Keeping Pace with Innovation
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The Challenge of Change Management in Armed Forces

by Ralph Thiele

Shaping Changes

"The transformation of the Bundeswehr is progressing and has to be resolutely pushed forward. Through the initiated transformation process, the Bundeswehr is gearing itself consistently to operational demands and remains open to developments so as to be able to respond at any time to conceivable changes in the security and military requirements. It will continue to improve its capability profile and contribute as part of an increasingly networked security policy towards national security provision."

These are the words of the German Federal Minister of Defence, Dr. Franz Josef Jung, in his introduction to the White Paper 2006 on German Security Policy and the Future of the Bundeswehr. Unlike the *reforms* with predefined end states carried out previously at irregular intervals, *transformation* is a continuous, proactive adaptation process aimed at improving and permanently maintaining the operational capability of the Bundeswehr. It includes not only a continuous adaptation of the capabilities to changing security threats and new military requirements but also the consistent use of technological innovation and a more intense integration, interconnection and synergy of concepts, training, materiel and technologies. The purpose of transformation is to shape this adaptation process successfully. This can only be achieved by finding an appropriate balance between innovative, experimental approaches and a prudent modernisation of tried and tested capabilities.

The Bundeswehr has indeed done a considerable amount of its conceptual homework to face the political, social, economic and technical parameters that are changing at an ever greater pace in a process of permanent adaptation. The core elements of the Bundeswehr's transformation include a concentration on the most probable missions, a multiservice and multinational orientation and the capability to conduct *network-enabled operations*. As the most important objective of the Bundeswehr's transformation, the capability to conduct network-enabled operations is intended to significantly improve the military capability profile of the Bundeswehr while, at the same time, ensuring the capability to cooperate with important political, civilian and military partners in NATO, in the European Union and in the United Nations – an objective reflecting similar objectives of important international partners.

The transformation achieved so far within the Bundeswehr is quite impressive. The *"... mission-tailored reorientation of the Bundeswehr with concentration on its probable tasks has already made good progress. We are thus abreast of the developments by our partners in NATO and the EU,"*[1] the Chief of Staff, Bundeswehr, stated. In terms of content, there is now a remarkable landscape of fundamental conceptual principles that are further developed and completed at a fast pace. In terms of structures, the Bundeswehr Transformation Centre or the Air Power Competence Centre and their staff are an example of the impressive sustainable investment of the German armed forces in their own fitness for the future.

Despite the initial success, however, the following still applies:

- The transformation needs to be even more successful to keep pace with the speed of innovation outside of the Bundeswehr, i.e. the speed of innovation within economy, society and technological development.
- Due to the scale and complexity of the transformation, the time until its implementation at unit level is too long, i.e. there are not enough capabilities available to the troops.
- The essential core of transformation is not imparted in a manner tailored to the target group and is thus not understood.

As a result, many people within and outside the Bundeswehr regard the transformation as a chameleon that cannot be grasped. They neither see the transformation as a chance nor participate in changing it actively. However, this does not only apply to the Bundeswehr but to allies in NATO and the European Union as well. Even in the US where the amount invested in the transformation of the armed forces is considerably higher than the amount invested in Germany, a - completely inappropriate - transformation defeatism has evolved. It is high time to shift gear. Now, possible solutions and actual help for the transformation requirements need to be provided. It will only be possible to hope for successful missions in the future if the Bundeswehr manages to shape the changes required in a professional manner while, at the same time, supporting the current missions and peacetime routine duty in the best possible way and helping those in the field to embrace the changes.

A Question of Growth

The task of change management is to shape changes. For this purpose, the four crucial catalysts for the fundamental change in security policy after the end of the Cold War must be taken into account:

1. **Globalisation**. As a result of globalisation, countries, business areas, ministries, economies and – last but not least – security grow together. Companies, for example, are subject to an increased performance pressure and are constantly improving their performance. Otherwise they will have to face significant competitive disadvantages. The same applies to a nation state and its armed forces. They, too, are subject to an increasing performance pressure since terrorists and organised criminals also use many expensive high-quality assets. They exploit interface problems within and between states for their own purposes and set up networks to organise themselves.

2. The fast-paced development in the field of **information and communications technology** where rapid waves of innovation make it possible to communicate and exploit knowledge in unprecedented ways. Many people – including terrorists – exploit the new

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[1] General Wolfgang Schneiderhan, "Die Streitkräfte im Transformationsprozess" (The Transformation Process of the Armed Forces) in: Europäische Sicherheit 2/2006, p. 20

opportunities. Worldwide production of knowledge is increasing rapidly. More and more new perspectives are emerging. Due to the speed and the scale of information processing, knowledge itself has turned into an important resource under military aspects as well.

3. The **vulnerability of postmodern society** due to its open, liberal, media-influenced attitude and the increased networking of its critical *knowledge- and information-oriented* infrastructure. This is the target of non-governmental actors that are gaining an increasingly robust, powerful status in terms of security policy. Acting asymmetrically, they try to achieve optimum effects, especially at our security interfaces, by carrying out small-scale operations and exploiting the media.

4. The revolution in **warfare.** Following linear tactics, mass fire and 'blitzkrieg', we are forced to accept a fourth generation of warfare which, in essence, is characterised by political, religious and social roots and structures. Here, culture, identity and omnipresence of the media are at the core of self-image and behaviour. What is more important than ever before is to understand the person opposite, including friends and partners. The better the thread through their actions can be understood, the more effectively this thread of actions can be influenced. Never before have armed forces been forced to act in such an integrated, versatile, complex and fast manner as today. Never before did they have to adapt themselves so quickly and continuously to new situations.

    The changed security-related requirements take us to a new dimension where military aspects are integrated into political and social aspects, a new dimension of military skills that we – admittedly – do not fully master yet. Its profile is emerging but we still need to invest a lot of work – a lot of mental work in particular – to shape it.

Changes of this scale require spirited and sustainable change management. Although the fundamental decisions for the transformation of the Bundeswehr have been taken, a systematic *approach to change management* with a **clear and comprehensible vision**, the **implementation in the triad of man, organisation and technology** and an underlying **tailored communication strategy** still need to be provided. A similar approach for the security sector as a whole also is still to be made.

This is exactly the challenge to be met in the second phase of the transformation. This phase should focus on growth – *growth in the sense of 'better' and 'more'*. Here, one of the aspects to be dealt with is the quality of the performance in terms of security, especially during and for missions. This requires that considerable waves of innovation are achieved. Another aspect to be dealt with is a holistic security rationale developed in cooperation with partners from other ministries and nations and from the fields of trade and industry, science and research, etc. that uses a comprehensive portfolio of all resources available for security. Both the effectiveness and the efficiency must be taken into account since this is the only way to finance successful task fulfilment in the light of limited resources.

Growth is an indicator of the present performance capacity and, at the same time, the basis for future success. Failing to grow causes a loss of relevance. Security forces of no relevance are a contradiction in terms. For this reason, there is no alternative to the growth cycle. On the other hand, growth is driving growth. Once the growth cycle is underway, its self-driving forces accelerate it. After the numerous waves of reorganisation and reform within the Bundeswehr, a transformation aimed at growth is necessary for the simple reason that countless intermittent cuts, reorganisations and interferences with the investment share of the defence budget – due to apparently unexpected missions to be conducted time and again – have exhausted and weakened the armed forces.

In terms of implementation, the following goals can be outlined for the above-mentioned triad:

- <u>Man:</u> Systemic thinking and leadership skills in inter-ministerial, multinational missions gained by education and training.

- <u>Organisational structures and procedures</u>: Decentralised, networked orientation to master increasing complexity and dynamics.

- <u>Technology:</u> Network enabled capabilities. Here, **Ambitious Lean Development Investment** (A-L-D-I)[2] must ensure that inexpensive but up-to-date technology <u>interoperable</u> with the technology used by the partners of other ministries and nations is provided in the field at an early stage.

An approach to change management of this kind would provide new perspectives for the servicemen, servicewomen and civilian employees in the armed forces as well as for politicians and members of the public wondering what relevance the armed forces have in the 21st century.

The Vision

A vision giving a clear orientation can be found in the ***networked security*** approach:

> **a** *holistic, inter-ministerial and multilateral approach that aims at effectively integrating governmental and non-governmental instruments for conflict prevention, crisis management and post-crisis rehabilitation to provide a sustainable overall strategy.*

Networked security is a central concept of future security policy and thus has been embedded in the White Paper 2006 on German Security Policy and the Future of the Bundeswehr. This concept is supported by all ministries and is based on the conclusion that we need to go beyond the traditional distinction between

- war and peace,
- internal and external security,
- national and international security policy,
- governmental/sovereign and non-governmental/private preventive security measures,
- civilian and military preventive security measures, and
- operations conducted separately by the respective ministries to review and redraft our concept of security.

The threats of the 21st century are no longer identical to the threats addressed by the provisions of the Basic Law relative to armed forces. Neither can they be countered by means of traditional police operations. Something new has emerged, something that most citizens, media and decision-makers have not been able to fully grasp yet and that most regulations in the national standards do not provide for.

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[2] This means that high-quality technology is to be made available to the federal and state forces responsible for security tasks and disaster relief on an inter-ministerial scale – that is, in large numbers – and within a short period of time from concept development to implementation. These COTS-based systems would be inexpensive, powerful and systemically interoperable.

Networked security means that the new challenges and risks must be countered where they emerge – with a holistic political and operational approach. Sometimes, this happens in far-off regions; often, this also happens nearby – for example, where responsibilities interface

- in the interaction of police and armed forces,
- in the cooperation between the federal and Land (state) governments
- in international cooperation, and
- in the cooperation of international organisations such as NATO, the European Union and the United Nations.

The three transformation principles that have already been tried and tested in the armed forces also promise to be highly important as the foundation for an effects-based integration of political, military, economic and civilian resources required for the reorientation of the entire security sector:

1. the *value creation chain* of network-enabled operations, which is based on a common clear and thorough situational understanding and the networking of all relevant actors. Implementing the value creation chain makes it possible to effectively enter the decision cycle – the so-called *OODA loop*[3] – of criminal, terrorist or hostile actors and to prevent them from carrying out their plans or to limit the damage done immediately.

2. the inter-ministerial orientation on effects of the *Effects-Based Approach to Operations*; the risks and challenges we are facing today can only be met if foreign policy, defence policy, development policy and domestic policy are coordinated effectively.

3. concept development and the experimental review of the concepts as a tool for the immediate implementation of innovation.

"Networked security" basically is about civilian leadership. It must be efficient and performance-oriented. Due to the complex cause-effect relationships between conflict prevention, crisis management and post-crisis rehabilitation/reconstruction, only continuous centralised civilian leadership will be successful in the long run. Previous experience has shown that, all in all, the key challenge for a successful stabilisation during operations abroad lies in a swift establishment of state structures – including administration, courts, police. Here, the Ministry of the Interior and the Ministry of Justice in particular will have to make major contributions. Neither development aid nor foreign policy – although the latter defines the politico-strategic objective – can provide the required inter-ministerial coordination and leadership tasks on location. The same applies to the armed forces. Armed forces simply buy time so that the civilian forces can work towards stability and good governance. In case of an escalation, they also provide the military security framework.

Against this background, the relevance of armed forces and their suitability for the future significantly depend on their ability to make sustainable contributions to coordinated action on an inter-ministerial and multinational level within the extended security policy spectrum. This requires consistent networking of all parties involved. What is even more important, however, is a common situational understanding – for example, inter-ministerial *operations* are not necessarily equivalent to military missions. This common situational understanding must include a systematic approach both for the selection of the resources and for their complementary application. The earlier and the more effective the inter-ministerial work, the better the overall effectiveness of governmental actions.

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[3] Observe – Orient – Decide – Act

An example of the aviation security measures taken on the occasion of the G8 Summit held in Heiligendamm underlines this interrelation. Here, the German Air Force sent a prototype of the air picture generated and prepared for the Chief of Staff, German Air Force, for renegade situations via a secure Internet connection on a notebook to the police chief in charge. This turned out to be a valuable asset during the mission. Against the background of this experience, such an operational picture now appears to be useful for future police operations abroad as well[4]. In addition, police forces in the mission theatre could be provided with a role-oriented operational picture. This, however, will require inter-ministerial standards, especially with regard to civilian leadership of missions abroad.

The integration of political, military, development policy, economic, humanitarian, police and intelligence instruments of conflict prevention and crisis management within the framework of a multinational inter-ministerial *grand strategy* is effected via the **Effects-Based Approach to Operations** (EBAO). This approach operationalises the vision of *networked security* and primarily aims at influencing the behaviour of the opponent through the envisioned political, military and social structures.

From the point of view of the armed forces, the basic idea behind EBAO is to optimally position the military contribution to achieve the politico-strategic objective within the inter-ministerial multinational context and to optimally coordinate this contribution with the actors from the civilian ministries and organisations. For this purpose, the armed forces need to develop new approaches since it will not be possible to establish networked security without networked thinking. The German Air Force, for example, has already taken this step by introducing its basic concepts regarding EBAO.

The NATO Secretary General has included this topic in his roadmap for the 2008 NATO Summit under the term *comprehensive approach*. In addition, the Senior Political Committee of the Alliance has developed a plan of action that indicates the task areas, the responsibilities and the deadlines for the implementation of such a *comprehensive approach*.

The Transformation Triad

Change management addresses the triangle of man, organisation and technology.

- Growth-oriented change management focuses on **man** – and on military leaders in particular – due to his knowledge, skills and attitudes. Apart from selection and motivation, education and training have top priority. In a speech held in Berlin, Federal President Horst Köhler emphasised: *"... Education does not only convey knowledge and qualification but also orientation and power of judgment. Education provides us with an inner compass."*[5]

    The mission scenarios, the complexity of the mission requirements and the foreseeable requirements of network-enabled operations particularly require military leaders to exercise their power of judgment – not only during a mission but also for systemic interrelations emerging, for example, when cooperating with other ministries and non-governmental organisations or partners from trade and industry or, when handling high technology, from the fields of research and development . Security in a networked

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[4] Air picture on PDAs / thin clients for police forces
[5] Horst Köhler, Berlin speech given on 21 September 2006, *Bildung für alle (Education For All)*,
www.bundespraesident.de: Der Bundespräsident / Berliner Reden

world of global reach challenges the brightest minds and the greatest abilities. Education must form the backbone of the Bundeswehr under transformation. This is the foundation of demanding, supportive, lively, challenging, practically oriented multinational and multilateral training and of value-based, mission-oriented education. Here, the so-called secondary virtues – including diligence, loyalty and discipline – are by no means of secondary importance; instead, they prove to be indispensable in and for military missions. They do not evolve on their own. Any skills, virtues and values that could not be acquired at home or at school must be conveyed by training and education at the latest.

Decentralisation and mission-type command and control are key characteristics of efficient and effective network-enabled operations. Superiors must be able and willing to exercise leadership under the changed conditions. The transformation defeatism expressed sometimes is diametrically opposed to this requirement. In the 21st century crisis management scenarios, mission-type command and control – i.e. the ability to act in accordance with the higher command's intent – is even more important than before. Here, the opportunities provided by up-to-date information and communications technology are combined with a style of command that is based on decentralisation and geared towards shaping changes.

Decentralised command and control is based on trust. It only works with trust. Where increasingly complex situations make it impossible to convey security, trust is the last remaining solid foundation. Where complexity rules out clarity – since the correct strategy, structure or ideal solution for a problem does no longer exist –, credibility will be required. In this situation, increased controlling will not help; instead, mistakes need to be tolerated. 'Innere Führung' (leadership development and civic education) focusing on man and based on trust will be the only means available to encourage staff at all levels of command to fully exploit the inherent growth potential of the Bundeswehr. However, if it is better to command and control armed forces in a decentralised manner, staff must be enabled to make the appropriate decisions on their own.

Networked security results in an increased and very dynamic *complexity*. This complexity must be brought under control and kept under control – i.e. control in the sense of *regulating*, *steering*, *guiding*. In a mission, the different skills and modes of operation of land, air, naval and naval air forces must be used in concert with the political, economic, military and civilian instruments employed such that the combination of their skills, forces and resources helps the *Effects-Based Approach to Operations* achieve the desired political and military effects.

"*The higher the speed of change and the more complex the organisation, the more important is appropriate support to commanders by means of up-to-date management methods,*"[6] the Chief of Staff, Bundeswehr, remarked in a lecture given at the Bundeswehr Command and Staff College. Using these methods, it will be possible to recognize important long-term trends at an early stage and to react before security policy risks turn into large-scale emergencies. Here, *change management* must primarily bear fruit during and for missions in a fast and sustainable manner. Transformation must be felt in the field. This is the only way to ensure a successful transformation. Following Lord Robertson's[7] famous call for "*capabilities,*

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6 General Wolfgang Schneiderhan in a lecture given on 26 April at the Command and Staff College in Hamburg on the occasion of a seminar on controlling issues for commanders and executives
[7] NATO Secretary General from October 1999 to January 2004

capabilities, capabilities", there are three things that count: **deliveries, deliveries, deliveries**.

To achieve this, the attitude of command personnel – their intention to shape the future and their ability to communicate change – is of special importance. They need to prove their willingness to take risks and, in addition, their willingness to set themselves and others challenging goals and to pursue these goals resolutely even when the situation becomes difficult. Command personnel need to balance completely different roles. They need an overview but must also be able to lend a hand and get to the point in an exemplary manner. They need a strong character but must also be able to handle stress, prepared to take risks, independent, emotionally stable and strongly motivated and yet capable of taking a step back, always serving the cause. Most importantly, however, they need to serve as an example. The exemplary function is of crucial importance. The more complex the world, the more impersonal the technologies and the more global and complex the organisation and tasks, the more important is the character.

- In terms of **organisation**, the structures and processes need to be addressed. This refers to the **organisational structures** and **procedures**.

In terms of organisational structures, **decentralisation** – Power to the Edge[8] – is the challenge to overcome for networked security. Processes that are both comprehensive and fast-paced but still provide a successful outcome in the OODA loop considering the dynamics and complexity of security policy risks and challenges are at the centre of attention as regards organisational structures. The more levels of command, the longer the processing time; the longer the processing time, the more inappropriate the response time behaviour. Organisations with a strictly centralised or hierarchical structure will find it difficult to properly fulfil complex functions. For this reason, sequential command and control processes can no longer be applied on their own but rather need to be combined with parallel command and control processes. Similarly, rigid organisations need to be combined with flexible organisations and the modular and virtual components of such organisations. On a mission, the advantages of HQ/line organisations with clearly defined responsibilities tend to be predominant. In the home country, however, flexible, modular and virtual organisational structures will more likely help to ensure the required speed in the so-called *reach back* process.

Examples of this can be observed in nature where complex systems are controlled by self-regulation and self-organisation. The same point of view is taken by modern management theory.[9] However, this is not about decentralisation at all costs. *"A structure with many branches needs a strong backbone,"*[10] Burkhard Schwenker, Chief Executive Officer of Roland Berger Strategy Consultants, emphasises. In the transformation process, centralised command and control and decentralised implementation are a good match. They ensure orientation and competence, cost benefits and flexibility as well as control and agility. A decentralised orientation helps to achieve transformation goals, especially with regard to the special conditions of network-enabled operations. This approach matches **the course defined by the Chief**

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[8] Cf. David S. Alberts, Richard E. Hayes: Power to the Edge, CCRP, Washington, 2003

[9] Fredmund Malik demands: *"Organise the company in such a manner that it can organise and regulate itself as far as possible."* See: Fredmund Malik: Komplexität, Management und Patterns of Control (Complexity, management and patterns of control), in: Bernhard von Mutius (ed.): Die andere Intelligenz, Wie wir morgen denken (The other intelligence – The way we are about to think tomorrow), Stuttgart, 2004, p. 174 et seqq.

[10] Dr. Burkhard Schwenker: Führung und Führungspersönlichkeit im Zeichen der Globalisierung (Leadership and leadership qualities in times of globalisation), lecture given at the Bundeswehr Command and Staff College on 30 August 2005

of Staff, Bundeswehr: *"Centralised control – decentralised implementation. All relevant topics will in future have to be interlinked even more than before through precise contents, responsibilities and timelines."*[11]

The potential for change and the political, military, economic and civilian benefits to be expected of suggested possible solutions will have to be proved by means of architectural studies and simulations of the overall system so that the opportunities provided by these solutions and the need for an implementation of these solutions at a subsequent stage can be investigated in good time. **Thus, simulations, experiments and demonstrators are significantly gaining in importance**. Concept development and experimentation are turning into ever more important tools for validating new concepts of networked security. In the future, individual platforms and systems will be replaced by an **integrated reconnaissance/engagement network** reaching from sensor and weapon systems, platforms, ammunition, the integrated data, information and command and control networks, evaluation units, logistics, servicing and maintenance to operator training.

To give an example: In the future, it will no longer be checked whether a new armoured NBC reconnaissance vehicle is required; instead, the NBC defence capability will be looked into holistically – a check covering the integration into a data network linked to public health offices, fire services, the Robert Koch Institute, etc., including staff training, simulation and training facilities, servicing, maintenance and continuous adaptation of the combat potential. At the same time, it must be ensured that the chemical units remain interoperable with their civilian and military partners. A modular approach must also ensure that mission profiles can be quickly adapted as required by the situation and that new challenges can be dealt with in near real time. Finally, considerations and experiments related to new operational doctrines will determine how the potential changes can be utilised optimally.

Apart from **long-life system carriers, effects-based systems of a shorter life** will determine the appearance of the armed forces. The performance of the future armed forces will be backed by a structurally consolidated defence industry capable of constantly providing effects-based systems and mission management systems, using cutting-edge technology, that can be integrated into a networked overall system at any time depending on the mission. In this context, the potential will be more important than the arsenal.

Joint concepts form the core of the armed forces' transformation. Although redundancies may sometimes have some advantages from a military point of view, they will cost money – and funds are scarce. For financial reasons alone, it is not feasible to have each single service go its own way. Due to the technological development, for example, the capabilities of land forces and air forces are overlapping more and more. Except for the two extremes of the spectrum, i.e. house-to-house combat of dismounted infantry in the case of the land forces and strategic air warfare in the case of the air forces, a growing part of the *tasks in between* can be covered by both single services. The army is capable of 'looking' into ever greater depths and acting in depth by means of long-range fire, and the air force is constantly improving its capability to engage single targets with a high precision.

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[11] General Wolfgang Schneiderhan, "Die Streitkräfte im Transformationsprozess" (The Transformation Process of the Armed Forces) in: Europäische Sicherheit 2/2006, p. 12

Due to the changed parameters and the new challenges, a *capability-oriented* way of thinking and acting has taken hold. Instead of specific purely technical functions, general capabilities are called for. This approach is reflected by the **Bundeswehr Concept** and also by the **Customer, Product, Management** (CPM) acquisition process and the **system capability requirements** established therein. The Bundeswehr Concept, for example, defines six interrelated capability categories. These categories form the top level for developing the capability profile: **command and control , intelligence collection and reconnaissance, mobility, effective engagement, support and sustainability** and **survivability and protection**. According to the Defence Policy Guidelines and the Bundeswehr Concept, they form the central system of coordinates for the conceptual reorientation and for the planning of the Bundeswehr.

Although capability-oriented Bundeswehr planning and the Customer, Product, Management (CPM) acquisition system are, in principle, sound approaches, they do not yet keep pace with the dynamic technological developments and the cost-effective availability on the market of these developments. Moreover, the security rationale shared by more and more ministries is not yet reflected in the armed forces' procurement planning. As a result, an inter-ministerial security market with numerous inexpensive but state-of-the-art products for stabilisation tasks and tasks related to domestic security – especially in the fields of communication and reconnaissance – is emerging, with the armed forces more or less excluded. These products can and should be used by the most diverse users due to the required interaction between these users.

If military procurement planning is to offer affordable demand-oriented solutions – i.e. solutions that are primarily geared to the operational capability of the Bundeswehr – to meet military and security challenges – that is solutions to the most urgent security tasks in the armed forces and in the networked inter-ministerial context, it is time to think about an **ambitious lean development investment** that will quickly provide the federal and state forces responsible for security tasks and disaster relief with large numbers of high-quality technological equipment on an inter-ministerial scale. These systems would be inexpensive, powerful and systemically interoperable.

The following example illustrates this point: Manned and, increasingly, unmanned aerial vehicles of all sizes play an ever more important role with regard to surveillance, reconnaissance and security tasks. This applies to almost all tasks of homeland security but to a large extent also to crisis prevention, crisis management and post-crisis rehabilitation: disaster control, protection of major events, border security, protection of critical infrastructures and counterterrorism. Equipped with state-of-the-art sensors as well as information and communications technology, such platforms are readily available and may be deployed for extended periods of time. Unlike terrestrial sensors, they can precisely monitor vast areas and send reconnaissance data to a situation centre with real-time capacity used by the most diverse operational forces. It is obvious that this significantly improves command and control of operational forces in a crisis or natural disaster. At the same time, the investment and operating costs are remarkably low. Managing such powerful systems by traditional procurement planning does not only take an enormous amount of time but normally also triggers a development where these systems are loaded with more and more sensors, weapons and tasks. As a result, they are getting more expensive, heavier and too valuable to risk their loss during a mission. And they will be deployed far too late. However, what makes them attractive is that they can be procured fast, at a reasonable price and in large numbers; thus, losing them is comparatively easy to accept.

- In terms of **technology,** network-enabling technologies also start to play an important role in the inter-ministerial context. The inherent potential of affordable high-performance sensor, information and communications technologies opens up vast possibilities for a successful fulfilment of even complex, time-sensitive tasks.

  Effects-based operations and *network-enabled operations* increase the demands on information requirements, management and security. Decision superiority is based on information superiority and knowledge superiority. Information and communications technologies can link organisations that are split and scattered across continents and support them in the best possible manner according to the current mission requirements. For this purpose, they supply relevant real-time data, information and knowledge around the globe. Highly flexible ERP[12] programs make it possible to quickly check the performance of organisational and functional areas. However, the inherent potentials can only be fully utilised if IT is explicitly understood to be an instrument for decentralisation.

  Networked security in inter-ministerial, multinational and joint operations requires the staffs, agencies, forces and actors involved to fully cooperate across all echelons and on the basis of a common operational picture and situational understanding for the planning, command and control of operations. For networked planning and action, all parties involved need to be supplied with extensive information in near real time and without interruptions. The transformation of information superiority into decision superiority is effected by means of a *common role-oriented operational picture.*

  With both affordable and powerful state-of-the-art information and communications technologies – combined with knowledge management, modelling and simulation – and up-to-date sensors, it will be possible to generate an operational picture that reduces complexity in near real time, allows for higher-quality actions with significantly improved response time behaviour and, most importantly, significantly improves the integration of civilian coordination partners into operational decision-making processes. In addition to political requirements, profound findings from the work carried out by civilian actors can be included from the first planning stage. Decisions and actions are taken on the basis of a common situational understanding and implemented in a coordinated manner.

  Man and organisations need collaboration suites to deliver the required challenging management services. Using an intranet-based portal and collaboration platform, these collaboration suites allow holistic information, process and knowledge management and thus improve the leadership efficiency of the actors and decision-makers involved, not only during the mission but also in the run-up: Information and knowledge that exist explicitly are made available by networked collaboration, and staff are enabled to transfer knowledge implicitly and to collaborate irrespective of time or place. Without up-to-date collaboration suites, even high-quality IT and communication equipment will quickly reach its limits of use.

  The observations on the operational picture and the situational understanding in a figurative sense also apply to sensors and weapons. In particular, the interchangeability of effects-based systems between different categories of system carriers and the standardisation of such systems are getting more and more important. Within the framework of networked security, networking of systems will be the key

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[12] Enterprise Resource Planning

characteristic of future employment systems. In contrast, the more continuous pragmatic improvements of subsystems and components will fade into the background. The need for a comprehensive holistic network system approach is emphasised by the fact that internal and external security are getting intertwined.

Besides the traditional defence systems and networks, there are now more and more inter-ministerial problem solutions to new security challenges that *traditionally* were categorised under internal security, such as fire services, Technical Emergency Service, control of epidemics, civil protection, computer security, etc. This integrative approach contributes to national and multilateral efficiency and effectiveness and allows industrial resources and capabilities to be optimally utilised for *multiple uses*. The inherent potential of up-to-date information and communications technologies and sensor systems opens up previously unimaginable effect possibilities – also within the inter-ministerial context. Already today, borders and coasts, supply pipelines and electric power grids, major events and critical infrastructures, supply chains and transport routes can be protected by means of multiple-use technologies that many people still regard as futuristic.

Against this background, evaluation, communication, mission planning, mission control and command and control centres need to be redefined and integrated into a newly established networked overall system. Providing uniform equipment to various institutions, authorities and organisations that are responsible for security tasks – e. g. by introducing the same secure digital communication medium **(TETRAPOL)** – would be of great importance especially within the context of networked security.

Communication – A Key to Success

Communication is a major key to success in *change management.*

Outwardly, the communication strategy conveys the German transformation approach and, in addition, the importance of transformation for military interoperability and for the ability to cooperate politically within the Alliance and the European Union and with other partners.

Inwardly, an information and communication concept also is indispensable since it

- creates an awareness of problems,
- conveys the key messages of transformation in a credible manner,
- facilitates the acceptance of these messages,
- and, at the same time, helps to reduce the complexity of planning.

Here, the focus is not only on the command personnel but particularly on the staff. Staff primarily need to have a clear idea about the purpose and the goals of the transformation. They must be informed about the goals, milestones, methods and progress. Everybody has to know: *"Where are we headed?"*

Both external and internal gaps in information need to be closed, and the goals of the transformation must be implemented. The members of the organisation need to know what key performances their political and military leaders actually expect of them during the transformation in view of the countless fleeting changes. For a successful transformation, all participants must be in pursuit of the course adopted. Using new media is important but not sufficient. Discussions and the examples set by the leaders are even more important. This type

of transformation can be experienced. Specific problems can be identified and solved more easily.

In particular, the communication concept must emphasise the credibility of the transformation, the seriousness of a consistent transformation of the *Bundeswehr as an enterprise* and its integration into the required inter-ministerial and multinational context. Ultimately, it must be clearly shown that the Bundeswehr must, can, intends to and will take the route to transformation. It must also be shown that this route has benefits for all – for the state, tax payers, industry and international partners! This transparency allows third parties to gain an insight into the quality of the performance delivered by security forces and inspires trust in this quality. This is another dimension that is relevant for growth.

Future success in the field of security policy requires high transaction rates and operational speeds, a structural learning ability and flexibility as well as mastery of dynamics and complexity at all levels. In **Phase Two**, the **transformation** must meet these requirements by providing systemic, firm and growth-oriented *change management*. Here, the armed forces need to reposition themselves and their contribution within increasingly networked national and global security structures – i.e. structures where all instruments of politics and the contributions of various non-governmental organisations need to be combined effectively. The conceptual framework required for this purpose is worked out systematically by applying the *Effects-Based Approach to Operations*. The key requirement for a successful outcome of this approach is a change in people's minds.

Remarks:

Opinions expressed in this contribution are those of the author.

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