A global update on Critical Communications

Critical communications for all professional users

TCCA in brief

TCCA Vision

Empowering critical communications users for a safer society

TCCA Mission

Provide a platform for the exchange of information and experience between members

Drive the evolution of critical communications worldwide

Promote the critical communications market and solutions to a global audience.

The Critical Communications Association

We support open and standardised mobile critical communications technologies and complementary applications.

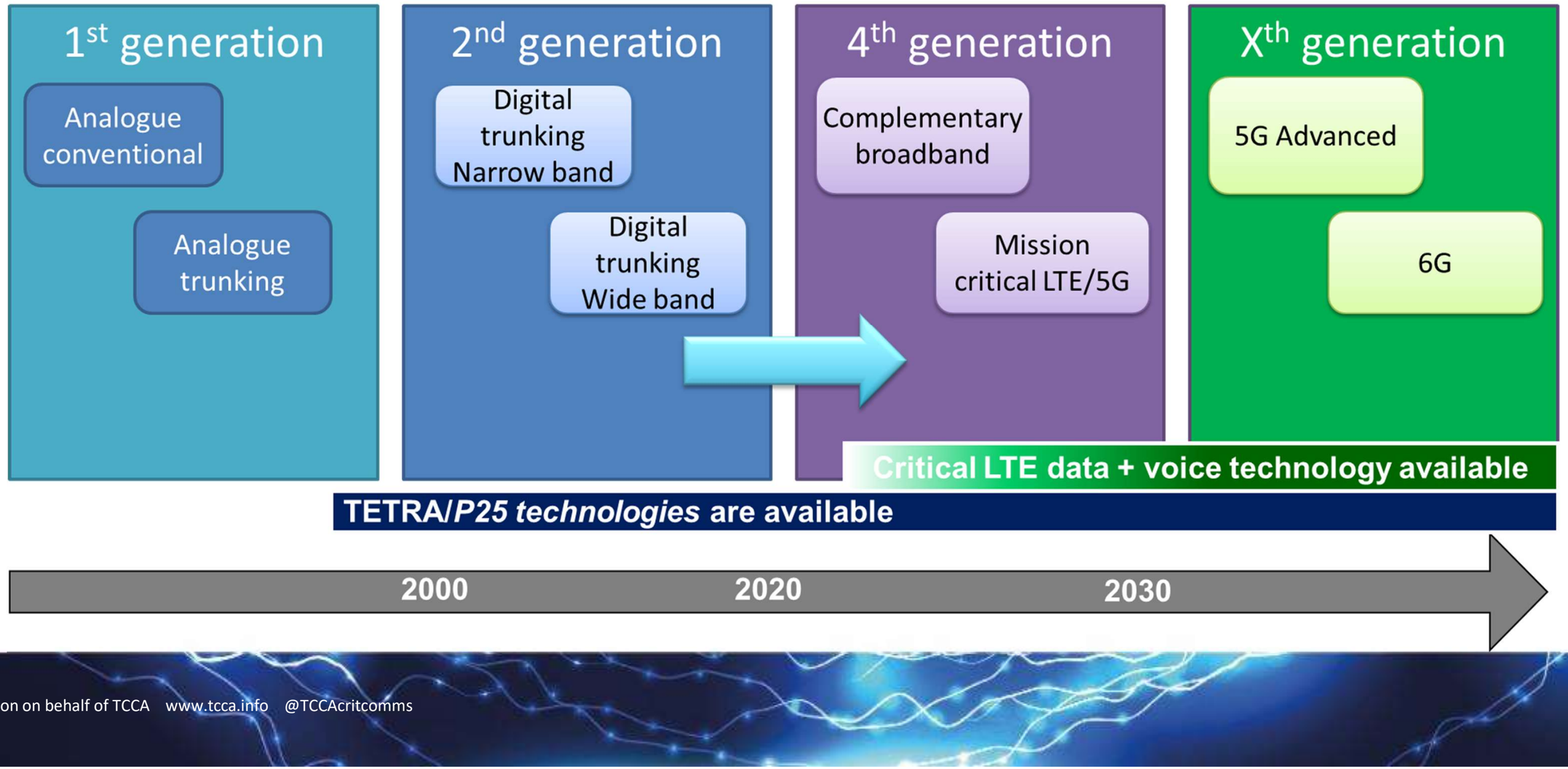
3GPP Market Representation Partner.

Catalysing competitive multivendor markets worldwide through open standards and interoperability certification

Our members include users, operators, industry and other stakeholders globally all sharing knowledge and experience.

Collaborative working across the critical communications ecosystem to develop and drive the most effective solutions for all.

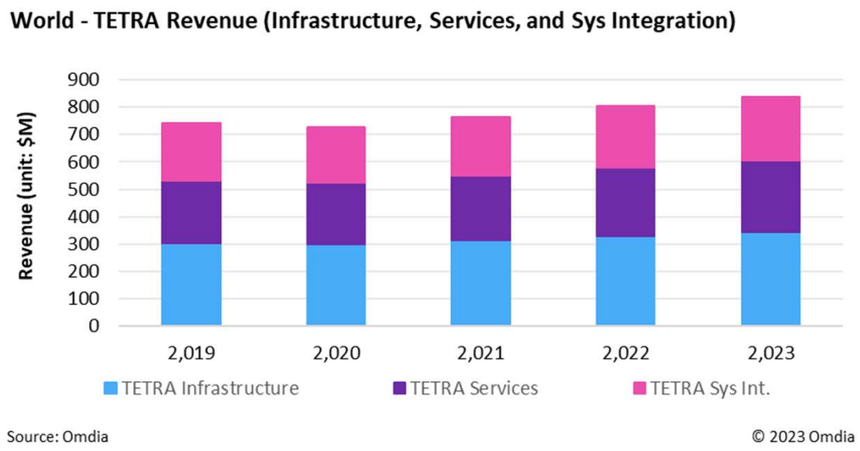
Critical Communications generations

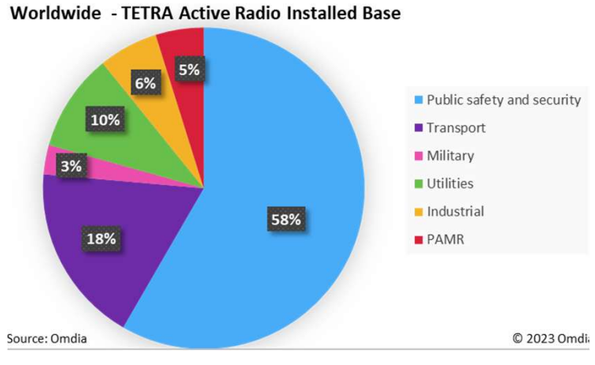


TETRA market

TETRA market grows across all verticals…

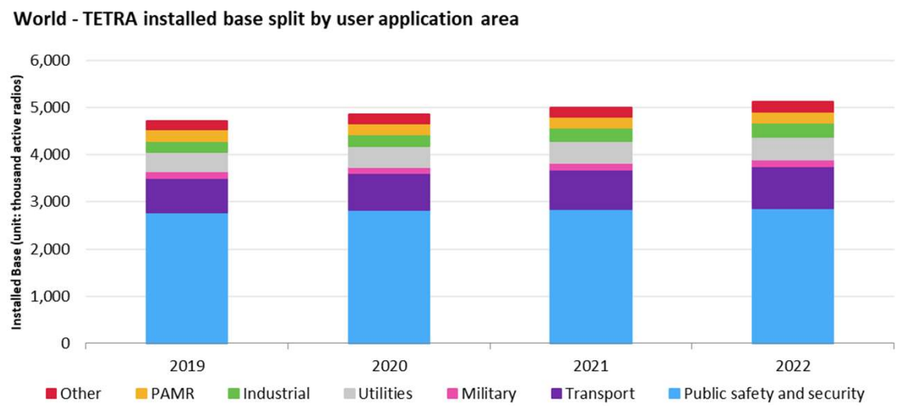
- The constant growth of TETRA market observed in the past few years will continue (CAGR ~ 4.6%)
- After pandemic downturn, TETRA market had a rebound with an upturn mainly driven by business-critical sectors as Transport (+4.6%), Utilities (+3.7%) and Industrial (+6%)
- TETRA continues to be widely adopted in all main critical comms market sectors
- The progressive Broadband adoption with different models is so far mainly restricted to the Public Security and Safety (PSS) sector

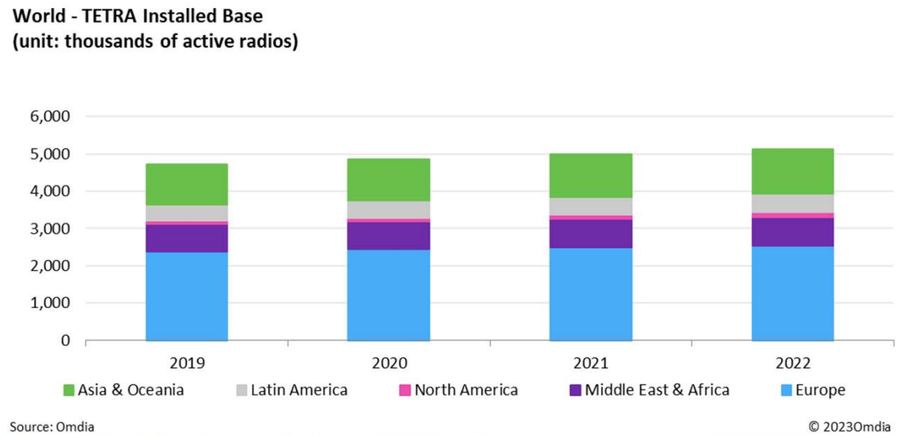




… and geographies

- In many countries the hybrid approach exploiting the complementarity of TETRA and Broadband will be the chosen model in the medium/long term
- In Europe a few countries recently selected or confirmed TETRA for their national PSS networks (e.g. Romania, Slovenia). Others are expected to do the same soon
- In many verticals voice and low throughput data apps are still the main focus and narrowband dedicated networks are still regarded as the best solutions
- TETRA still is the technology of reference in many sectors (e.g. mass transit) in Asia (CAGR +2.1%) and Americas (CAGR +2%)





TETRA evolves with a long-term brilliant future

- TETRA is an **alive & kicking** and still **evolving** technology with a brilliant future
- TETRA is NOT close to its EOL or End of Support (EOS) as a technology
- One or more specific TETRA network might be close to End of Life (EOL), but **this is not due to the technology itself or lack of support from the industries,** but simply to investment strategies of individual organisations
- All TETRA industries continuously confirm their **commitment on TETRA** with new products, new features and new standardisation efforts
- TETRA industries everyday sign contracts taking **long term commitments** on TETRA product **maintenance** (e.g. up to 15-20 years for mass transit systems)
- TETRA is a **cutting-edge** technology, continuously renewed to face up with new challenges (e.g. new additional security algorithms and cyber resilience solutions)

The Continued Success of TETRA

Open standard

drives innovation

Mission Critical

By design

Continuously evolved

to meet user needs

Broadband adoption

Migration vs. Evolution

	Migration	Evolution
Drivers	Technology replacement, New services	Added value to users, New services
Target	Fast migration from narrowband to broadband	Provide users with new broadband services
Role of existing narrowband solution	To be replaced – in practice long NB/BB parallel use	Parallel use with broadband services
Prerequisite for the service deployment	Broadband services fulfill MC requirements, The ability to replace existing voice services, Reasonable cost	New services bring added value to users, Reasonable cost
Challenges	User acceptance to replace existing services	Costs of narrowband and broadband solutions

Different approaches to Broadband

Parameters: spectrum, service model, transition

FirstNet, USA
parallel critical data service – assigned spectrum, commercial service provider,
No legacy responsibility

ESN, UK
Incremental delivery, Enhanced public network, commercial service provider and spectrum

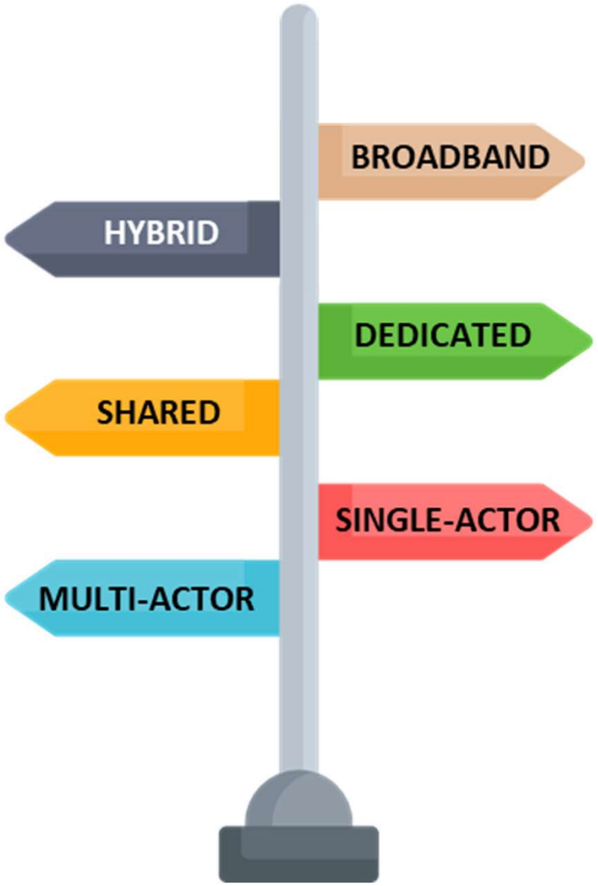
VIRVE, FIN
Parallel use, gradual shift, MOCN, MNO RAN, commercial spectrum

Nedaa, UAE
Parallel dedicated network on dedicated spectrum

MNO = Mobile Network Operator
RAN = Radio Access Network

Predominant aspects in broadband adoption

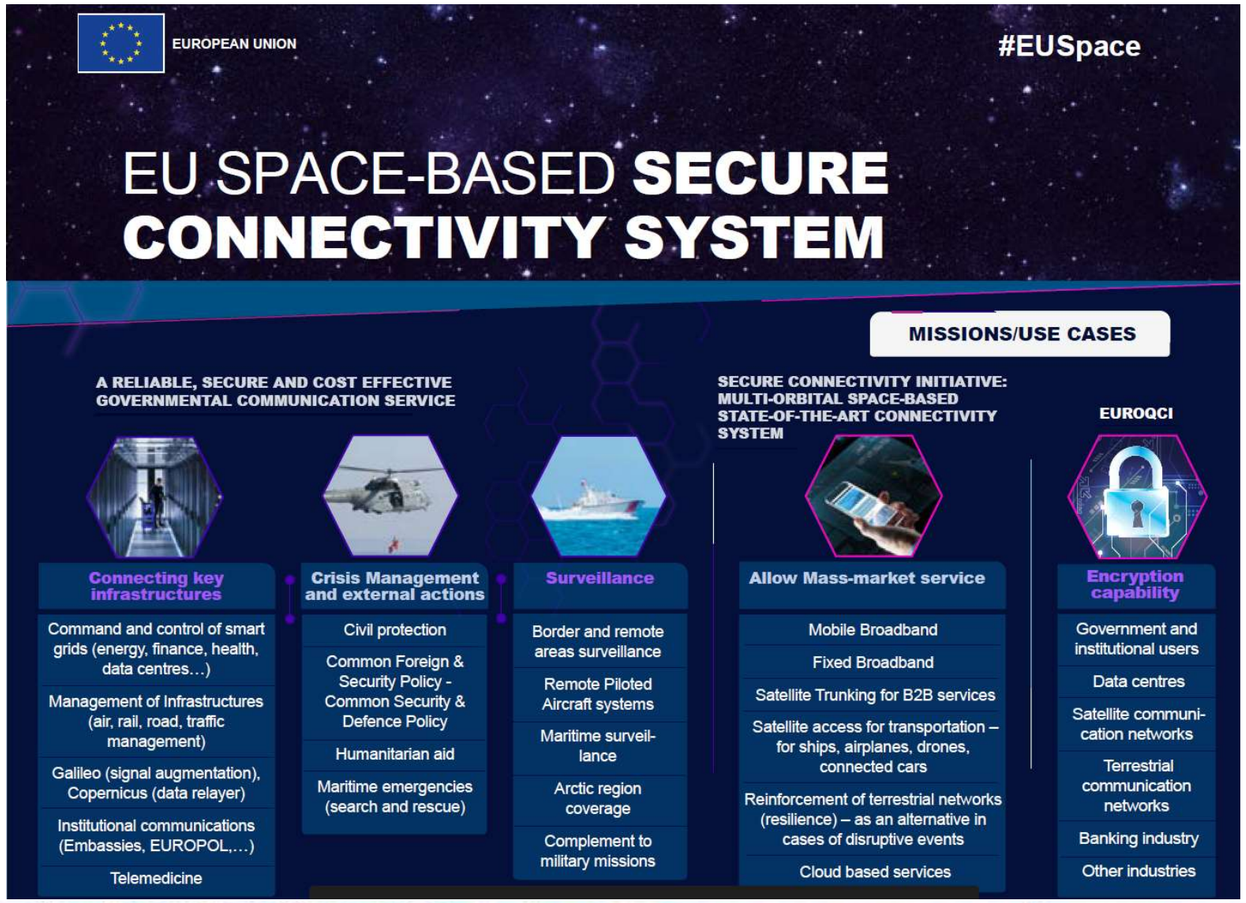
- A **long narrowband/broadband co-existence** is always inevitable regardless of migration or evolution
  - Interworking between the different technologies is vital (Hybrid Networks)
- The control of the network is in the hands of PSS organisations or a trusted party
  - **Institutional/governmental network operators** are a key player at a global level (e.g. incumbent PSS operators from the narrowband era)
  - The 4G/5G Core Network is always dedicated (MOCN approach) sometimes even RAN
- The levels of coverage, availability and resilience requested for mission critical use exceeds those of commercial networks
  - Wherever possible, **dedicated RAN portions** and **network hardening** solutions are deployed (whenever possible even fully dedicated networks e.g. Korea, Sweden, US)



Further evolution towards and hybrid multi-technology ecosystem

La UE si intende fornire servizi satellitari sicuri e gratuiti alle organizzazioni governative degli Stati Membri

- EU Secure Connectivity è un programma del valore di circa 6 Miliardi di Euro (periodo 2023-2027) per la realizzazione di una nuova costellazione satellitare (IRIS^2) in grado di erogare servizi di comunicazione sicuri
- L'iniziativa prevede la fornitura di servizi a banda larga ad alta velocità a livello globale riservati prioritariamente e in modo gratuito alle organizzazioni governative degli Stati Membri (e.g. PSS, protezione civile e infrastrutture critiche)
- L'iniziativa è riservata alla filiera industriale Europea per garantire la sovranità e l'indipendenza tecnologica della UE

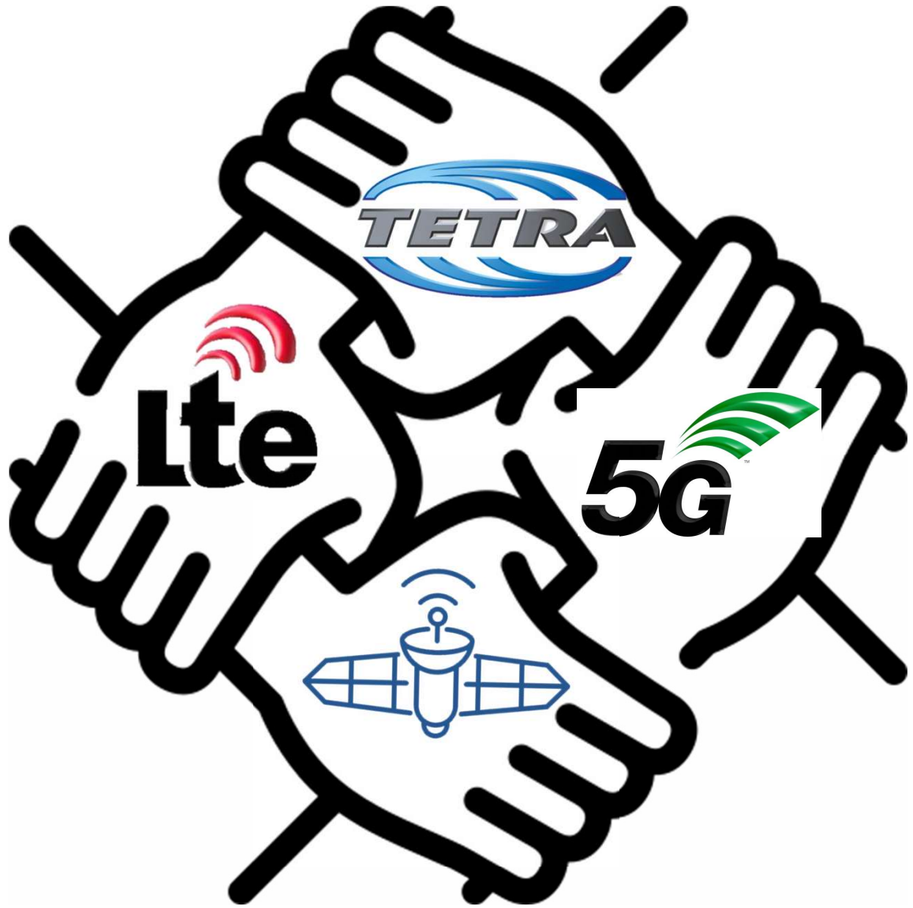


Gli operatori PSS di alcuni paesi considerano l'utilizzo delle SAT Comms in ambito mission critical

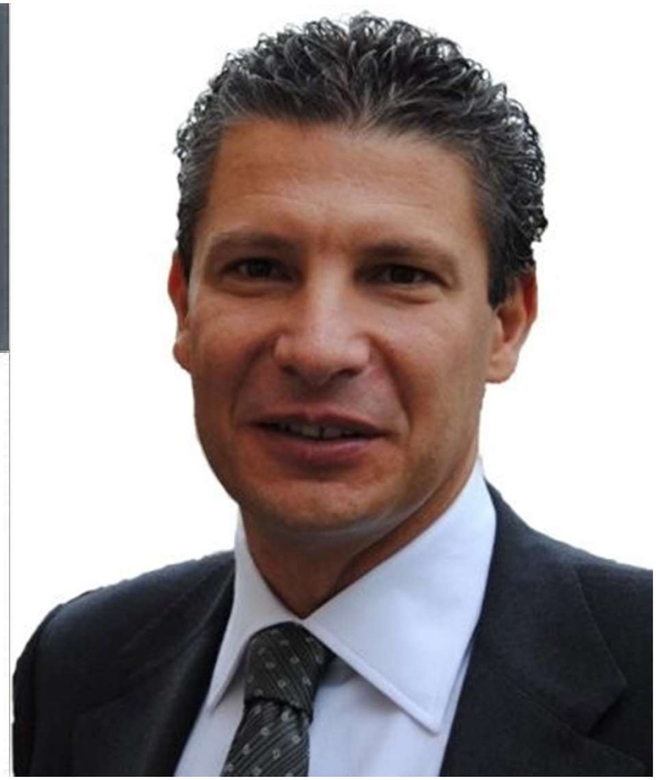
- Si tratta soprattutto di quei paesi che per caratteristiche geografiche hanno ampie aree marittime o terrestri caratterizzate da bassa densità di popolazione in cui le reti commerciali non offrono generalmente una copertura adeguata (e.g. Norvegia, Finlandia, Svezia). In alcuni paesi le comunicazioni satellitari sono già limitatamente in uso (e.g. New South Wales Police in Australia, Kentucky National Guard and New York National Guard in US, New Zeland Police, UK National Health Service)

- La futura disponibilità di un servizio gratuito, sicuro ed Europeo (come previsto dall'EU Secure Connectivity) sta destando ulteriore interesse tra le organizzazioni governative circa un potenziale utilizzo delle SAT Comms nel lungo termine
- La TCCA ha recentemente formato, nell'ambito del Critical Communications Broadband Group (CCBG) che lavora in stretta cooperazione col 3GPP, una task force per studiare l'utilizzo delle Non-Terrestrial Networks 5G in ambito mission critical

Il futuro sta nelle «collaborative networks» dove diverse tecnologie sono utilizzate in modo integrato



THANK YOU FOR YOUR ATTENTION



Questions?

TCCA CCBG

https://tcca.info/broadband/critical-communications-broadband-group/

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