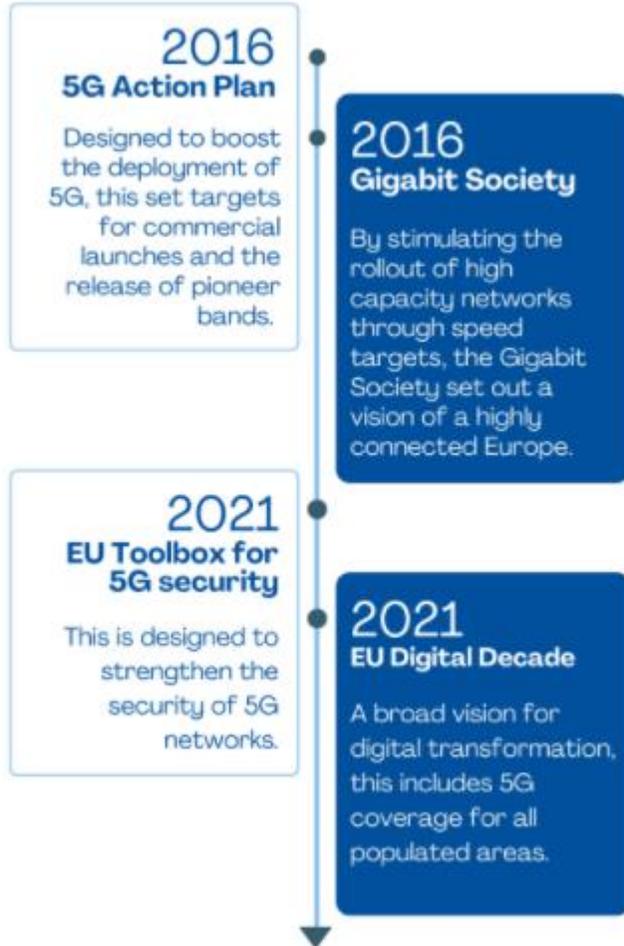
Operational Digital Platforms

5G Policy

5G Scoreboard

The 5G scoreboard summarises the status of 5G rollouts, spectrum assignments, as well as 5G base station deployment in the EU and internationally.

5G scoreboard, January 2022

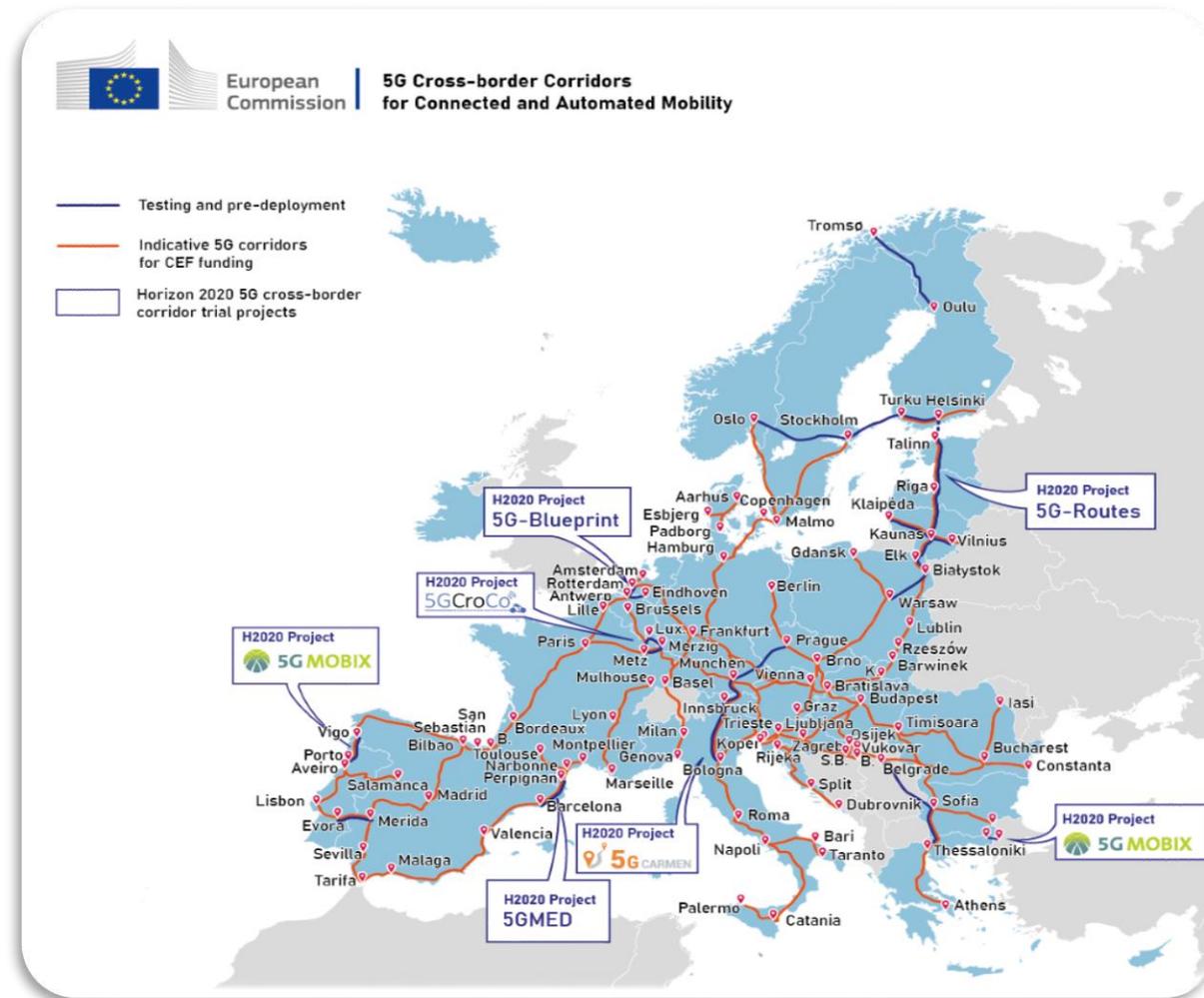


International scoreboard, January 2022

	China 	South Korea 	Japan 	USA 	EU 
5G Mode ⁶	NSA/SA	NSA/SA	NSA/SA	NSA	NSA/SA
Approximate number of 5G base stations	916,000	162,000	50,000	50,000	112,000
Population	1,402,000,000	51,780,000	125,800,000	329,500,000	447,706,000
People per base station	1531	319	2516	6590	3988
5G target bands assigned	700 MHz 2.6 GHz 3.6 GHz	3.6 GHz 28 GHz	3.6 GHz 3.6 - 4.1 GHz 4.5 GHz 28 GHz	600 MHz 2.5 GHz 3.45 - 3.55GHz 3.5 - 3.7 GHz 3.7 - 3.98 GHz 24 GHz 28 GHz 39 GHz 47 GHz	700 MHz 3.6 GHz 26 GHz
Indicative 5G subscriber numbers	166 million (China Mobile only; source: China Mobile Research Institute) 173 million (source: Ericsson 2020)	17 million (source: 5G Forum, Korea)	14.19 million (source: Japan times)	15.8 million (in Dec 2020; source: Insider Intelligence) 14 million (including Canada; source: Ericsson 2020)	8 million (source: Ericsson 2020)

5G Corridors for Connected and Automated Mobility

- ❑ **Vision: Uninterrupted coverage** of major transport paths, including TEN-T, by 2030: 26.000km, 49 intra-EU cross-borders
- ❑ **Investment required:** ~EUR 5,4 bn
- ❑ **Driven by private investment** with public funding of cross-border and "challenge" areas
- ❑ **Blending and coordination** with EU and national financial instruments, including RRF
- ❑ **Market failure** areas & cross-border
- ❑ Advanced **use cases**, beyond CAM
- ❑ **Multimodality** & interconnection between transport modes, Roads-Railways-Waterways
- ❑ **2022 closed call:**
 - ❑ Works: early wave, EUR 100m
 - ❑ Studies: EUR 6m



Geographical continuum: from cross-border 5G corridors to 5G communities

Large-scale 5G deployments

Local 5G systems



Major transport paths



Urban areas



Rural areas

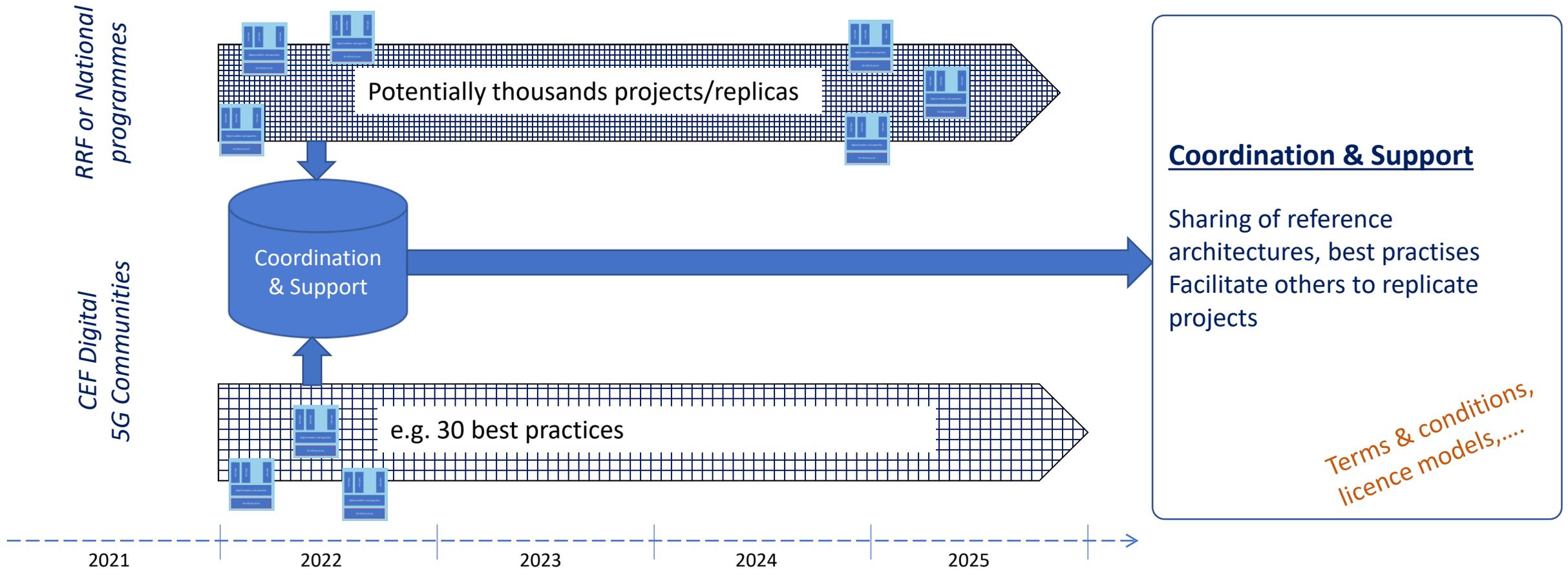
Facilitate and accelerate **5G deployment and take up** (bundling connectivity to applications)

5G for smart communities

- ❑ 5G systems → innovative use-cases for public authorities, services of general (economic) interest
- ❑ Operators + local authorities/ hospitals /schools / public safety
- ❑ Best practices as blueprints for replication
- ❑ EUR 80m until 2023- up to 75% 5G infrastructure co-funded
- ❑ First call for proposals: closed on 20 April
- ❑ Performance of 5G indispensable for the vertical use cases and not already available/planned



5G communities: synergy between programmes



Strategic backbone connectivity for digital capacities

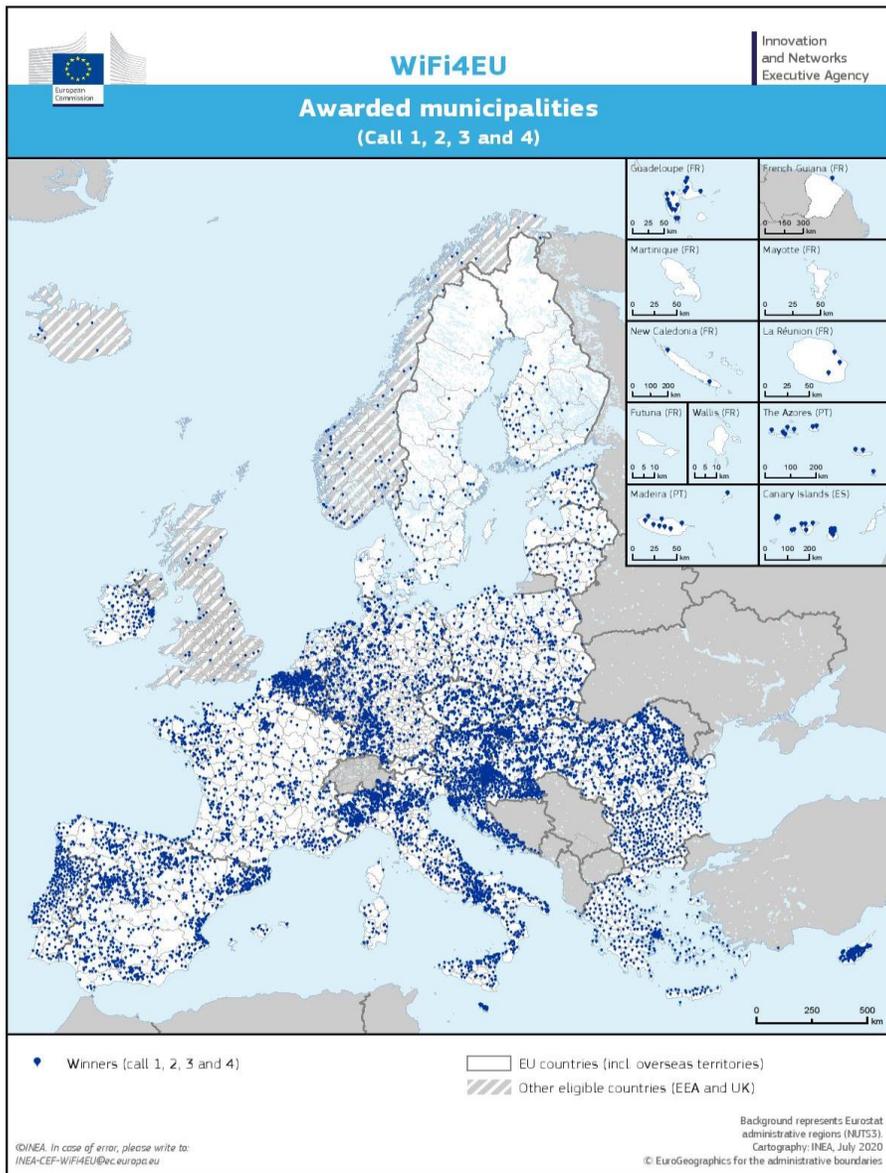
Scope

- Cross-border, secure, energy efficient, ultra-high capacity (Tbit/sec) and low latency interconnections between existing **Cloud and HPC infrastructures**
- Universal access to and sharing of unique supercomputing (and data) resources enables a broad range of **applications** (e.g. fighting covid)
- Ultra-secure **quantum communication** infrastructure (inter-cities terrestrial backbones)

Aim

- Foster the competitiveness of the cloud industry through **compliance with EU values** of data protection, security, portability and sustainability
- Gain **technological sovereignty and strategic autonomy** while enabling innovative cloud-based services to emerge at EU and global levels





WiFi4EU

- Free of charge Wi-Fi connectivity to citizens and in public spaces, including hospitals (2061) and schools (8001)
- 8802 local communities awarded vouchers in 4 calls; one-click application for 15k€ grant; Some municipalities deploy more than one installations
- Currently 6300 municipalities have completed about 8165 installations

**Follow-up
call under
CEF 2 Digital**



Coordination and Support Actions

- Smart Communities Support Action
- Programme Monitoring and impact
- Broadband Competence Offices
- Communication and dissemination
- Studies and other support measures

#CEF2digital



Your Feedback counts!

Proposals of potential infrastructure projects: Please also inform the Broadband Competence Office (BCO) of your Member State: <https://ec.europa.eu/digital-single-market/en/bco-network-directory>

Thank you for your attention!



Financial Instruments and Blending Facility

Connecting Europe Broadband Fund

- ✓ EC, EIB, NPBIs (CdC, Fwv, CdP) + private investors
- ✓ 420M€ first close funding (100M€ from CEF). Today: 470M
- ✓ Between 1 to 1.7bn EUR leverage of private investment
- ✓ Lively project pipeline: 1M+ households planned to be passed



Being considered under CEF Digital:

- Possibility to use a Blending Facility as an agile implementing mode
- Fund-of-Funds under CEF Digital

2030 Ambition – Where are we now ?

		EU Baseline	2030 Target
Skills	ICT specialists (nbr employed)	7.844.100	20.000.000
	<i>Gender distribution</i>	18% of women	convergence
	Basic digital skills	56%	80%
Infrastructures	Gigabit coverage	59%	100%
	5G in all populated areas	14%	100%
	Semiconductors (EU share of global production)	10%	20%
	Edge/Cloud (nbr of nodes)	0	10.000
	Quantum Computer	0	1
Business	Cloud Uptake	26%	75%
	Big Data Uptake	14%	75%
	AI Uptake	25%	75%
	SMEs with at least basic level of digital intensity	61%	90%
	EU Unicorns (nbr)	122	250
Government	Key Public Services Online (service completion score)	75	100
	Medical records availability	N.A.	100%
	Digital Identity Adoption	N.A.	80%

Titles adapted for readability purposes – full version with details and sources available in [COM\(2021\) 118](#)