

# Network Enabled Operations

The goal of the transformation of the Bundeswehr is to consistently gear the armed forces to the most probable missions and to improve their operability. Conflict prevention and crisis management missions will be the major tasks in the foreseeable future. The diversity of the tasks, which range from aid and reconstruction via peacekeeping up to peace-enforcing operations, must be successfully managed in an interservice, joint and multinational combine. To that end, German armed forces must have the capability for conducting network enabled operations (NEO). Accordingly, NEO carried out within the scope of the comprehensive and complex measures constitute a prominent core element in the process of the transformation of the German armed forces and are of central significance as an overlapping principle. The Bundeswehr has been making enormous efforts for some years now to achieve this high aim of NEO in a joint and combined way. First progresses have been made, but there is still a long way to go. Various measures have meanwhile been tackled which is reflected in different specialist articles on that subject and in partial aspects thereof. The current state of affairs will be described in a brief form. As the topic covers an enormous number of fields, measures and procedures it is not possible to make mention of all aspects. The approach of the armed forces as a whole is explained and examples from the Services, primarily of the Army, are presented, however.

## Tenets

The principles regarding the conduct of NEO in the German armed forces were laid down in a sub-concept "Networked Enabled Operations" in 2007. NEO as a capability-oriented target system means command control and employment of armed forces on the basis of an interservice, joint and interoperable communication and information pool involving all command levels which connects all relevant decision-making units and sensors and effectors with each other. The objective is to achieve superiority in operations by the pooling and successful interacting of "Command-Reconnaissance-Effect" on the basis of such a communication structure. It is thus not about technical aspects alone or only about the creation of an upgraded communication network by means of modern signal equipment. It is intended to create information superiority with the aid of an up-to-date display of the situation and to transfer it into command superiority in order to attain superiority in efficiency and effectiveness. Success is to be achieved



Graphic: ES-Archive

by the concentrated use and the effect of all suitable and available means.

The connection of the factors time and information for attaining an advantage in terms of time will become a decisive element in the conduct of operations. This will provide freedom of action and offer the opportunity for taking the initiative. The forces employed will be able to adjust much quicker to changes in the situation and constantly adapt their actions on the basis of time-optimal and level-related avail-

ability of information. A common display of the situation of a new quality lined with task and intention of the higher command is to lead to a common comprehension of the situation on the basis of good and sound training and to allow it to be transferred into rapid and promising action.

Under conditions of NEO the significance of effect-oriented thinking and employment of means — also called "Effect Based Operations" (EBO) — is steadily increasing. It is no longer



Employment of the Bundeswehr in Afghanistan.

Picture: FMoD

the individual effector (combat ship, aircraft, tank or artillery forces, etc.), which counts, but their effect and availability in a networked pool of all forces will be of decisive importance. One prerequisite is the near-real time information and communication pool including common procedures for command control, reconnaissance, and weapon systems/operating forces. Effective means must be linked with each other in the “area of information”, otherwise they will be of inferior significance. These principles are valid over and beyond platforms, organizational elements as well as Services. In this way the use of sensors and effectors is made possible on an interservice, joint basis.

NEO make it basically possible to exercise command and control across all levels and to interfere in lower tactical areas. On the other hand, in today’s forms of employment the decisions made on the lower levels of company/patrols or weapon system controls can have an impact all the way up to the political field. It is therefore attempted by way of tests to find procedures to keep higher command control and direct employment of effectors locally in a balanced proportion. The independent “mission-type tactics” will be retained as a principle of German leadership philosophy in NEO conditions as well. Intervening in the command control across command levels should be made use of only in exceptional cases as required by the situation. The significance of the individual soldier in NEO will not decline either. He continues to play the decisive role; his capabilities and those of his effector will be the keystones for a successful conduct of operations.

The above-mentioned tenets and implications entail conclusions for the operational principles and the training in the armed forces. All soldiers should find their own roles and contributions reflected in the NEO system and they should know where the possibilities and limits of the new conditions are. This naturally applies to the commanders of all levels in particular in order for them to get a common comprehension of command and control in NEO conditions. Therefore, mission concepts and procedures as well as regulations will be adapted to serve as a basis for both training and the missions. These measures include, of course, an adjustment of the troop and commanders’ training, too. First courses to that end have been conducted at the Bundeswehr Command and Staff College since 2006. In future, special requirements will also have to be met by the technical side in the armed forces. New systems must generally be capable for NEO; older means need to be adapted or taken out of service.

NEO can be successful only by way of a close cooperation of numerous, even different partners and by linking up various levels. Such collaboration is of paramount significance in the own armed forces, which has to be established by creating joint solutions. Within the Services/organizational areas, all forces — i.e. the different branches and weapon systems —

have to be optimized in respect to the common target of NEO. The substantial integration of the Bundeswehr in multinational structures in the basic operation already, but primarily in missions of NATO, EU or the UN necessitate solutions in a multinational combine.

Furthermore, the link-up with civilian agencies/contacts is also to be aimed for, as close cooperation with them is necessary in many missions abroad, but also in disaster relief at home.

## Command Capability

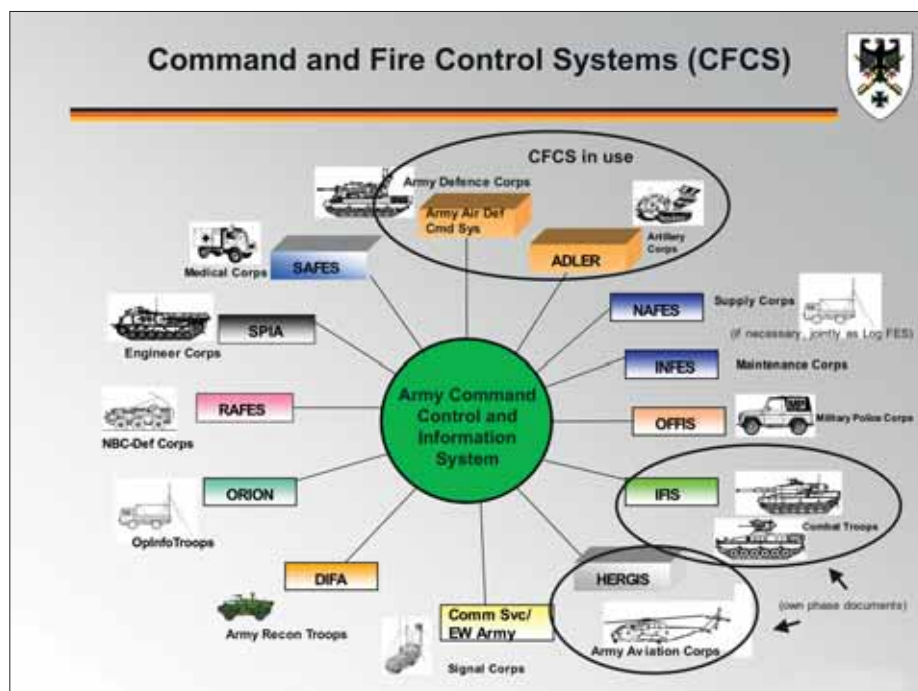
Command capability is the most important basis for a successful conduct of NEO in the armed forces. For that purpose, the command and control organization — in general and for individual missions — command and control techniques as well as command support must be coordinated and synchronized in and among the forces of the Bundeswehr, but also in a multinational scope. A basic precondition for NEO is thus the command support with the essential components of information processing and transmission.

With the Command Control and Information System of the armed forces it is intended to create a joint, functionally active information and communication pool. To that end, all relevant subsystems of the Services/organizational areas/technical systems in the armed forces system are planned to be amalgamated. Right now this project is still at it’s beginning, since primarily the direct interfaces with the other system do, in part, not exist yet. But it is intended to reach the target “amalgamated overall system” in several steps. Currently it is worked on managing the linkage of the existing command

control and information systems of the Services/ organizational areas to a “system of systems” with the new Command Control and Information System (CCIS) of the Armed Forces by way of a bridging function. The technology and procedures for seamless information exchange relations need to be established here.

First equipment sets of the CCIS were delivered in 2007 — from the Federal Ministry of Defence via the headquarters of Joint Ops Cmd, Ops Cmd RF down to the level of contingent commands — and tested for employment with KFOR and the EU Battle Group. Additional command authorities with interservice, joint mission tasks up to the military organizational areas are planned to be equipped with that system in this year. In its core functions the CCIS of the Armed Forces is based on both conventional (Office, Lotus Notes) and special applications. These include e.g. formatted reports by ADatP3, the geographical information system for planning and plotting the situation or a mission data bank. With the SINA technology it is possible to transmit classified information even via open nets with the IT security being still guaranteed.

The CCIS of the Services are not very new anymore, but need also more time to be complete as a subsystem. The Navy uses primarily the Maritime Command and Control Information System prevalent in NATO. Aside from many other functions, the Navy CCIS offers a common picture of the situation which builds up from the units via the fleet command to the NATO headquarters and goes back from there complemented with further information and which is possible to be used for decision-making purposes. Having a large number of diverse interfaces with other systems, the system pro-



Grafic: Fü H

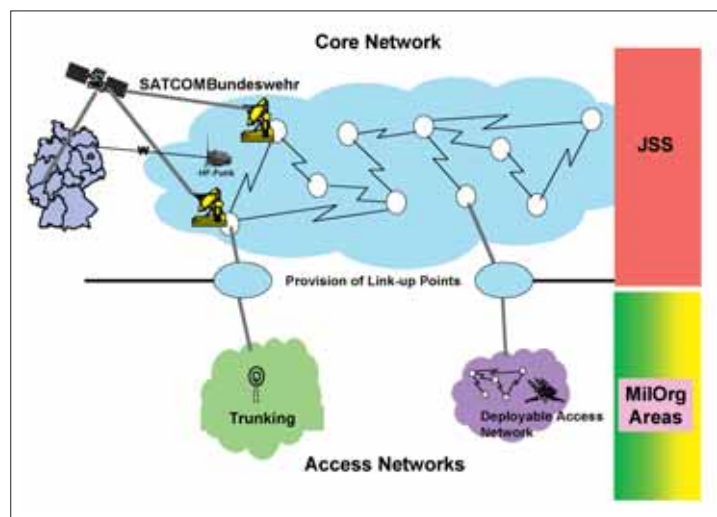
vides high worldwide interoperability. In addition it is possible to transmit information over different channels — ranging from satellites to wire — and thus to network all parties/users required. The Air Force is extending its CCIS and has already established linkages to national and international systems in various ways.

The Army, mostly in the heart of the ground-based missions and operations of the Bundeswehr, is in the midst of the process of establishing its Army CCIS. The introduction of the 1<sup>st</sup> batch has just started with the German/French Brigade and is to be completed with the response forces by 2011. Other units of the Army are to be equipped as of 2015 within the

scope of series procurement for the “CCIS Land” project of the ground-based forces of the Bundeswehr. The Army CCIS supports the general command capability of the major formations and the data processing (DP) support of the command and control process on all levels and in all areas in a joint seamless information pool. The command posts of the Army will be equipped with new control center parties, including IT hardware and CCIS software.

The full networking of all components in the Army will only be achieved with the linkage of the Army CCIS with the command and fire control systems for land-based operations (CFCS-LBO). These systems of the branches will ensure the DP support in the units/elements and the information pool with all sensors and effectors in the Army. Individual command and fire control systems (e.g. ADLER of the artillery) exist today already or are about to be introduced (IFIS of the combat troops, HERGIS of the Army Aviation as of 2008/2009). In the core, all CFCS have the main functionalities of the Army CCIS, such as graphic presentation or “Blue Force Tracking”. Complementing components of the branches will be added. As for that part, the project planning with the CFCS-LBO has not been started yet, as there were no development fields provided. By way of a software module as an interim solution, the CFCS-LBO is to be introduced with the beginning of 2010, however. Only after that will the necessary linkages be possible for integrating the Army CCIS in the system of the armed forces. The interoperability within a multinational framework will be made possible by the MIP and ADatP-3 interfaces.

Of the same importance for network enabled warfare (NEW) is the transmission of information and the networking of all elements, which have to co-act. In Germany, the IT services are provided by the HERCULES project. Military forces and means carry out the networking into the areas of operation and inside these areas. For that purpose, the Joint Support Service (JSS) sets up an IP (Internet Protocol)-based



Grafic: ES-Archive

core network using broadband satellite communication (SATCOM Bundeswehr). Used in the area of operations is the “Mobile Communication System of the Bundeswehr”. The system teams of the network are linked up via radio relay, satellite links, and optical fiber links or by use of public networks. Connected with the core network are the so-called access networks of the Services/organizational areas by which an interconnection with the individual command posts (CPs)/forces/means can be affected within the meaning of NEW. These networks can and will be of different types. CPs and bivouacs will get a network infrastructure through deployable access networks (DAN) which allow to connect users up to a distance of 500 m and sub-components up to 5 km. TETRAPOL is the first IP-capable communication system of the Bundeswehr. It is a trunking system for the tactical level and is being successfully used already with ISAF in Afghanistan. It has different interfaces and gateways such as to DAN or AUTOKO 90. The Army intends to replace this AUTOKO by the Army Terrestrial Transmission System; this means to introduce a modern radio relay system for broadband, IP-based transmission of information by 2011.

New radio sets are also to be procured in the armed forces. They are to replace the present radio sets, which are not compatible due to different frequency bands. Software Defined Radios (SDR) are wideband and relay-capable sets working with digital signal processing through their software. An SDR is characterized by the separation of hardware and functionality. It can be used for voice and data transmission, which is an essential prerequisite for the participation of the forces/means in NEO. The development of this system is going on for some years already. First deliveries are not expected before 2013, however. It is therefore considered to procure other data and voice-capable radio sets or respective modules as an interim solution. Without such modern radio sets an important basis for NEO would be postponed for the time

being, since secure broadband, IP-based communication is not possible in the last few meters, i.e. in the unit, in the elements, to the sensors or effectors.

If one would succeed with that, the precondition for a first basic capability for NEO would be given. This would have to be further extended. In this context it will be necessary to take into account that a comprehensive NEO will produce a much greater volume of information and demand for communication. Mass data must be transported with a very high bandwidth. As to this, experts consider here, aside from satellites, stationary airships as “stratosphere platforms” which could provide a broadband core network

for areas of operation. The developments for that are ongoing; first systems could be on the market in 2010. Ultimately, communication requirements boil down to a military Internet, usable at any place at any time and available at home, and secure. For the major parts like core network and linkage of command posts and major formations/units this may work out fine. Whether all individual effectors and the infantry group with the “Infantryman of the Future” system can also be accommodated in there, is still an open question. At least it will take a long time yet to support NEW/NEO with a universal Bundeswehr information and communication system.

## Other Important Elements

As for the other important elements of NEO things look much better even though there is always a lack of money for necessary procurements in times of unchanged scarce budgetary funds for investments in the Bundeswehr. Good progress was made in the past years as far as the reconnaissance systems are concerned. These systems provide information ranging from a near real-time assessment of the present situation for the tactical command of the Service via long-range and up to the worldwide intelligence of the Bundeswehr, including the pool of intelligence means of NATO or other allies. The goal is to combine all technical and non-technical reconnaissance means and to provide summarized data in the net. With part of the reconnaissance means this has already been made possible whereas the technical and procedural realization is still being worked on with others. The systems cover the satellite-based reconnaissance of SAR LUPE to the drone mix of the Army and are active in ranges from 500 m forward of the spearhead of the troops employed up to 75 km and more in the area of responsibility of major formations. Apart from these systems reconnaissance will be conducted by FENNEK scout vehicles as



SAR Lupe Satellite System.

Grafic: OHB

well as by HUMINT. Reconnaissance and effector radar systems of all Services, electronic intelligence (ELINT) and other means of all Services/organizational areas as well as the gathering, processing, analyzing of information serve to collate and extend the picture of the situation. A large number of new sensors, stationary or mobile, is available or taken into consideration. In the Army, for instance, the reconnaissance patrols are equipped with ground sensor devices which can remotely and passively monitor the movements of vehicles along roads and at terrain points up to distances of 10 km and transmit respective information. The Mobile Sensor System (MoSeS) as another ground reconnaissance system and start into robotics produces reconnaissance results in close-in areas and in unknown and dense, impenetrable terrain. MoSeS devices are anticipated to be procured not until 2015, however.

Long-range drone systems are about to be introduced. For long ranges exceeding a penetration depth of 70 km, the introduction of a joint system, the Medium Altitude Long Endurance (MALE), is expected to come about in the Bundeswehr, which, by way of area surveillance, will provide reconnaissance results from the depth of the area of operations to all operating forces of the armed forces. The procurement plans for 2009/2010 have already been initiated; the parliamentary decision is anticipated to be made in 2008. As the different reconnaissance interests of the Services cannot be realized with comprehensive quality in this type of drone, it is intended to additionally procure for the Navy and the Army for the identification of point targets as target acquisition and poststrike reconnaissance a so-called "Vertical Take Off and Landing" (VTOL) system in form of a helicopter which can also be employed from aboard ships. The HALE (High Altitude Long Endurance) system of the Air Force and the JSS is planned to replace the Breguet Atlantic SIGINT weapon system as its successor system for conducting signal-detecting reconnaissance and surveillance as of 2010. More-

over, the Bundeswehr will contribute to the airborne ground surveillance system, the "Alliance Ground Surveillance (AGS Core)" of NATO, by nationally furnished HALE IMINT with imaging SAR sensors.

As for the effectors of the Bundeswehr things are comparably well, too. Important new acquisitions were started in all three Services in the past years, all of them based on already available very good effectors like the LEOPARD 2 battle tank, the Armored Self-propelled Howitzer 2000, the excellent, well-known submarines of the Navy or aircraft and missile systems of the Air Force. Just some keywords and examples should be cited here: EUROFIGHTER, MEADS air defence system, 125 Class Frigate, 130 Class Corvette, PUMA AIFV, BOXER armored transport vehicle, "Infantryman of the Future" system or the upgraded medium artillery rocket system with modernized GLRMS rockets.

The "Airmobile Brigade" of the Army with the new approach, combat and transport helicopters (TIGER and NH90 support helicopters and upgraded CH-53) as well as the integration of the airmobile infantry into a major formation and its introduction into and contributions, respectively, to NEO should also be mentioned here. A completely novel project is the "effector for stand-off engagement of individual and point targets" which can destroy point targets in distances up to 150 km by avoiding collateral damages within the meaning of a "combat drone". The capability for target detection/recognition, longer loitering over targets as well as for general mission abort is also to be connected with that. An efficient target locating system like the Target Locating Remote Controlled Unmanned Aerial Vehicle (KZO drone) would

conduct reconnaissance and serve as a relay station for command and control, mission abort, etc. A loitering-capable, i.e. an effector staying at/hovering over the target — the first means is presently the Israeli HAROP rocket —, could, if necessary, be called and ultimately guided to the target with its built-in sensors in time under observation.

These are only a few examples of a large number of excellent effectors of the German armed forces. It is important that these weapon systems are supported with sufficient money in order for them to be available for missions and operations in the years to come. Network linkage is also highly important in order to be able to convert the edge in information and time by networked reconnaissance and command control into superiority in efficiency, effectiveness and initiative. The link-up to the net within the meaning of NEO plays therefore a significant role with all remaining and new weapon systems.

The protection of the operating forces is also of paramount significance. It does not produce an active effect, but contributes considerably to the success in operations by preventing or reducing losses. Therefore and also for reasons of care and welfare for the forces employed this aspect is being attached great attention in the light of the changed asymmetric threats posed against worldwide missions and operations. Armament projects such as "Protected Command, Multifunction and Transport Vehicles", active and passive protection technologies in new procurements of all types or measures for the protection from attacks by suicide bombers as well as improvised explosive devices (IED) are excellent examples for that. They all contribute to the mission success in NEO.

## Realization

NEO/NEW in its comprehensive meaning will only be possible to be achieved in the Bundeswehr in many years to come. The implementation of the required measures is in progress for some years already. It is affected not only by taking a comprehensive conceptual approach, but also by expediting and advancing



EUROFIGHTER.

Picture: Bjoern Trotzki



PUMA Armored Infantry Fighting Vehicle.

Picture:RLS

things in all relevant areas. Certain prominent projects with special impact on the transformation are tackled with high priority by means of the “Concept Development and Experimentation” (CD&E) method. Here it is about finding auxiliary solutions in order to be able to apply NEO as quickly and practically as possible without having to have ready all the comprehensive possibilities of the implementation. In the studies it is ultimately about the answers to the questions: how do command and control of armed forces look like in the information age? Which possibilities and limits result from NEO? What impacts and changes do NEO entail for the command control hierarchies and procedures? Can the leadership span of the commanders be enlarged with the aid of NEO; is it thus possible to shape hierarchies more flatly, if necessary with the capability for self-synchronization? What effects are involved for mission-type tactics as a well-proven command and control principle?

Various inter-Bundeswehr CD&E projects, but also the ones of the individual Services/ organizational areas are dedicated to such subjects. Possibilities for creating a so-called “Joint Role-oriented Mission Situation Picture” have been examined in the national study/exercise series “COMMON ENHANCEMENT”. In 2004, the goal was a joint update of the air situation for the three Services. A “Response Ground Picture” figured prominently in 2006. In this year, NEO will be studied in “COMMON SHIELD” with relation to the subject “Harbor Protection” as part of measures to be taken against terroristic threats and their effects on the command and control processes of a contingent command. In this exercise, many co-players — from the Bundeswehr IT Office to the offices of the Services plus units/elements — are in the boat or better stated: in the harbor. The exercise is integrated in the NATO project “Defence against Terrorism” wherefore various nations with responsible sub-aspects participated in the exercise in Eckernförde in August/September 2008. Germany, for example, was responsible for the sub-area “Technology of ISTAR against Terrorism”; Belgium for “Critical Infrastructure Protection”. Meanwhile finished is the project “Homebase” in which the realization of command and control from dispersed HQs was studied at the Operational Command for Operating Forces in Ulm/Ger-

many. The knowledge and information gained are presently translated into action and respective requirements are set for the CCIS of the Service. The results can also be used for other headquarters.

An example of the Air Forces is the “Information Protector” project through which solutions were found in 2006 for the reorganization of the “National Air Defence Operations Center”. As a result it will now be studied in tandem with the Navy, how and in which way the networked protection of the Federal Republic of Germany can be organized. Here it will be about the aspects of the military air/coastal defence. Within the meaning of an “overall defence” or better “overall prevention” it would be necessary to include aspects of the defence on land as well as the collaboration with civilian forces of the Federation and the German States (Laender). It is another, even more lengthy project — as far as it is politically wanted at all. The protection of ships in ports and offshore waters is yet another inter-Bundeswehr project which will be started in 2008/2009. Here it is thus not only about the protection by naval security forces, but within the meaning of NEO about the co-action of all suitable and available forces and means of the Bundeswehr and beyond.

Just as the other Services the Army is also carrying out several important CD&E projects — called “lighthouse” projects — e.g. in regard to the new “reconnaissance units” with a mixture of different reconnaissance means or in connection with the “Airmobile Brigade”. Other fields of action are aimed at the protection in missions and the possibilities offered by robotics. The inter-Bundeswehr project “Joint Fire

Support” is intended to enhance the effectiveness in missions within the scope of NEO. The objective of this key project is to utilize in accordance with the situation the fire of available and suitable weapon systems of all Services on the tactical level already. For that purpose, the already available fire support capabilities should be fully exploited, procedures for co-action improved and the provision of all effectors of the armed forces as a whole, including those of the allies, optimized. In the “New Army” there will be Joint Fire Support Teams (JFST) set up for it in which the forward observers of the artillery/mortars as well as the forward air controllers of the Air Force are going to be combined on one platform. Wherever purposeful, they will be complemented by spotters of the Navy. With that, the capability for requesting all effectors of the ground, air and naval forces for support and to deliver them “right into target” is thus basically given on the company level of the combat troops already. In late 2008, the Army will procure the first ten FENNEK scout vehicles as platforms for five teams.

Another excellent example for interservice, joint cooperation is the CD&E project “Command and Control from Sea” which also comprises NEO aspects. It is to make command and control of ground-based operations possible from aboard ships and to improve in this way the command effectiveness of the armed forces. It was already realized that this is feasible for at least a limited period of time. At present, it is being worked on solving identified technical problems with the command and control means.

Command and control in NEO conditions and the possibilities and risks involved in them are studied in the Army in a “NEO experiments series”. Doctrinal principles, command control organization and procedures are to be reviewed



Exercise/Training Mission CCIS of Armed Forces in FHQ.

Picture: IT-Amt

and coordinated here in addition to technical basics. In September 2005 this was started on platoon level. For that purpose, the exercising troops in the Army combat maneuver training center were networked with the situation picture of the BLUE forces — a first start into the new world of NEO. The experiment was continued on a semiannual basis, in 2006 several times on company level. In 2007 it was continued on battalion level where the Army CCIS was simulated with the aid of the SIRA system. The simulation on the “networked battalion command post” is to be continued in August 2008.

The Army is also cooperating with the French Army where one has progressed even more. The networking of two brigades was carried out and tested with existing and quickly available means in a very pragmatic approach. In the coming years it seems to be expedient to the Army to also include the next higher level, the brigades, in such an approach in order to test in near real-time the NEO conditions and chances on the level of a major formation. In 2012, the Bundeswehr will practice the initial capability for NEO in a real experiment with genuine data pools on a higher, joint level within the scope of a “Demonstration Exercise”. Here, one could, of course, well image an Army brigade to participate in that.

Of particular significance for NEO is the lighthouse project “Operability”. The concrete operability in missions and operations is to be guaranteed for joint NEO with comparable fundamentals, but with quite different national conceptual particularities and technical equipment. As a testbed this would seem to be possible in the cooperation in concrete missions, but primarily within the framework of the NATO Response Force (NRF) and EU Battle group (EU BG). Among other things, the equipment of the German forces is to be improved with national command and control means and the interoperability of the different command and control means is to be ensured as well. In the core of the planning effort is the realization of the agreed data exchange mechanisms of the Multilateral Interoperability Program (MIP interfaces) of NATO and EU. Up to now, this has progressed only very slowly, though. The attention is presently directed to the harmonization of the command control and information systems of the participating German and Dutch troops. In the second six months of the year the EU BG is to be successful in combining German and French ground forces in that manner.

## International Cooperation

The improvement of the interoperability plays also an important role in the concept of NATO Network Enabled Capability (NNEC). Here, one continues to work on preparing an adequate concept for NATO and integrating the partners into this net — a big challenge. All nations are actively involved in the NEO subject,



Exercise of NATO Response Force.

Picture: NATO

but, as for themselves, they often have yet to find the “joint” way and it is not always easy for them to consistently meet the “combined” requirements. Nevertheless, the goal can be reached with small steps, too. We have been active in this matter in one of seven agreed transformation areas. Aside from individual exercises, “experiments” in missions or with the NRF figure prominently here. Even more comprehensive are presently the technical laboratory tests in the field of “Information Superiority” which are conducted by the NATO C3 Agency in The Hague. In addition, one meets regularly in respective conferences on this subject. As to the desired interoperability, it’s always — just as in former times — the little things that cause the problems, i.e. the problem of the technical implementation of sublime intentions. For instance, the reaching of the goal “Virtual Information Area” is presently often frustrated by issues of national IT security. By the way: in Germany this is the task of the Federal Minister of the Interior. An excellent ex-

ample for NNEC projects is the “Maritime Situation and Awareness” project. Comparable to the air surveillance in NATO this project is to improve the maritime situation picture including the civilian shipping traffic.

Conferences and joint exercises are also conducted bilaterally. The US armed forces are leading the way here, too, even though the momentum of the first years has declined a bit. But they nevertheless continue with this “Multinational Experiment” (MNE). Tested in a worldwide approach regarding participation and exercise design are here the basics of operations in respect to all interdepartmental system linkages and aspects of today’s missions (“Effect Based Operations”). Until now progresses related to command and control procedures of operational headquarters and to technical as well as organizational improvements were in the focus of such exercises/experiments. But with MNE 5, the priority will be placed on the development of multinational overall strategies and their implementation on operational level



Network Enabled Operation.

Picture: ES-Archiv

regarding the employment of forces in a crisis region. The topic is thus the “networked security” or also the “comprehensive approach” and thus the collaboration of multinational military and civilian personnel of governmental and non-governmental organizations under political leadership and objective setting. Today this can be found in a very small scale with the PRT (in accordance with the German model) in Afghanistan. These experimental series are expected to have repercussions on both national and NATO/EU concepts and approaches and thus to induce further steps towards more jointness and combinedness in a networked world and in the conduct of operations. NEO does not explicitly figure prominently here, but it is an important aspect of occurrences and events.

## Summary

NEO are a decisive objective and project of the Bundeswehr for successfully employing armed forces in joint and multinational environments in a changed world with novel technological possibilities, different threats and challenging missions/ operations. NEO capabilities cannot be established by pressing a button. This capability can be obtained more comprehensively over a longer period of time only. Excellent approaches and concepts were made both in the Bundeswehr and together with allies. As for the reconnaissance means and modern-type effectors the starting positions have already been left. Excellent means, which can be successfully employed in the combine with NEO, are on hand or in the process of being procured. The prerequisites for leading such operations have been dealt with. Command and control organization, processes and procedures are being tested. Experiences and findings for the training and regulations have been implemented. Command support with information-processing and information-transmitting systems is still the most difficult field for ensuring the basis for the linkage of command, reconnaissance, and effect as NEO. Efforts are now being made to combine the individual systems of the Services/organizational areas; but there is still a long way to go before an effectively amalgamated CCIS of the armed forces will be available. For that reason it is intended to get pragmatically to constructive successes by taking small steps. An initial capability for NEO is to be achieved as a matter of priority in order to test and then employ it in selected sub-areas and in missions, if necessary. To be desired for that is the success, a fruitful cooperation of all Services/organizational areas as well as with international partners and also the backup of the intentions with anticipated budgetary funds. Success does not come by itself — it must also be supported. ■

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