

## INDUSTRY PERSPECTIVE

# Unlock the true power of decision superiority with 5G

## Digitalizing defence: 5G-powered collaboration for Multi-Domain Operations



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Europe is now closer to widespread war than it has been for the past 70 years. In fact, widespread 'grey-zone' attacks are already a daily occurrence – cyber-attacks, interference with undersea cables and incursions into neighbouring airspace. The character of warfare has fundamentally changed, therefore the deterrence and response to that threat must also fundamentally change.

One of the many lessons from the ongoing war in Ukraine is that commercial technology can be a force multiplier. It can generate combat mass at unmatched speed and cost, while commercial connectivity delivers decision-making advantage by connecting sensors, deciders and effectors across all domains in real time.

### Defence digitalization is essential

Wide-scale digitalization is no longer a long-term aspiration; it is a near-term necessity for survival. The benefits of digitalization in defence operations

are widely recognised. Whether that is increasing the efficiency of military logistics operations or realizing the concept of Combined Joint All Domain Command and Control (CJADC2) on the battlefield, digitalization at scale is critical to the survivability and effectiveness of future NATO operations.

To achieve that, a communication architecture needs to be built from multiple layers of inter-working technology including purpose-built tactical solutions, dual-use commercial technologies and non-terrestrial networks – creating a powerful network of networks that can seamlessly inter-operate across military echelons, operating domains and with allies.

### 5G capabilities and benefits for defence customers

5G is emerging as a transformative force for defence. The increasingly data-rich operational environment demands high-performance, secure connectivity at scale – that is exactly what 5G can deliver. 5G provides bandwidth over 200 times that of the most advanced military systems, ultra-low-latency perfect for precision control of Unmanned Aircraft Systems (UAS) and the capacity to connect millions of devices per square mile. Lesser known features of 5G can also deliver massive benefits to defence users such as multilayered end-to-end encryption for handling sensitive data, radio beamforming for discrete communication with low probability of interception or detection (LPI/LPD) and network slicing for segmentation

and tailoring of the network for the unique demands of each mission.

### 5G enables rapid and seamless collaboration

5G technology is built on global 3GPP telecommunication standards, meaning that any device that is compliant with this open standard is compatible with any 5G network. Whether it is a ruggedized tablet running ATAK or an autonomous aircraft conducting a ground assault, integration of those devices onto the 5G network can be performed in minutes, at the tactical edge, not stuck for months in a lab. That seamless collaboration also extends across borders. 5G-enabled devices, platforms and people can interoperate effortlessly within NATO coalition forces, extending the reach of sensor-to-effector networks across thousands of miles.

### Creating a resilient, hybrid network of networks

Each mission has a unique blend of communication demands including bandwidth, range and resilience to electronic warfare. Only through a combination of tactical systems, commercial systems and non-terrestrial networks will this be possible. The challenge will be ensuring these systems can inter-work seamlessly without putting additional burdens on the operator.

5G Core technology can bridge tactical systems into a unified IP transport layer, delivering true multi-domain integration and operation at scale.



Ericsson's deployable Ultra Compact Core (UCC) has been designed for ease of use and can act as a multi-bearer manager, selecting the best available transport technology based on quality-of-service demands and information criticality, easing the cognitive burden on operators by providing the tools to automate the PACE plan.

### Venturing beyond terrestrial networks

Today, defence 5G systems can use non-terrestrial (space-based) networks (NTN) to provide backhaul for wide area or deployable network assets in remote locations. As NTN evolves, direct-to-device connectivity will extend high-performance coverage to these assets, providing uninterrupted service between terrestrial and non-terrestrial networks to deliver military effect at any time, in any location around the world.

### Never compromising on security

Ericsson-powered 5G networks are built on a Zero-Trust Architecture (ZTA), which secures micro-perimeters across the entire mobile network. Providing the ability to identify,

protect, detect, respond and recover from evolving attacks. ZTA plus the flexibility to use a combination of 128-bit, 256-bit and military-grade over the top encryption enables a diverse set of sensitive use cases.

With the evolution towards a data-centric security posture, which prioritises the protection of the data itself, even greater possibilities are unlocked. Some nations are already leveraging 5G to access networks classified at Secret and above.

### Balancing shared and dedicated networks for defence needs

5G federated (shared) networks allow defence organizations to securely reuse existing civilian infrastructure, in tandem with their own dedicated networks. Defence operations require a strategic balance and Ericsson's 5G platform supports both nationwide public networks with dedicated coverage and tactical private networks. This provides enhanced mission flexibility, security and contingent communications for mission-critical scenarios. This flexible approach empowers defence organizations to leverage the ubiquity of existing public

infrastructure, while maintaining robust connectivity tailored to their diverse operational needs.

### Call to action

In digital native warfare your network cannot be considered as an afterthought, it should be considered the foundation upon which you can build your military capability. Seamlessly integrating traditional military power with commercial technologies into a unified digital ecosystem is no longer a concept; it's a reality. European initiatives such as the Eastern Flank Watch and Air Defence Shield can be supercharged with scale and speed of 5G.

Don't wait – discover how 5G can transform your operations and build a military force ready for the digital fight.

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