

# Meeting Signal operational demands amidst fiscal restraints



*By LTC Frank Beyer*

This article explains how the Bundeswehr Communications and Information Systems Command achieved essential efficiencies during a period of fiscal challenges.

Joint task fulfillment, centralization of responsibilities and reduction of interfaces at each level are the leading principals for the reorganization of the German Signals.

In his 1978 book, *Die Fernmeldetruppe des Heeres in der Bundeswehr* ["The German Army Signal Corps"], retired BG Emil Hoffmann describes the events and processes concerning the "Study on the Realignment of the Bundeswehr Signal Communications, July 1959" (Studie zur Neugliederung des FmWesens in der Bw vom Juli 1959).

The central theme of the study was that similar "communications tasks" should be performed as a Bundeswehr-joint task, meeting single-service requirements. Since neither a consensus nor a compromise could be reached between the Single Services, the Ministry of Defense stopped pursuing this idea and did not submit the study to the Bundeswehr chief of defense or minister of defense for a decision.

Over 50 years later, this sound and solid idea has been translated into action in the form of the Bundeswehr Communications and Information Systems Command. This new structure offers now an excellent chance to support command, control, communications, and computer requirements in an even more professional and efficient way than it used to be. The consistent alignment of BwCISCOM performance with mission requirements in a predominantly multinational setting must be the yardstick of success.

## **Capability Coordination Commands of the**

## **Joint Support Service**

The Guidelines for the Reorientation of the Bundeswehr issued by State Secretary Beemelmans on 4 April 2012 define the mission and role of the Capability Coordination Commands of the Joint Support Service as follows:

"The Capability Coordination Commands and Centres of the respective functional areas (e. g. logistics, C4 support, military intelligence, etc.) will combine operational units, control elements and on-call domestic expertise and capabilities for operations as well as training and its development under unified technical and administrative responsibility. The Capability Coordination Commands and Centres of the JSS are centres of functional expertise for their respective tasks across the Bundeswehr and Single Services, while being centrally responsible for their implementation across organizational boundaries. In this capacity, the Capability Coordination Commands and Centres assist -- through Headquarters of the German Joint Support Service -- the Federal Ministry of Defense and work together with the operations commands of the military organizational areas, the Bundeswehr Joint Forces Operations Command as well as the Offices/Commands of the major resource organizational elements / organizational areas and other ministries."

During his speech at the last Bundeswehr Commanders' Conference on 23 October 2012 in Strausberg, Germany, the chief of defense clearly pointed out that realignment of the Bundeswehr must not be unilaterally influenced by past and current lessons learned gathered during operations. Rather, its substance must be determined by the more likely future conflicts, their probability of occurrence and the unique challenges posed by these conflicts on land, at sea, in the air and information environment.

In this context, the Bundeswehr chief of defense went into further detail: "The integration of command and control, reconnaissance, effects and support is the linchpin that makes it possible to be effective

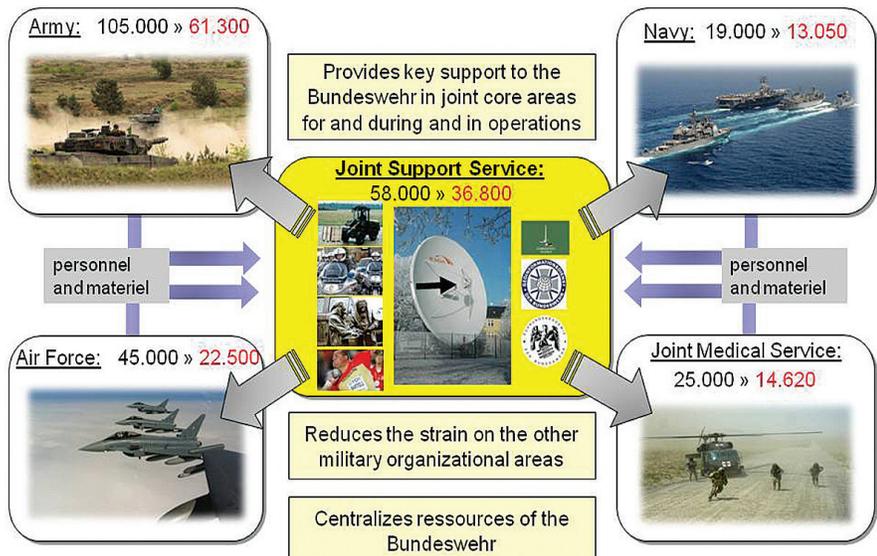


Figure 1: The idea of truly Jointness - The 5th Military Service

in all capability domains -- also when providing complementary multinational services -- and enables Germany as a framework nation to offer those "plug-ins" that can be plugged into by our Allies."

BwCISCOM in its capacity as JSS Capability Coordination Command will provide in the future exactly such "plug-ins" as Bundeswehr common capabilities.

**The Command, Control, Communications,**

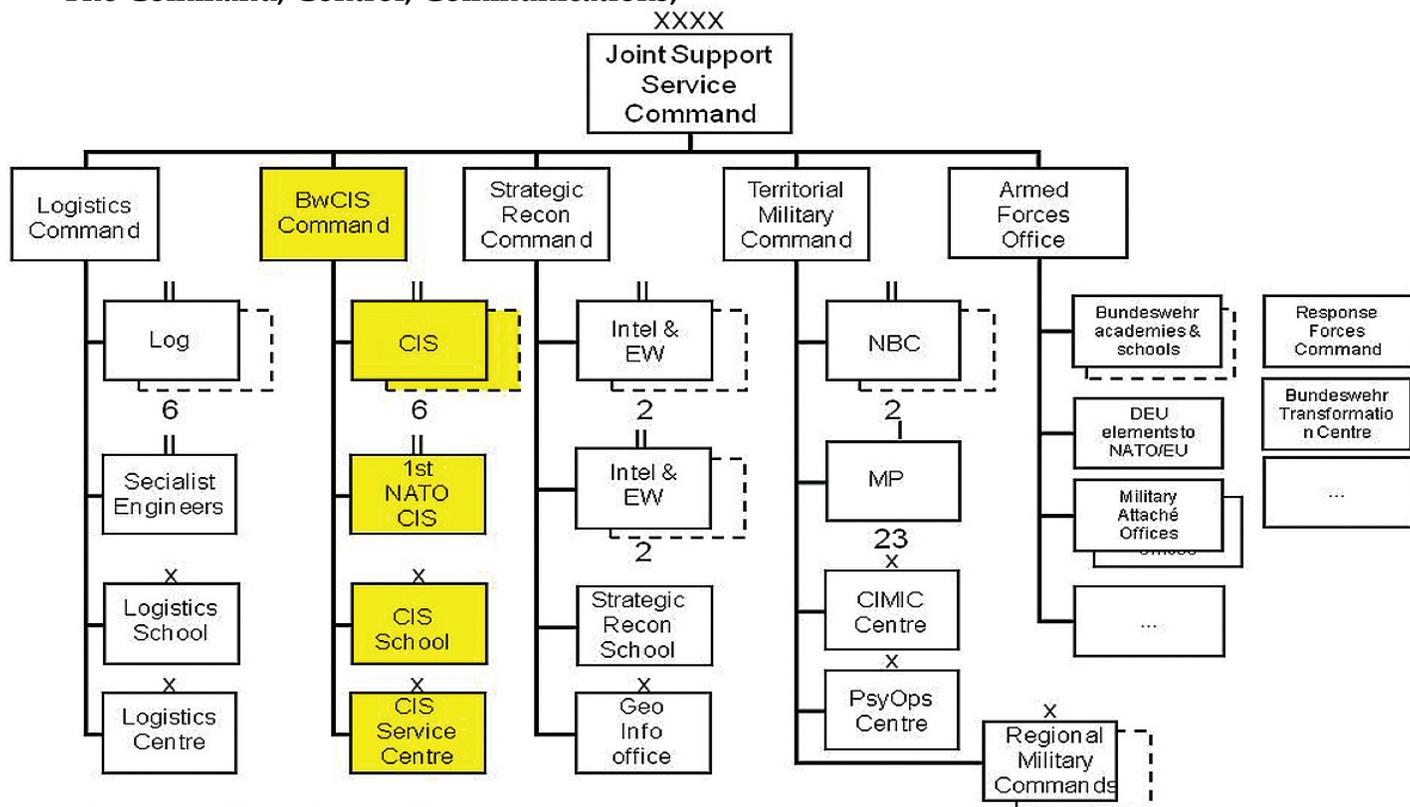


Figure 2: The Joint Support Service

**Computers and Intelligence Support Task**

The core task of C4I Support is to provide support to the command and control capability of the Bundeswehr by employing and operating information and communications technology. JSS C4I support forces will be the military experts whenever IT assets have to be employed to ensure C2 capability for the conduct of operations of armed forces.

The employment of IT is indispensable today for the employment of armed forces. To ensure that Bundeswehr capabilities can be effective, all elements of the integrated system of reconnaissance, command and control, effects and support (Verbund AFWU) will be interlinked by means of IT.

Similar to the structures implemented by the private sector and public administration, IT networking and the use of complex IT services within the Bundeswehr, too, have reached a previously

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unknown dimension -- running the gamut from the conduct of operations abroad to providing support in Germany (homeland logistics base). If you take a look at big commercial IT service providers you will realize how many resources it takes -- in terms of personnel, organizational and technological effort -- to reliably provide quality IT services to the client.

The guidelines for the reorientation of the Bundeswehr stipulate that all elements of the Bundeswehr have to be aligned towards missions and operations of the armed forces, and to providing support to them. All processes have to be optimized to reach this goal. Then again, it takes a goal-oriented and centrally managed operation of the Bundeswehr information and communications technology to make this happen in an effective and cost-effective manner. Also the "life cycle" of the suitable IT services -- that is development, procurement, employment, use and disposal -- must be designed to comply with principles of centralization, and must also be centrally controlled. In this area, too, the BwCISCOM will assume a central role in the future. Important principles are defined, among others, by the "IT Service Management in the IT Bundeswehr System" concept that is currently being drawn up.

Without a working C4I structure, it will not be possible to smoothly conduct operations in any area of the Bundeswehr (enabler function). The failure of the complete transmission network or only of parts of it, jammed IT technology, for instance, the absence of a secure

communications link or of a necessary piece of situational information may quickly endanger current operations, and in a worst case scenario pose dangers to life and limb of soldiers on operations. The incidents in Estonia, the propagation of malware such as Stuxnet or Conficker, have highlighted the dangers to which networked systems are exposed. In a networked system of systems, such as the Bundeswehr IT system, it is indispensable to have an agency that is centrally responsible for day-to-day operations and the management of emerging crises. A central resource management for the employment of available forces, means and facilities as well as the management of IT services must be accomplished by a single-source provider. It is particularly against this backdrop that BwCISCOM develops the central risk management concept for the Bundeswehr IT system and implements it step by step. This provides us with an effective shield against manifold threats -- not always emanating from information technology.

When it comes to joint and combined operations, C4I support networks all forces, means and facilities of the Bundeswehr, usually as an integrated part of a multinational information and communications network. C4I support forces plan, set up, operate and monitor/protect the network and provide central IT services (core services) to all forces and facilities in the theatre of operations. C4I support forces are the central point of contact for the local military commander when it comes to the employment of all IT assets in the commander's area

of responsibility. The head of staff functional area 6 is the central adviser for the commander, providing advice on all issues regarding the use of IT.

In Afghanistan, the Bundeswehr C4I support elements are an integral part of a sophisticated, multinational integrated network. C4I support elements are the platform that provides a variety of applications and services to the conduct of missions and operations, including military and civilian support elements. For all operations, BwCISCOM C4I support forces are centrally responsible for the setup and operation of the Bundeswehr IT system elements located in the theatre of operations.

They ensure that national, multinational and commercial IT services are provided at the right time and in the right place, meeting required quality standards. Not always will C4I support forces themselves be responsible for the provision of certain IT services. SASPF software products, military intelligence IT services or Afghanistan Mission Network IT services, for example, are examples for services provided by external military or commercial IT service providers.

Availability of these services is centrally coordinated by in-theatre C4I support forces and central control facilities and elements in



Figure 3: Tasks and roles of the Bundeswehr Communications and Information Systems Command (BwCISCOM)

"Bundeswehrwernet"

Germany (homeland IT base). On future operations, BwCISCOM will be able to sustainably provide key leaders in the field of C4I support from their own personnel pool. The new structure of the Command ensures this through six (6) C4I Support Battalions and the respective officers in the Command HQ, Bundeswehr IT System Center and Bundeswehr C4I Support School. Moreover, the new command structure will be able to fill additional leadership posts at the one-star level in a multinational HQ.

The Bundeswehr Afghanistan mission and the Bundeswehr's special role as regional lead nation in the northern part of the country underscore the broad range of IT assets employed and operated in theater. The lessons learned here can provide us with important principles for the future use and design of C4I support. It goes without saying, however, that the Afghanistan mission cannot be the sole yardstick for all conceivable future missions.

The BwCISCOM is the Bundeswehr's central element for ensuring C4I support capabilities. It is the Bundeswehr's C4I support centre of excellence. The planning, operation and monitoring of IT support throughout the Bundeswehr IT system, the employment of C4I support forces as well as the central tasks of combat development and training of C4I support forces are centrally combined by this new capability coordination command.

Its tasks, organization and structure are consistently aligned with the goals of the reorientation of the Bundeswehr. The Command is the main force provider for in-theatre C4I support mission accomplishment. Being a capability

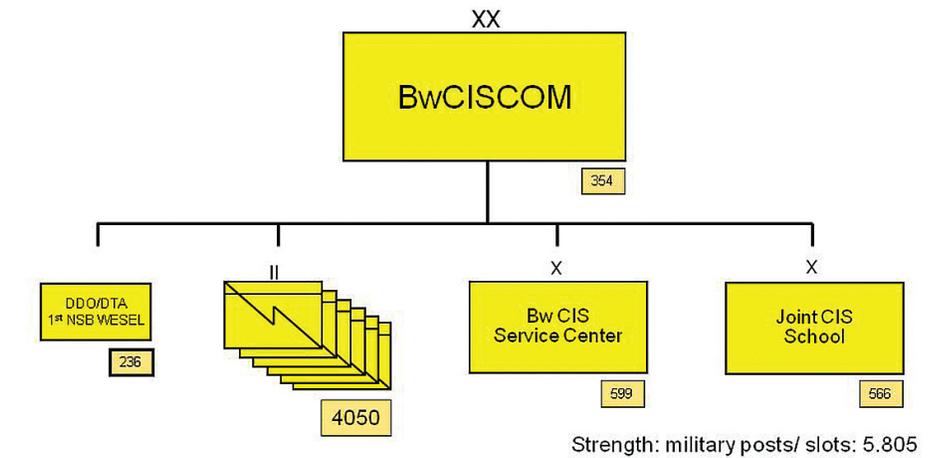


Figure 4: The Bundeswehr Communication and Information Systems Command (BwCISCOM)

coordination command of the JSS, it has been assigned special responsibility for the employment of its forces, means and facilities and operation of the Bundeswehr IT system as a whole. In his role as central Bundeswehr IT system supply manager, the commander reports to Bundeswehr Joint Forces Operations Command -- being the central Bundeswehr IT system demand manager -- when it comes to missions and mission-equivalent commitments. BwCISCOM coordinates C4I support capabilities as early as in the mission planning process and provides tailored-to-the-mission support to the respective mission contingents.

For exercises and other commitments, the commands of the Bundeswehr's single services and major organizations -- besides the Bundeswehr Joint Forces Operations Command -- may request IT support and they, too, consequently act as demand managers.

In this capacity, BwCISCOM is authorized to issue directives

to all military and commercial IT service providers which provide their IT services through the Bundeswehr IT System. It has overall responsibility for their provision and reliable operation. The command's structure is shown in Figure 4.

The command was activated on 1 January 2013. The command's headquarters and its four staff divisions will be eventually located at Bonn-Hardthöhe, co-located with the Ministry of Defense. However, given the multitude of organizational and infrastructure measures required, the command will be stationed at temporary sites for the time being. It is planned to merge all divisions at the Bonn, Germany, location by 2015.

The command is headed by a two-star general who reports through the chief of staff, Joint Support Service, to the chief of defense, Bundeswehr. He is responsible for the operation of the Bundeswehr IT system and thus for ensuring the command and control capability of the armed forces in the mission areas.

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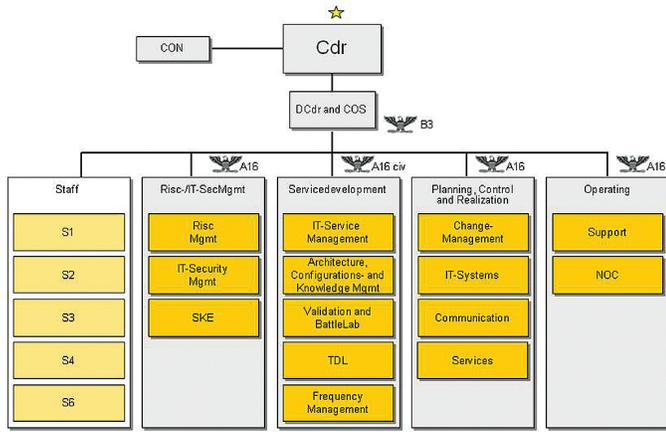


Figure 5: Bundeswehr Communication and Information Systems Service Centre (BwCISSC)

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The command has, however, far more responsibilities than the employment and operation of the Bundeswehr IT system. The command concentrates the interests of the Armed Forces' C4I support community, it is a trailblazer for C4I support and it is through the Bundeswehr Planning Office the most important point of contact for the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support when it comes to the further development of the Bundeswehr IT system. In this context, the close coordination and harmonization with the CIO/IT Director has become second nature and is practiced every day. In the integrated planning process, the Command has central competence to address all issues concerning the C4I support of the Bundeswehr. Thus, in principle, BwCISCOM evaluates all initiatives concerning C4I support on behalf of the Bundeswehr Planning Office, against the Command's technical and conceptual guidelines. Pertinent priorities will have to be identified in coordination with the German Joint Support Service Headquarters and the single services and major organizations involved.

Concurrent with the activation of the Command, the BwCISSC will be established as an independent agency located in Rheinbach, Germany, and headed by a brigadier general or rear admiral (OF-6) (cf. Figure 5). BwCISSC has been undergoing a significant buildup, both quantitatively and qualitatively, as the agency has overall responsibility for the central operation of the Bundeswehr IT system. The BwCISSC Network Operations Center, Homeland Base (NOC B. I.)

monitors the operation of the Bundeswehr IT system on a 24/7 basis. Having established the NOC B. I. in close proximity to the Operation Competence Center of the Rheinbach (Germany) based BWI IT service provider, it is possible to tap synergies and develop a close cooperation with BWI.

There are currently still three subordinate C4I support regiments and their 11 C4I support battalions and a Wesel-stationed NATO Signal battalion; until 2015, they will gradually transition to the target structure consisting of six C4I support battalions and the new 1st NATO Signal Battalion.

The target structure is shown in Figure 6. The process of transitioning to the new structure poses a special challenge since greatest possible planning predictability for personnel must go along with ensuring the fulfillment of our mission commitments. In particular, during this important restructuring phase, timely personnel planning will make sure that the "first-come-first-served" principle does not prevail. Personnel of the regiments and battalions must be offered the highest level of reassurance right from the start.

Until further notice, the Joint Communications and Information Systems School remains in Feldafing, located in southern Germany.

The Joint CIS School has been doing an excellent job under difficult conditions. It has adapted military training to new systems and technologies quickly and flexibly. The Joint CIS School will soon reap benefits from this since the new C4I support structure eliminates many training interfaces and now that BwCISCOM has assumed its central role, it controls, develops and takes responsibility for the training of Bundeswehr IT personnel. As in the previous structure, the Joint CIS School is still responsible for the course-based military regeneration and follow-on training of the C4I support and IT personnel of the Bundeswehr.

The command is scheduled to reach its final operational capability by 31 December 2013.

The command HQ (see Figure 7) will be restructured -- same as the other capability coordination commands of the Joint Support Service -- featuring four staff divisions. Its organization and internal structure are based on a new Bundeswehr approach that has to be implemented now.

### BwCISCOM's Role

BwCISCOM has assumed its central role as

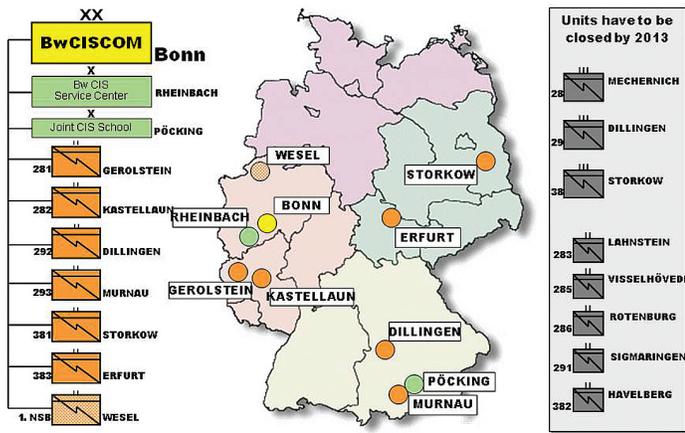


Figure 6: BwCISCOM Target Structure

center of competence, supporting C4 requirements. The Command will be actively engaged in the amended CPM process, in shaping the way ahead of the Bundeswehr, in the capability management and pre-deployment processes. BwCISCOM will make critical contributions to the further development of C4I support. The command will concentrate C4I support requirements along the lines of the armed forces. This is a task that it performs under the new structure in its role as supply manager, Bundeswehr IT System. Here, the support provided to joint and combined missions will be the yardstick. With regard to the new C4I support processes, priority is given to the optimization of the system of systems.

The technical competence of Bundeswehr C4I support is concentrated in the JSS. The single

services and other military major organizations will retain only those elements necessary for the operation and development of IT services that are specific to individual organizational areas and certain tasks. Together with these organizations, BwCISCOM will continue to optimize the processes. There will be clear-cut operational processes and clearly defined responsibilities for rapid reaction in crisis situations. BwCISCOM also contributes its share to the ongoing considerations aimed at finding a follow-on solution for the HERKULES IT project. From its point of view of the Bundeswehr IT System Supply Manager responsible for further development and overall operations, the command evaluates the individual models of a follow-on solution. Not only for this project, it will - on behalf of the FMOD--concentrate the Armed Forces' viewpoints and coordinate them seeking mutual agreement, whenever possible.

BwCISCOM has been activated. The integration of tasks, responsibilities and competence to benefit the employment and operation of the Bundeswehr IT system is thus consistently continued. Success will critically depend on the availability of qualified personnel and provision of necessary resources for the further development of capabilities in terms of materiel.

Satellite communications for long-range communication needs, secure radio and communications networks for the lowest tactical level, professional IT service management tools or harmonization of C2 information systems with NATO core services are just a few examples of activities that have to be immediately addressed.

BwCISCOM is well prepared to cope with its variety of tasks. Now the rub lies in translating the innovative approach of creating capability coordination commands in the Bundeswehr into action and supporting this approach at all levels.

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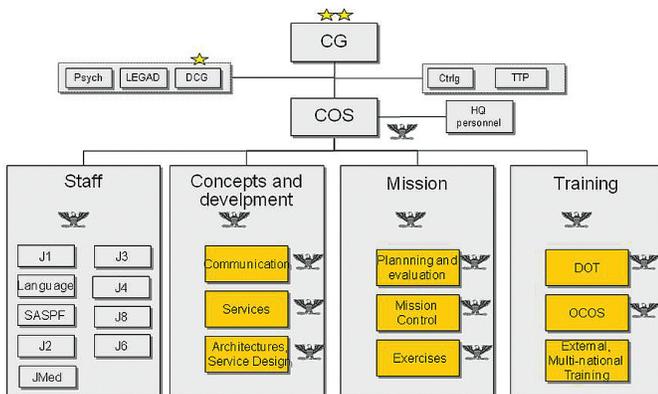


Figure 7: BwCISCOM HQ