



GUIDE

Supporting the Strategic
Deployment Agendas for
The EU Corridors

CEF Digital projects Questionnaire analysis 2024

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Description

This questionnaire has been addressed to all CEF Digital Call 1 and Call 2 projects. The objective is to better understand the purpose and objectives of the studies and works projects, and the solutions put in place, the 5G corridor deployment process(es) and the ability to replicate it in other locations.

The questionnaire is addressing 6 domains:

- 1/ Technical (12 questions)
- 2/ Replicability (5 questions)
- 3/ Deployment (8 questions)
- 4/ Regulation (2 questions)
- 5/ Operation (3 questions)
- 6/ Best practices (4 questions)

This is an update of the 2023 questionnaire that has been used for the call 1 projects. A few additional questions have been proposed to call 1 projects in order to be able to develop a global consistent analysis

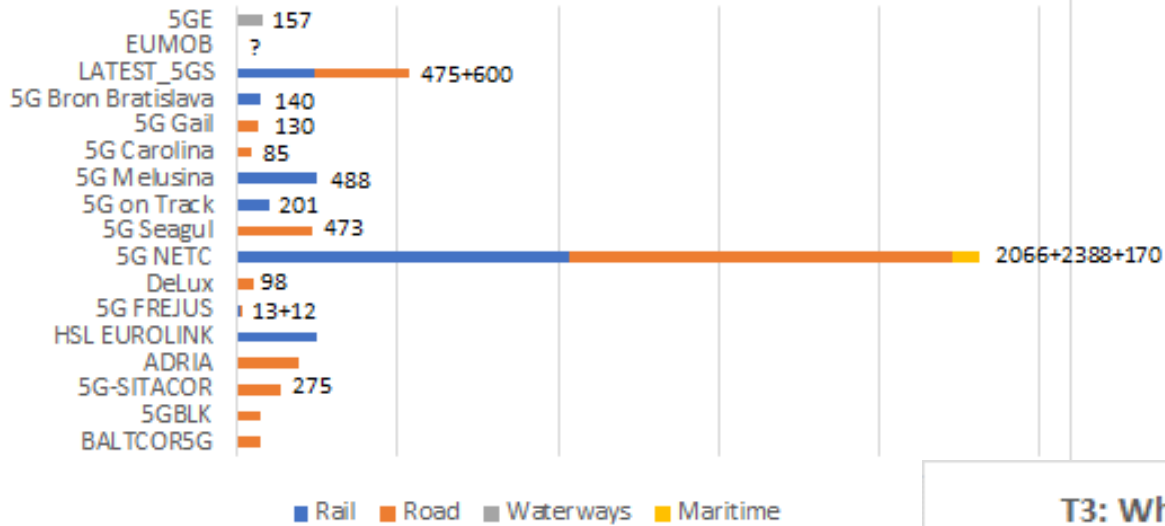


Technical section, main take-aways (1/2)

- 12 projects are covering roads, 7 rails, 1 waterways and 1 Maritime, some are covering several type of corridors
 - Studies: 1 806 km rails, 1 480 km roads and 157 waterways
 - Works: 2 066 km rails, 3 246 km roads and 170 Maritimes
- In total the 16 CEF 5G Corridors projects which have responded to the questionnaire are covering 8 926 km . It has to be compared with the 9 TEN-T core network corridors length which is 26 000 km → CEF projects are covering more or less 30%.
- Most of the projects are planning to offer **CAM** and **High value commercial services** for roads and **FRMCS-enabled Critical automatic train control systems and applications** for rails.
- Most of the use cases are addressing **Safety and traffic management operations** and **CAM**

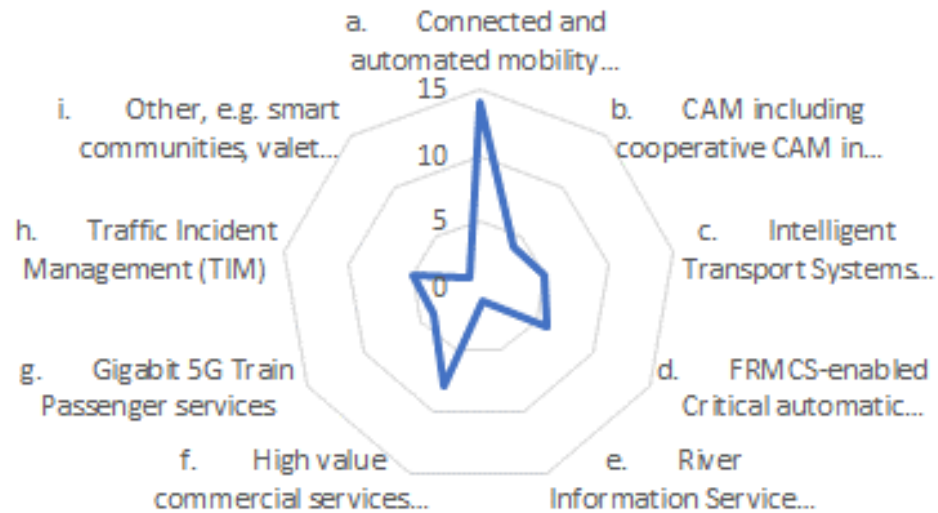


T1: How many km will you project cover?



Rail: 3872 km
 Road: 4726 km
 Waterways: 157 km
 Maritimes: 170 km

T3: Which of the following Service will your project address ?

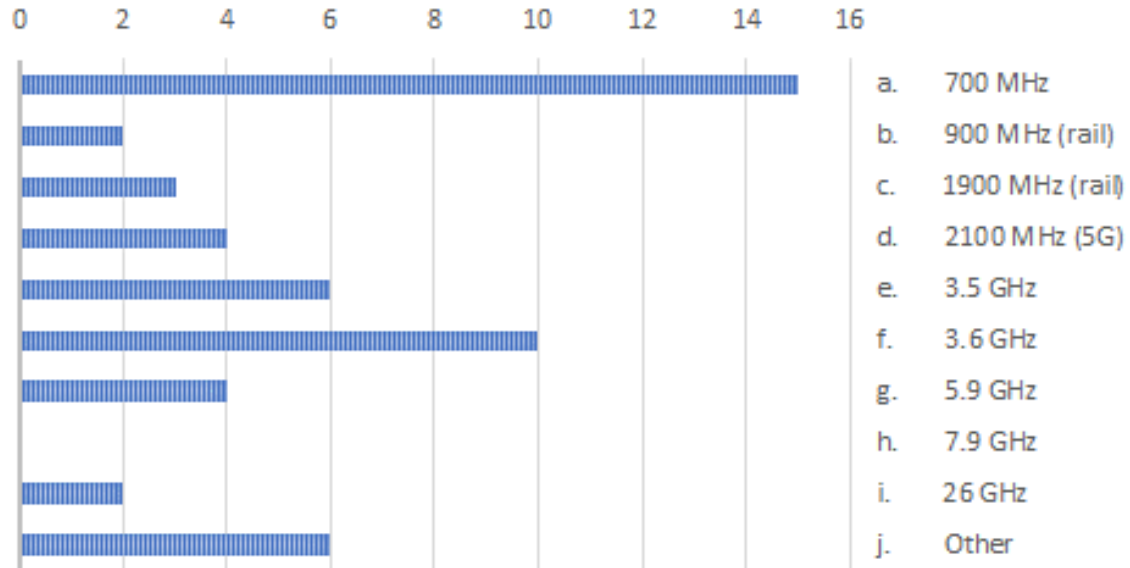


Technical section, main take-aways (2/2)

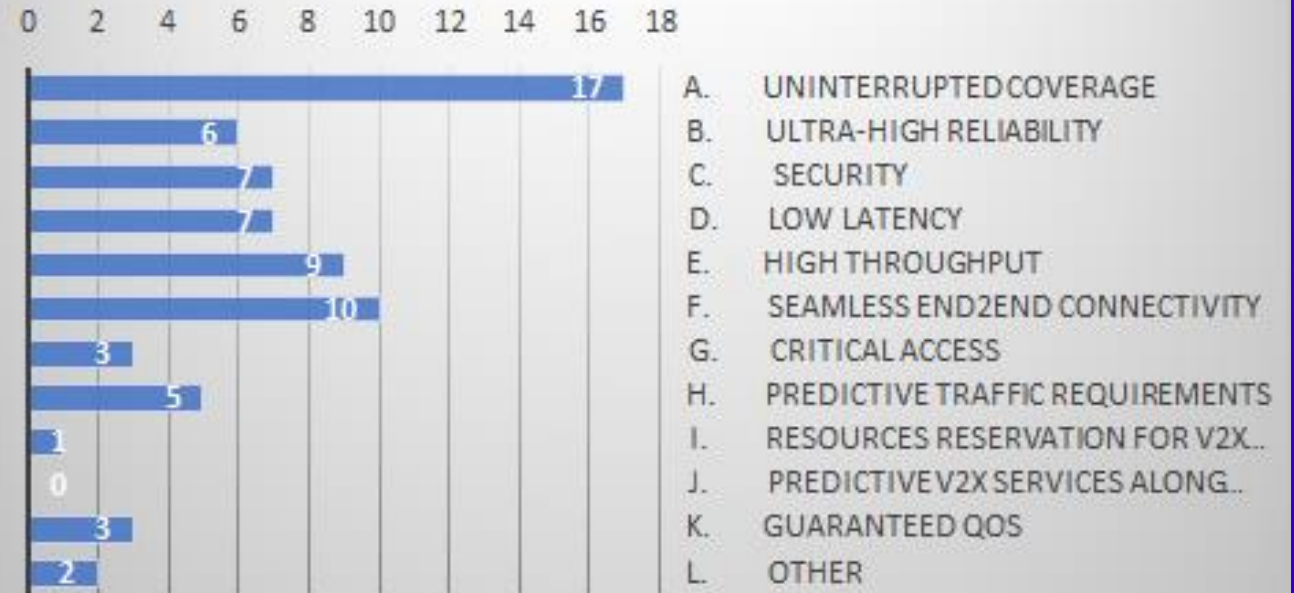
- **Infotainment ,Gigabit connectivity and Safety: Data Sharing for Real-time Situation Awareness and Traffic Information** are the 3 key commercial services
- Most of the projects are planning to use **700MHz** and **3.6 GHz** frequencies
- **Uninterrupted coverage** and **seamless end2end connectivity** are the 2 main objectives
- Only **2 projects** are planning to implement MEC
- **Network reselection** and **Inter-PLMN handover** are the 2 main solutions put in place for handover



T7: WHICH 5G FREQUENCY ARE YOU USING ?



T8: What are the Targeted network performance level/connectivity requirements ?

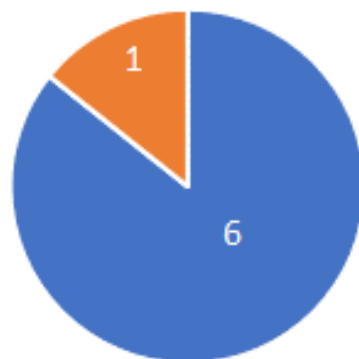


Replicability section, main take-aways

- Most of the projects are putting in place a **replicability methodology** but only half of them are planning to share it
- Most of the projects consider that the **CEF funding level is sufficient** to cover the development of replicable solutions
- **EU Rules and regulations** (eCom, Cybersecurity, Mobility and Transport, Environment) seem to be the highest obstacles to develop replicable solutions
- Most of the projects are willing to achieve the 4 CEF key goals:
 - a. Seamless cross border connectivity,
 - b. 5G coverage alongside road and/or rail, waterways,
 - c. Sufficient capacity to support all the services,
 - d. Trusted and secure communication between cars and other

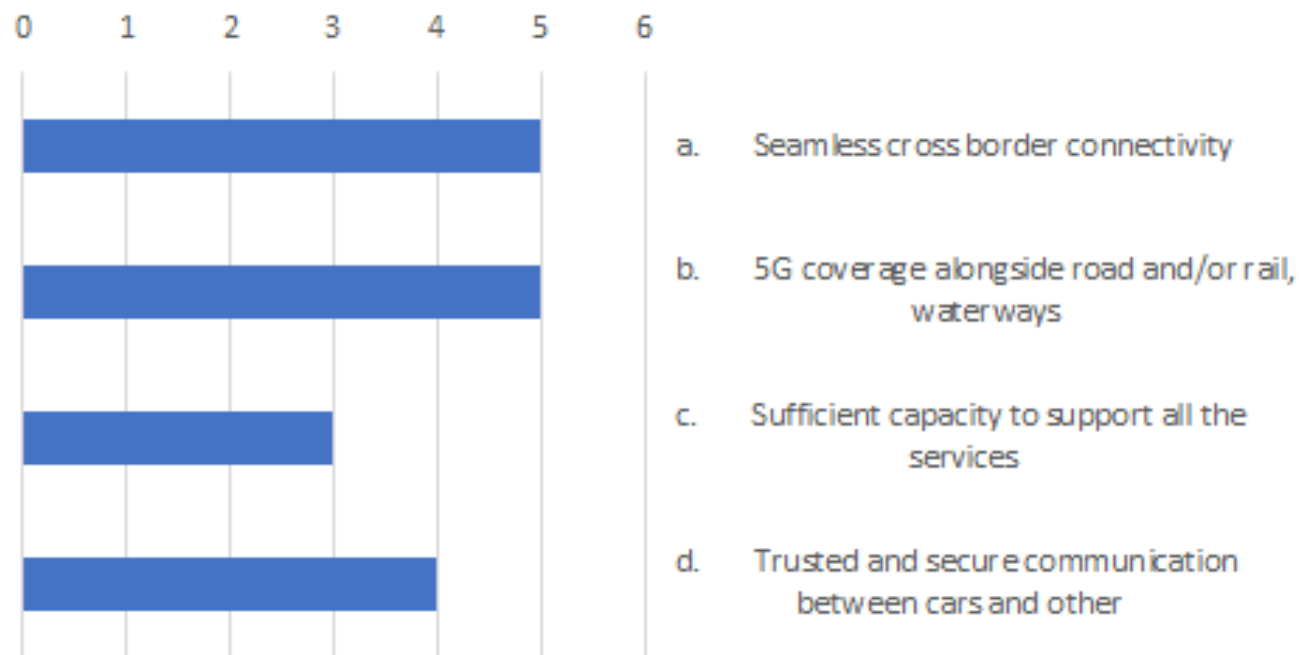


R1: Replicability methodology? (Works projects)



■ a. Yes ■ b. No

R5: Achievement of the 4 key goals ?

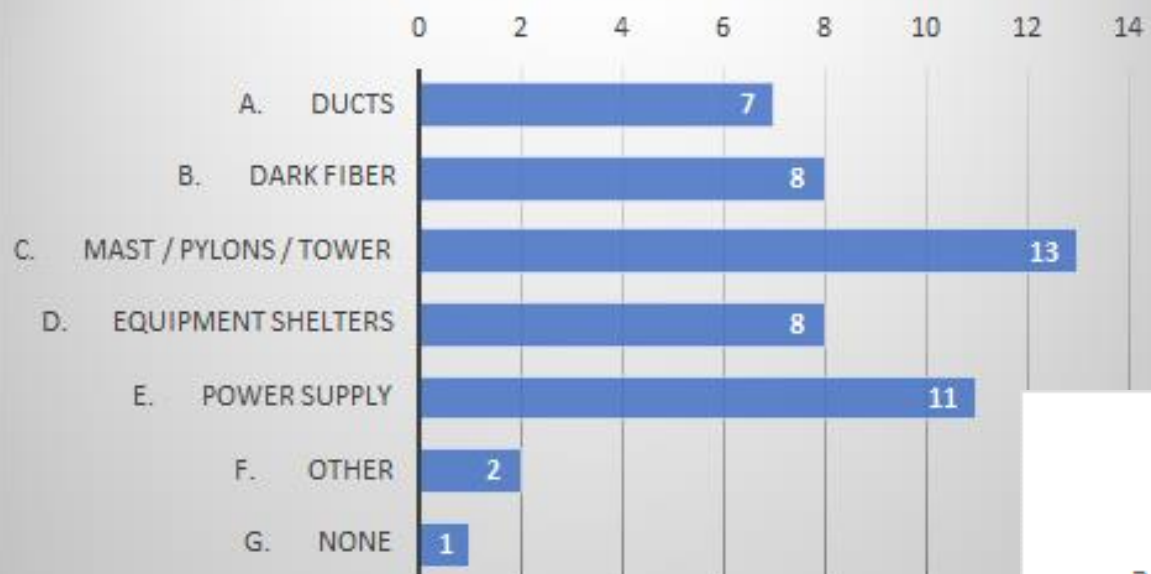


Deployment section, main take-aways

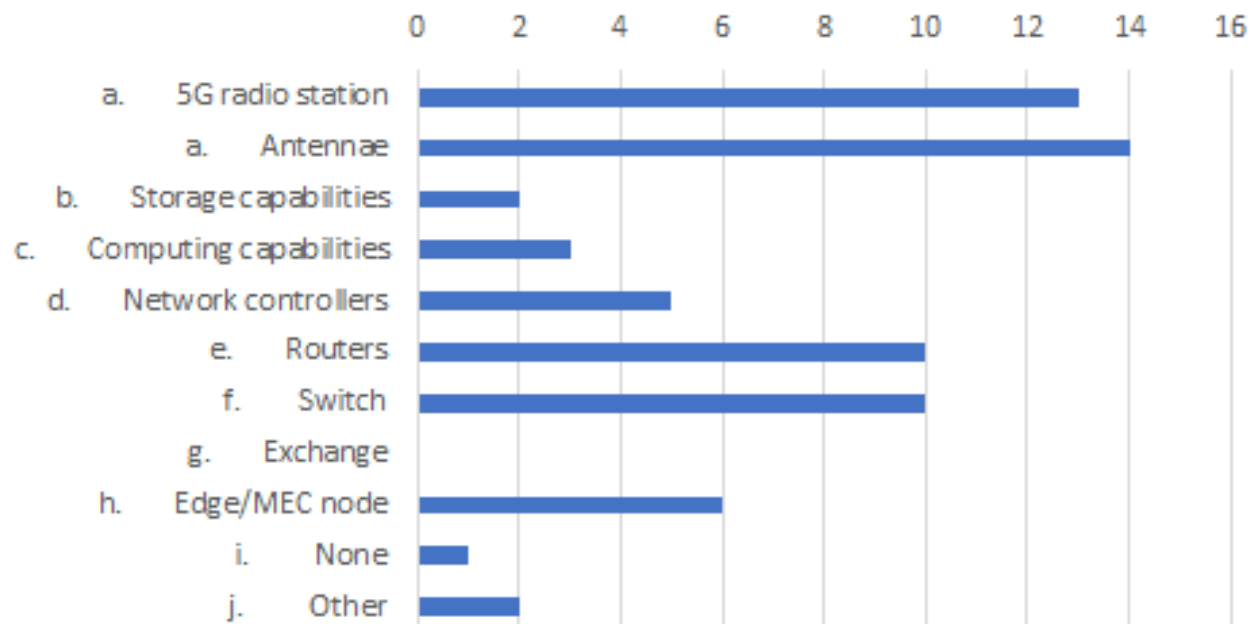
- Most of the projects are planning to deploy **Mast/Pylons and Towers** and **power supply** as passive network
- Most of the projects are also planning to deploy **5G radio stations, antennas, routers and switches** as active network
- Projects are planning to use several type of end-devices but **sensors and mobiles** are the most common used
- Satellite communication are used by only **4 projects** mostly for specific services
- Most of the projects are planning to **upgrade existing 3G/4G networks**
- The main deployment issues are **regulation and business**
- **Half of the inception studies** are considering that the results are sufficient to apply for a works project.



D2: What are you planning to deploy as passive network?



D3: What are you planning to deploy as active network?



Regulation section, main take-aways

- Most of the projects are facing **Administrative procedures for right of ways and building permit**
- Most of the projects are ready to **share Passive and active infrastructures**, some are planning to share only the passive infrastructure and only one is not willing to share anything



Operation section, main take-aways

- Most of the projects are planning to integrate 5G corridors in **regular operation process**
- Only 2 projects are not planning to develop a **business model**
- 11 projects area also developing a **Cost Benefit Analysis**



What are the main difficulties? (1/2)

- Support from National Administrations
- Modification of existing infrastructure (towers, rooftops) to add 5G.
- Regulatory and policy implications play a vital role in facilitating 5G deployment.
- Spectrum allocation, licensing requirements, interoperability standards, and safety regulations must be carefully addressed.
- The main issue is the creation of a strong and stable consortium. The agreements between the beneficiaries will be legally long to build in a short window. Financial Sourcing and lengthy permission procedures for construction of sites.
- That necessary actions are streamlined between the operators and their main suppliers/vendors in order to ensure that the cross border corridor will have the needed coverage of 5G according to the project's mission.



What are the main difficulties? (2/2)

- Agreement with MNOs
- Lack of willingness at some MNOs to roll out the solution along all borders.
- Cross-border dimension management; Heterogenous spectrum policy; Complexity of working environment
- Implementing 5G corridors demands significant investment in base stations, antennas, and fiber optics. Companies face complex regulatory challenges, including lengthy permit processes and spectrum regulations, often taking up to a year per base station, which delays infrastructure deployment
- Discrepancies in the technical visions of the project (e.g. V2X layer in view of road administrator, MNOs' technical needs).



What are the key stakeholders to involve?

- Port authorities,
- Local authorities,
- Users in the area,
- Companies that develop solutions (Technology providers),
- Public Administration for getting the permits and as potential clients,
- MNOs for connectivity and with regard to radio planning and avoiding possible interference,
- OEMs as end-users (OEM are mandatory for 5 projects among 17),
- Data providers,
- Government bodies, Ministries, Municipalities,
- Tower Companies,
- Railway companies,
- Regulatory bodies,
- Road Infrastructure Entities, Police Authorities and Customs Agencies,
- Car manufacturers,
- Signals manufacturers.





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Thanks !

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