

# The Onward March of Digital Innovation.

How the defence industry can securely embrace  
the future of mobile devices in the field



**"The EU and its member states need to do much more in defence innovation. We need to do more together, and we need to do it now."\***

**Josep Borrell**

High Representative of the European Union for Foreign Affairs and Security Policy  
Vice-President of the European Commission



From the frontlines to the back office, processes and operations and military tactics are increasingly dependent on digital innovation.

New and emerging technologies have the capacity to strengthen capabilities across a huge range of uses. Major trends such as artificial intelligence (AI), customised mobile devices, unmanned aircraft systems (UAS) and the Internet of Military Things (IoMT) are enabling defence forces and their support teams to act with greater precision, intelligence, and efficiency, while reducing the risk to frontline personnel.

The rapid pace of innovation requires defence forces to work more collaboratively and integrate the latest technological capabilities into everything from the back end to the frontline, enabling the faster sharing of intelligence and information.

But extending digital capabilities to different branches of operations comes with several challenges. Any technology adopted for military and defence usage needs to pass a demanding set of physical and digital criteria. Mobile devices used in the field for control, communication, surveillance monitoring, and more, need to be capable of delivering the functionality required by the end-user, without posing a potential security risk.

This short guide will look at four hot topics of digital innovation within the defence sector, and the role that mobile devices can play. Each chapter will examine the key considerations and challenges associated with each use case or topic, as well as the technologies designed to overcome them.

\*Source: [EEAS Website](#)



## UAS control and monitoring

The use of unmanned aircraft systems (UAS) or 'drones' is increasing, and as their technology advances, they become suitable for a wider range of applications. But as UASs become more intelligent and versatile, the more technologically diverse their control systems become. While much of their functionality can be pre-programmed and automated, they still require human operators in the field to control the navigation, monitor the video/sensor feeds, and respond to dynamic situations as they unfold in real-time.

This means the devices they use to control UASs must overcome several challenges.

Aside from the need to maintain control and navigation, a strong, reliable, and secure connection is crucial for streaming any data and sensory information collected. From a usability point of view, the operator needs the ability to view camera feeds and data streams, and connect to different accessories, systems, and displays. Finally, outdoor military usage brings the physical challenges of precipitation, dirt and grit, temperature extremes, and sudden impacts and bangs.

# The perfect choice for UAS control

TOUGHBOOK G2 and TOUGHBOOK 33 are the next-generation rugged devices that enable easy and reliable connection to drones and unmanned autonomous vehicles. With wireless GPS and 4G/5GSA\*, they can help controllers streamline mobilisation, carry out surveillance and support military and disaster relief operations.

Combining IP65 water and dust resistance with patented 'rain mode' technology to protect outdoor-readable 10"-12" high-resolution touchscreen displays, operators can stay in control in all conditions.

We work closely with industry experts, UAS manufacturers, system integrators, contract owners and military project offices to ensure successful missions and operations for drones, robots and unmanned aircraft's missions and operations.

Powered by Microsoft Windows 11 Pro – with support for other operating systems – everything is secured against highly advanced threats and cyberattacks with the highest level of hardware, software, and identity protection, right out of the box.

\*5GSA only TOUGHBOOK G2

Discover more about the drone control solutions featured at DSEI 2023.

Watch now

## TOUGHBOOK for UAS



10"-12" high-resolution touchscreen displays



Integrated wireless GPS and 4G/5G\*



Secure Microsoft Windows 11 Pro support



'Rain mode' operational capability





## Command-and-control operations

As the nerve centre of military headquarters (HQs) and Forward Operating Bases (FOBs), command-and-control operations grapple with a multitude of challenges demanding precision, adaptability, and security.

The complexity of military operations calls for a control system that can handle a myriad of inputs and feeds, including intelligence, surveillance, and reconnaissance (ISR) data and sensor technology. Integrating with frontline equipment and vehicles demands quick, secure, and reliable connections, as well as the ability to process and visualise large data streams reliably and efficiently to ensure informed decision-making.

The fluidity of operations requires command-and-control to effectively monitor and coordinate all these moving parts in real-time, and from a variety of locations. As more elements of military operation become increasingly digitised, the integration of devices and systems at speed is a crucial factor in the safety and success of missions and operations.

Whether using a large static display in a briefing room, or in the hazardous environment of enemy territory, command-and-control personnel need the power, performance, connectivity, and security to communicate information and orders in any scenario.

# Stay in control, wherever you are

TOUGHBOOK command-and-control solutions combine military-grade hardware, software, and security protection to keep you switched on and in control wherever you are. Built to withstand the dust, rain, bumps, knocks, and drops typical of field use, TOUGHBOOK is also protected by MIL-STD-461F standards for electromagnetic interference.





Offering the full power of a desktop PC in the field, its high-speed Ethernet capability and Intel® Core™ i5 or Core™ i7 vPro® processors enable swift processing of vast data streams, ensuring real-time decision-making in high-pressure scenarios.

Communication is clear and secure with LAN, Bluetooth, 4G/5G\*, GPS, and optimised antennas, so your team can communicate and access vital operational information in real time. Sensitive information is protected with NATO-approved Viasat self-encrypting secure drives, two factor authentication, and a one-button 'conceal mode' disables all radio and display features in less than a second, to operations stay covert.

TOUGHBOOK facilitates seamless integration with a diverse range of military equipment, while MIL-STD-810H shock-protection vehicle docks offer further power and connectivity via MIL38999 connections.



## TOUGHBOOK for command-and-control operations

-  Windows 11 Secured-Core PC
-  4K display compatibility
-  MIL-STD-810H shock protection
-  LAN, Bluetooth, 4G/5G\*, GPS connection

\*5GSA only TOUGHBOOK G2 and TOUGHBOOK 40

Discover more about the Command-and-Control solutions featured at DSEI 2023.

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## Cybersecurity for tactical systems

In today's rapidly evolving defence landscape, the reliance on mobile devices for operational tasks has grown exponentially. However, this increased dependency comes hand in hand with heightened security risks. The defence sector faces unique challenges concerning digital security, especially when deploying mobile computing devices in the field.

Critical information is vulnerable to interception, regardless of location, but with more and more digital capabilities requiring in-field control and management, defence forces must consider and manage the risks of sending digital endpoints into the field. The loss or capture of equipment not only poses a direct threat to security but also compromises sensitive intelligence.

While security is a primary concern, ease of integration with other equipment, communications platforms, and the wider IT ecosystem is key for effective field operations.

To mitigate these risks, frontline personnel require secure, robust, and adaptable solutions that can uphold stringent security protocols, while easily being managed as part of a wider IT estate.

## Secured from the core

With its military-level encryption, modular design, enhanced access control, and easy device management, TOUGHBOOK is the perfect choice for overcoming the numerous security challenges facing mobile computing devices within modern military operations.

**TOUGHBOOK** offers hardware- and software-encrypted solutions developed in collaboration with defence-certified partners, ensuring that data and comms are secured with **NATO-approved Viasat self-encrypting secure drives**. Devices are armed with Windows 11 Secured Core PC, limiting the risk of even highly advanced cyber-attacks, while a quick-release SSD mechanism means you can take your sensitive data with you in case of an emergency.

The modular design helps to strengthen security further via the addition of a fingerprint ID scanner. This ensures that only authorised personnel can access the device while simultaneously offering the added flexibility of multi-user access. The all-black stealth exterior and one-touch concealment mode enhance covert operations by rendering the device discreet and impervious to unauthorised access.

Its 'commercial off-the-shelf' (COTS) design makes it easy to integrate into the wider IT estate, ensuring compatibility and ease of management. This compatibility streamlines operations, allowing for the smooth running of an infrastructure of diverse systems, without compromising security.

## TOUGHBOOK for cybersecurity



Fingerprint ID access



Viasat encryption and quick-release SSDs



One-touch concealment



Hardware and software encrypted design



Discover more about the security and encryption solutions featured at DSEI 2023.

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## Vehicle-based operations

In the ever-evolving theatre of military operations, situations can swiftly shift directions, demanding personnel to easily transition between static, vehicular, and frontline scenarios. The same goes for any digital capabilities they take into the field. The need to connect with an array of equipment, from drones and vehicles to servers and surveillance feeds is essential for enhanced situational awareness and operational efficacy.

Military environments are dynamic and unpredictable, calling for a technological solution that can effortlessly integrate into these multifaceted settings. Personnel require devices that not only withstand the rigors of extreme conditions but also offer flexibility in terms of connectivity and adaptability. The challenges faced on the battlefield call for a robust, interoperable solution that can cater to various operational modes and diverse equipment interfaces.

## Customisable connections and vehicle integration

TOUGHBOOK is designed to be strong enough to withstand whatever physical challenges frontline missions involve, and flexible enough to adapt to meet the changing requirements of military personnel in dynamic situations.

With its up to IP66 water and dust resistance and MIL-STD-810H impact protection, TOUGHBOOK brings the power of Microsoft Windows 11 Pro to any environment, keeping frontline forces connected and in control in even the most challenging conditions.





Whether on foot, in transit, or base, TOUGHBOOK is supported by a range of body-worn, in-vehicle, and desktop docks for ease of portability and use. Shock-proof military vehicle mounts also incorporate USB-3 power and gigabit LAN through MIL-38999 connections to deliver uninterrupted connectivity across a range of operational settings.

TOUGHBOOK's modular design allows for a wide range of mission-specific customisation, including the integration of specialised components such as card readers, fingerprint scanners, storage expansion, vehicle diagnostics and more. This adaptability empowers users to easily interface with other equipment to adapt functionality for unique mission requirements.

While being a fully rugged device designed to withstand harsh conditions, TOUGHBOOK remains lightweight, ensuring ease of portability for body-worn usage. As well as its rugged design and operational versatility, TOUGHBOOK features and long-lasting battery life which can be further extended in the field through Hot-Swap technology.

### TOUGHBOOK for vehicle-based operations



-  Shock-proof vehicular docking solutions
-  MIL-38999 connectivity
-  Customisable modular design
-  Hot-Swap batteries

Discover more about the in-vehicle solutions featured at DSEI 2023.

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## Why TOUGHBOOK?

Whether it's coordinating an entire base, or controlling a UAS, mobile devices are key for real time data, communication and in the end successful missions.

For over 25 years we've worked with defence partners to deliver powerful, rugged computing devices and portable solutions to support a wide range of operations. Tested to the highest military standards, our devices offer unmatched durability, enduring reliability, and unwavering security.

Our military-grade products are designed to last for longer, withstand more extreme environments and heavier handling. They come with a variety of TOUGHBOOK support and warranty options to meet any operational requirement.

## Custom designed military accessories

As well as the rugged build, the TOUGHBOOK technology ecosystem and accessories are designed to ensure forward compatibility with new innovations, making TOUGHBOOK the perfect device to future-proof your mobile digital operations.



### **TOUGHBOOK G2 military tablet enclosure**

A high strength, military standard, IP rated enclosure for TOUGHBOOK G2, with highly configurable ports.



### **TOUGHBOOK 40 with military docking in association with Roda**

Maximum flexibility through military interfaces and four expansion slots.



### **TOUGHBOOK 40 MIL 38999 mounting plate shock mount**

USB-3 power, GbE LAN, and MIL standard high vibration suitability.

# TOUGHBOOK for every mission



## TOUGHBOOK G2

- Reliable use in any environment
- Highly portable and ergonomic
- Superior wireless capabilities

### Ideal for:

- Command-and-Control Operations
- UAS Control and Monitoring



## TOUGHBOOK 33

- Seamless work in demanding conditions
- High expandability
- Optimised mobile usability

### Ideal for:

- Command-and-Control Operations
- Vehicle-Based Operations



## TOUGHBOOK 40

- Peak performance in demanding conditions
- Flexible configuration
- Optimised mobile usability

### Ideal for:

- Command-and-Control Operations
- Cybersecurity for Tactical Systems
- Vehicle-Based Operations



## TOUGHBOOK 55

- Flexible device management
- Suitable for mobile work
- Easy operation

### Ideal for:

- Command-and-Control Operations
- Cybersecurity for Tactical Systems

## TOUGHBOOK for defence

Discover more about TOUGHBOOK devices, accessories, and services, on our dedicated defence page.



**In-vehicle Applications**



**Command-and-Control**



**Situational Awareness**



**Drone for Mission Control**



**Maintenance, Service & Training**



**Logistics & Warehouse Applications**



**Training**

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