

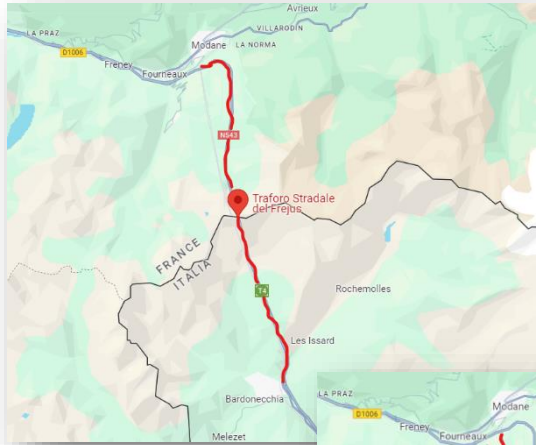
5G Corridors Webinar

19th March 2024



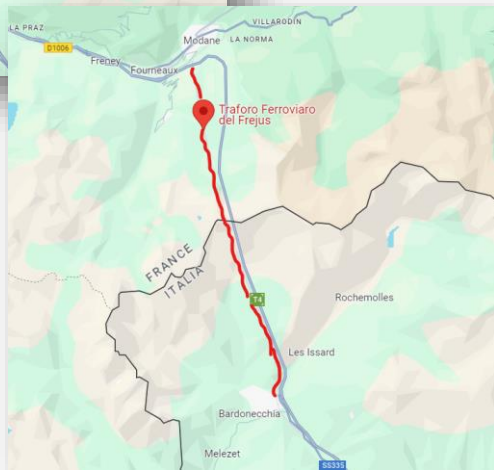
5G FREJUS

5G FREJUS – progress update



Frejus road tunnel

Length: 12,8 km (To be confirmed the opening date of additional road tube)



Frejus rail tunnel

Length: 13,7 km

CEF Funding: 400.723,00 €

Mediterranean Corridor

TECHNOLOGY

- Hybrid DAS infrastructure
- Multi-operator
- Carrier network based on NSA architecture
- Cross-border handover at the exit of the tunnel to reduce the complexity and risks

SPECTRUM

- Frequency strategy to be defined with two possible scenarios:
 - Italian frequencies in both road and rail tunnels
 - French frequencies in 1 road tube and Italian frequencies in 1 road tube plus rail tunnel
- Preliminary list of frequencies that can be enabled, under evaluation the constraints for optimization:
 - 4G bands (800MHz, 1800MHz, 2100MHz, 2600MHz)
 - 5G bands (700MHz, 3700MHz)
- FRMCS band availability to be analyzed according to effective requirements from relevant stakeholders

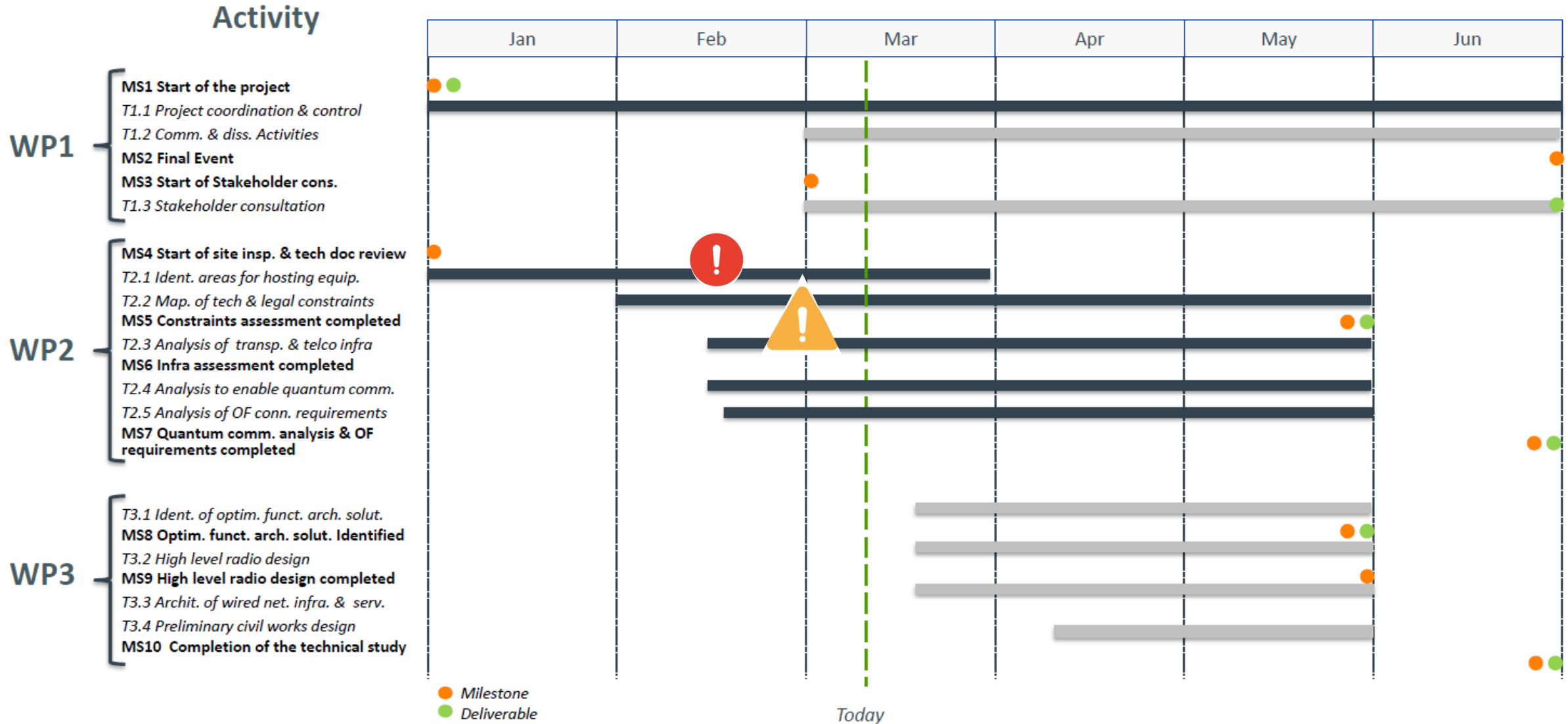
USE CASES



See next slide

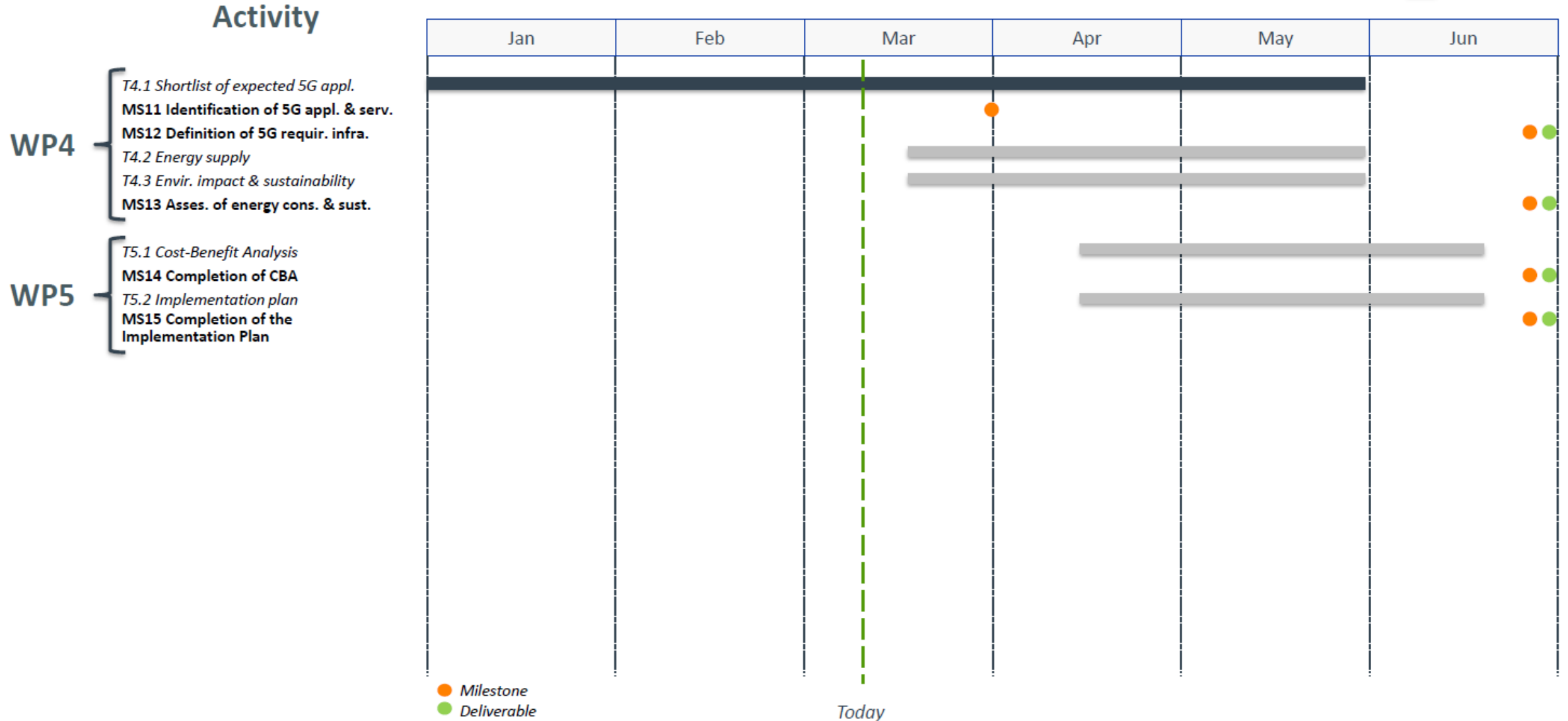
5G FREJUS

Roadmap Timeline (1/2)



5G FREJUS

Roadmap Timeline (2/2)



5G FREJUS

FOCUS: Identified use cases in the context of rail and road, user and ecosystem perspective

	USER	ECOSYSTEM	KEY DRIVER		
RAIL	1 Rail/Train Info	Content providing real-time situational awareness	<p>A shortlist of 5G applications will be selected based on economical and technical constraints:</p> <ul style="list-style-type: none"> • Financial sustainability • 5G architecture (NSA, SA) • Bandwidth and latency requirements • Technology maturity 		
	2 Follow Me Infotainment	Cross-border service continuity			
	3 Advertisement	Distribution of personalized advertising content using AR			
	4 Gaming	AR and MR content related to streaming video and games			
	5 Video Streaming	Fruition of multimedia content			
	6 Smart Tourism	Immersive virtual tour experience with VR			
	7 Immersive Shopping	Prospective buying experiment thanks to AR/VR			
	8 Immersive training	AR and MR content related to training courses			
	9 Next Gen Communications	Holographic video calls for user in different geographies			
	10 Hybrid Real-time Collaboration	Real time collaboration for business			
	Rail-User	Rail-Ecosystem			
ROAD	1 Vehicle Sensors and State Sharing	Dangerous condition detection			
	2 Driving safety & Awareness	Helping drivers to correct their behaviour			
	3 Advanced driving use case	Vehicles to coordinate trajectories and manoeuvres.			
	4 Crowd-sourced dataset generation and ML model update through connected vehicles	Provide vehicle sensor data to a third party			
	5 Green Driving	Mobility sustainability increase			
		Road-User		Road-Ecosystem	
				1 Automatic incident Detection (AiD)	System that can enable first responders
				2 Smart road infrastructure monitoring	Traffic and infrastructure control
				3 Frejus Vehicles statistics	Camera system at the tunnel entrance
		4 ESG Compliance	Gradual reduction of the source of emissions		
		5 Connected field worker	Operations/maintenance worker capabilities		
		6 Remote driving use case	Vehicle to be commanded from a remote location		
		7 Tele-operated Driving (ToD)	ToD is meant to complement automated driving		
		8 Application block	Deep packet inspection system		
		9 Adaptive QoS	Network monitoring service for distributed predictions of QoS		

5G FREJUS

accenture

anas
GRUPPO FS ITALIANE

INRiM
ISTITUTO NAZIONALE
DI RICERCA METROLOGICA

open fiber

RFI
RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE

cellnex
driving telecom connectivity

Thank you



Co-financed by the Connecting Europe
Facility of the European Union

PRJ 101133818 - 22-EU-DIG-5G FREJUS