

# 3(+1) 5G Proposals for Greece in the Digital Decade

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# InCites Consulting at a glance

InCites Consulting provides specialized, top-notch, actionable **advice & associated consultancy services** to support **ICT business leaders and policy makers** make the most informed decisions on:

- winning **business strategies**,
- the best **technology investments** and
- the most impactful **policies**

for an all-connected digital world that will enable sustainable living on our planet.



Established  
**2013**



Key achievements:

- [5G readiness index](#)
- [Lux 5G national strategy](#)
- [World Summit Award](#)  
2015 Lux national nominee for our [TEN](#) educational platform



**30+**

Happy customers

- Governments
- Regulators
- EU DG Connect
- Mobile operators & vendors

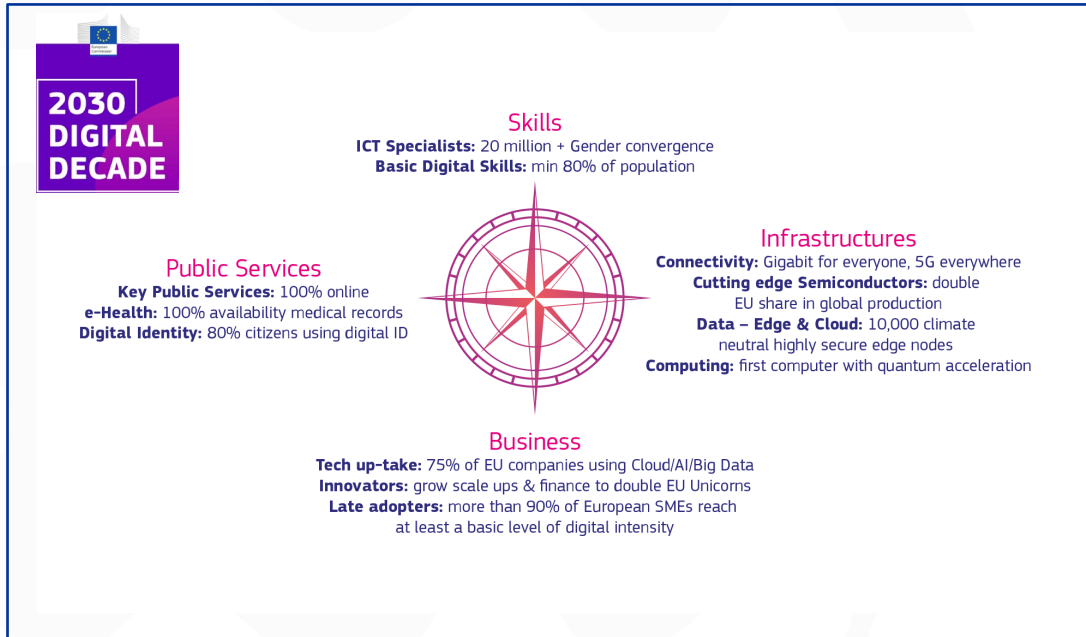


Our team

**100+**

scientific publications

# Why these proposals?

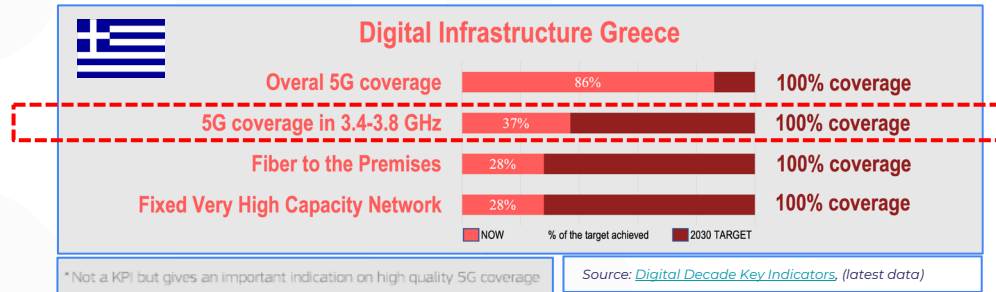


- **Greece is a frontrunner** in making 5G pioneer bands available (99% of spectrum destined to be used by 5G)
- **Greece had already reached** overall 5G coverage of 86% at the end of 2022 (vs. 81% EU average and 100% 2030 target)

**...SO we are done with 5G, aren't we?**

Source: [Digital Decade Reports 2023](#), September 2023

# ...maybe not quite so...



**“...5G is still falling short in quality with regards to end-users’ expectations and industry needs, as well as in addressing the divide between rural and urban areas:**

- Quality of service provided during **peak-time** conditions? - [The EU wishes] to ensure that the quality of service underlying this target is provided in all populated areas by 2030...”
- **Investing in connectivity, including in rural and remote areas, is key** to ensure equal access to digital opportunities and activities in line with the [Declaration on Digital Rights and Principles](#)
- Ensure that the **deployed networks respond to future needs**, (industry sectors and critical applications)
- The deployment of **5G Stand-Alone** networks [in Europe] is lagging behind ...”

# It also makes great economic sense

- «...Εκτιμάται ότι ο σωρευτικός αντίκτυπος [του 5G] στην **Ακαθάριστη Προστιθέμενη Αξία (GVA)** [της Ελλάδας] μπορεί να κυμαίνεται μεταξύ **7,3 και 12,4 δισεκατομμυρίων ευρώ...**»<sup>1</sup>
- «...Μια άλλη μελέτη εκτιμά ότι [το 5G] θα μπορούσε να προσθέσει **έως και 10 δισεκατομμύρια ευρώ στο ελληνικό ΑΕΠ** και έχει τη δυνατότητα να δημιουργήσει ή να μετασχηματίσει **έως και 190.000 θέσεις εργασίας** σε όλους τους τομείς της οικονομίας...»<sup>2</sup>

1, 2: [Εθνικό Ευρωζωνικό Σχέδιο 2021-2027](#), Αύγουστος 2021







# Proposal #1:

# Neutral Host small cell networks in areas with high-capacity requirements

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## Neutral Host small cell networks in areas with high-capacity requirements

### THE ISSUE

- Need for **high performance/high quality 5G coverage in crowded public spaces and hot spots** (metro, stadiums, event venues, city centres, major tourist attractions, etc.).
- **High number of cell sites** required in a limited area (x3) → sustainability/high energy consumption, aesthetics & optical pollution.

### THE SOLUTION

- **The Project:** deployment of a number of “mini-networks” of small cells across Greece in key interest areas.
- **Neutral Host business model:** one network builder - access to all operators on a wholesale SLA-basis.
- **Project beneficiaries:** real estate owners, municipalities, infrastructure providers, integrators, mobile operators.

**Potential funding sources:** RRF (Recovery and Resilience Facility)

# Key issues to consider

- **Identification of intervention areas:** detailed mapping and public consultation.
- **Close monitoring of the implementation of the submitted plans:** Use both a monitoring mechanism and a specialized system.
- Exploration of **new spectrum management models** (eg. shared or local use etc.) to further stimulate market competition.







# Proposal #2: Subsidies for 5G Private Networks

## Greece

Number of base stations deployed	6,634	Yes
Network performance: speed	53.28 Mbps	Yes
Current usage of 5G pioneer bands	99.17%	Yes
Number of km served across main transport paths	No data reported	Limited progress
Population coverage	85.7% (overall)	Yes
5G corridors	Thessaloniki, Sofia-Belgrade EL-BG-RS	Limited progress
Specific provisions for verticals	Proposed	Limited progress
5G verticals trials & initiatives	2 trials identified	Limited progress
Member States spending on to the digital priority in Recovery and Resilience Plans	23.3%	Yes

Source: [5G Observatory data - Greece, latest data](#)

# Proposal #2:

## Subsidies for 5G private networks

### THE ISSUE

- **Greece lags behind** in 5G verticals related provisions & initiatives for the Digital Decade.
- **Digitalization of enterprises and Industry 4.0** calls for 5G Private Networks that can support applications based on Artificial Intelligence, Machine Learning, IoT, AR/VR, etc. leveraging on the low-latency, high-speed, security by design and other unique capabilities of 5G.
- **High initial cost** of installation of such advanced Private Networks has been identified as a **key barrier** for their wide adoption.

### THE SOLUTION

- **The Project:** 5G Private Network subsidies for enterprises and industries.
- **The subsidy:** purchase and installation of all the hardware and software necessary for the implementation & operation of a 5G Private Network as well as the associated applications
- The Project supports the digital transformation of all industry sectors of the Greek economy

**Potential funding sources:** RRF (Recovery and Resilience Facility)

# Key issues to consider

- A detailed **business plan** including also **indirect** increase in revenues or other additional benefits should be submitted.
- Exploration of **new spectrum management models** (eg. shared or local use etc.) to further stimulate competition.





## **Proposal #3:**

**Development of 5G mobile networks  
in areas without commercial  
interest**

# Proposal #3:

## Development of 5G mobile networks in areas without commercial interest

### THE ISSUE

While **rural and remote areas** stand to reap the greatest advantage from access to advanced remote services over 5G networks (in agriculture, tourism, health, education, remote working/digital nomads, entertainment), their **5G coverage is not commercially viable**.

### THE SOLUTION

- **The Project:** buildout of 5G mobile networks in areas where there are no plans for the next 3 yrs.
- **The funding** (for the identified areas of interest):
  1. **fiber-based backhaul networks** to connect existing base stations not currently connected and not expected (after analysis & confirmation) to be connected by fiber in the next 3 years, and
  2. **new base stations** capable of providing DL $\geq$ 150Mbps and UL $\geq$ 30Mbps during peak hours, upgradeable to 1Gbps.

**Potential funding sources:** Operational Program Digital Transformation 2021-2027, RRF and/or CEF Digital (5G communities – Gigabit connectivity for socio-economic drivers and citizens, or 5G services for smart communities (“5G4EU” projects))

# Key issues to consider

- Provisions to ensure that this is a private investment complement – **not a crowd-out**:
  - **new infrastructure** in areas of **market failure**,
  - **not associated** to the fulfilment of any **coverage obligations** linked to spectrum rights.
- **Identification of intervention areas:** detailed mapping and public consultation.
- **Close monitoring of the implementation of the submitted plans:** Use both a monitoring mechanism and a specialized system.
- Similar PPP Projects are currently running in **Spain** and **Italy**.







**Proposal #4:**  
Introduction of  
new business  
models in  
spectrum  
management

# Proposal #4: New business models in spectrum management

## THE ISSUE

- **Spectrum is a scarce resource** and its use must always be maximized for the greatest benefit of society and economy.
- Emergence of **new business models, new market players and market needs**, eg. Private Networks for industries, Neutral Host and Private Networks Service Providers, etc.
- **New trends in spectrum assignment & management**, namely shared spectrum, local spectrum licensing and spectrum leasing.

## THE SOLUTION

- **In close collaboration** with the market:
  - reserve part of the non-assigned yet spectrum (in the 3.8-4.2GHz and 26GHz bands) for **shared use**, and/or
  - set the rules for **local licensing**, where there is today or **is foreseen to exist** such demand (i.e. industrial areas/sites, mines, ports/airports/ transportation hubs, logistics hubs, potentially also city centres, event venues, etc.).
- **Ofcom, UK** is a well-thought, good practice to study/follow

**Potential funding sources:** Operational Program Digital Transformation 2021-2027

# Conclusions

- **5G network deployments is NOT a done deal:** Greece can and should continue to build on its great momentum. Need to further accelerate and aim for where it will bring the most powerful result to the Greek economy & society, now **AND** in the future.
- InCites brings on the table **3+1 proposals** to make that happen:
  1. **Neutral Host small cell networks** in areas with high-capacity requirements
  2. **Subsidies for 5G Private Networks**
  3. Development of **5G mobile networks in areas without commercial interest**
  4. Introduction of **new business models in spectrum management**



# Thank you!

10 years



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