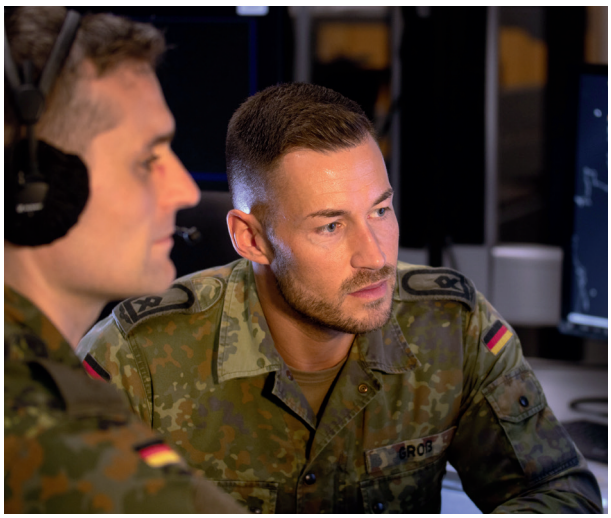
BUNDESWEHR

Bundeswehr: Mission Ready



Modern armed forces operate under constantly shifting conditions. To fulfil their mission effectively while protecting personnel, efficient workflows are vital. These ensure operational readiness, reinforce defence strategies, and strengthen key capabilities – such as air traffic control. In this context, the design of both the workstation and its environment becomes a critical factor.

Frequentis supports the Bundeswehr with a user-friendly, future-proof workplace design. It ensures that all critical functions remain intuitive and easy to access – even under high time pressure and during active deployments. To create a consistent and efficient working environment, workstations have been standardised across all locations.

Ensuring technological compatibility with existing system components was just as critical as selecting robust, high-quality modules. This approach guaranteed that the specific demands of military operations – particularly in terms of operational excellence and mission success – were fully met.

Customer profile

The Bundeswehr, Germany's defence organisation with over 180,000 personnel, safeguards national sovereignty and supports international stability. The Air Force's Air Traffic Service is tasked with the safe coordination of military air movements in German airspace. Using advanced radar and communication systems, it monitors air traffic, works closely with civil authorities, and provides support for military missions.

Initial situation

Initially designed in 1997 for CRT radar systems, the air traffic control workstations required modernisation to align with current technical and ergonomic standards. The integration of additional devices had increased the complexity of the work environment. Standardising and streamlining the workspace became essential to ensure safe and efficient long-term operations.

Solution

In close collaboration with the Bundeswehr, Frequentis conducted a detailed analysis of operational and technical requirements. The result is a future-ready, mission-critical, and user-oriented workstation concept offering enhanced flexibility, ergonomics, and functionality. Through prototype validation, the design was tailored to meet the needs of diverse user groups and to establish a harmonised environment for military air traffic control.

Benefits

- Ergonomic design promotes focused and efficient work
- Flexible configurations streamline workflows and reduce cognitive load
- Simplified access to technology facilitates maintenance and integration of new systems

Intuitive and future-proof workstation design

Initial situation and challenges

The air traffic controller workstations are based on consoles originally designed for radar and voice communication systems. However, many newer components are incompatible with the existing setup, resulting in increased complexity at the controller desk. This has led to inefficiencies in both configuration and daily workflows. Additionally, evolving technical and operational requirements call for the integration of specialised hardware, monitors, and touch-enabled technologies.

Technical feasibility assessment

A technical feasibility study identified leading providers and evaluated their console solutions to establish a framework for the new concept. Key evaluation criteria included flexible dimensions, expandability, height adjustability, and support for multiple monitor levels. Additional considerations included available space, load-bearing capacity for large displays, and the use of modular corner consoles. These solutions ensure compliance with air traffic control requirements while offering long-term flexibility and scalability.

Collaboration with stakeholders

In close collaboration with air traffic controllers and technical staff, both operational and technical requirements were thoroughly analysed. The goal was to develop a unified workstation design tailored to the needs of all stakeholder groups. Site visits, interviews, and the observation of real-world workflows enabled effective prioritisation of key requirements. Particular emphasis was placed on thermal management, ergonomics, lighting, and site-specific factors such as spatial constraints, climate control, and logistics.

Innovative, future-proof workstation concept

The new workstation concept delivers a blend of maximum flexibility, ergonomic design, and high functionality. Height-adjustable work surfaces support both seated and standing operation, promoting user well-being, operational efficiency, and enhanced situational awareness. Modular elements enable seamless integration of monitors, shelving, and system cabinets, while streamlined cable management reduces installation time and complexity. Easily accessible, lockable technology modules simplify maintenance and future upgrades—contributing to a lower total cost of ownership. Designed with long-term usability in mind, the solution boosts efficiency and supports future interaction systems.

Structured implementation planning

An early analysis of existing infrastructure enabled precise planning for space allocation, construction measures, and technical integration. Careful coordination helps reduce operational disruptions and ensures the smooth integration of both existing and new systems into the new workstation concept. This approach ensures that operational readiness of the forces is maintained at all times.

Frequentis Control Room Consulting (CRC)

values its customers' demands from every perspective–technical, operational, and commercial–and delivers purpose-driven, value-added solutions. Lean and Safe!

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