



CENTRE FOR SECURITY AND MILITARY STRATEGIC STUDIES  
UNIVERSITY OF DEFENCE



# OPERATING ENVIRONMENT

IMPLICATIONS FOR THE CAPABILITIES  
OF THE CZECH ARMED FORCES 2020

JÁN SPIŠÁK ET AL.

# **OPERATIONAL ENVIRONMENT**

**Implications for the Capabilities  
of the Czech Armed Forces 2020**

**JÁN SPIŠÁK ET AL.**

**BRNO  
2021**



## COLLECTIVE OF AUTHORS

Ing. Ján Spišák, Ph.D.

Ing. Zdeněk Petráš, Ph.D.

Ing. Tomáš Špok, Ph.D.

Ing. Jan Gireth, Ph.D.

Ing. Richard Saibert, Ph.D.

Ing. Martin Smejkal

This expert study is a partial result of the project DZRO STRATAL - Strategic Alternatives, implemented at the University of Defence.

[TAKE A LOOK AT OUR OTHER PUBLICATIONS](#)

### **Centre for Security and Military Strategic Studies (Centrum bezpečnostních a vojenskostrategických studií, CBVSS)**

CBVSS is part of the University of Defence in Brno and is defined as other workplace for education and creative activity according to Act No. 111/1998 Coll., §22(1)(c). Its mission, in particular, consists in:

- Scientific and research activities in the areas of security studies, strategic leadership, military art, strategic management and defence planning, implemented for the needs of the strategic level of decision-making, management of national defence and the building of the Armed Forces of the CR.
- Preparation of the military and civilian experts of the department of the Ministry of Defence and the armed forces in expert and career courses (General Staff Course, Senior Officer Course).
- Expert, publishing and popularising activities (including the sponsorship of publishing the [Czech Military Review](#) and [Defence and Strategy](#) journals).

**e-ISBN 978-80-7582-402-8**

## INTRODUCTION

The aim of this publication, which follows up on the publication called *Operational Environment: The Implications for the Use and Development of the Armed Forces of the Czech Republic 2019*,<sup>1</sup> is to provide an alternative view of the desired capabilities of the armed forces in the next 10 to 15 years, to be used in completing the tasks set by legal standards.

The general information which forms the main content of the aforementioned publication - *strategic context, main variables in the operational environment*, as well as the resulting *implications for the use of the Armed Forces of the Czech Republic* provide the basic framework, they remain up-to-date and are therefore deliberately not described in this study. On the contrary, its main material consists in a detailed description of the requirements for capabilities in the given horizon, in terms of the individual *Main Capability Areas*.

The publication provides a comprehensive picture of the requirements for capabilities in the context of the trends of development in the operational environment, with the intention of continuing the discussion in professional circles on the setting of conditions for the purposeful and conceptual development of the capabilities of the armed forces that will be necessary for their use in future conflicts. Trends in the development of the requirements for capabilities, as captured in this document, express the dynamics of building future task forces, expected to be deployed in operations in their full range and to meet political and military ambitions from the point of view of the national security strategy as well as from the point of view of the ambitions of NATO or the EU, which the Czech Republic wants to bring its significant military contribution to in the form of dedicated forces and resources.

The identification of individual groups of capability requirements within the main areas is one of the key steps in the entire process of building the armed forces, capable of effectively participating in the elimination of the emerging security threats resulting from the instability of the contemporary world. Individual groups of requirements are described in the so-called main capability areas that correspond to the alliance's breakdown, i.e., **Prepare, Protect, Engage, Project, Sustain, Inform, and Consult, Command and Control (C3)**.<sup>2</sup>

Due to the fact that the Armed Forces of the Czech Republic<sup>3</sup> primarily prepare for the performance of tasks resulting from the operation within NATO and the EU,<sup>4</sup> the study has been prepared using mainly alliance and EU documents dealing with the subject matter.

---

<sup>1</sup> SPIŠÁK, Ján et al. *Operational Environment: The Implications for the Use and Development of the Armed Forces of the Czech Republic 2019*. Brno: University of Defence, 2019. ISBN 978-80-7582-094-5.

<sup>2</sup> The English nomenclature for the *Main Capability Areas* is based on the *BI-SC Agreed Capability Codes and Capability Statements*. Nomenclature in Czech is based on the document *Dlouhodobý výhled pro obranu 2035* (Long-Term Perspective for Defence 2035).

<sup>3</sup> The term Armed Forces of the Czech Republic is defined by Act No. 219/1999 Coll. as including the Army of the Czech Republic, the Military Office of the President, and the Castle Guard. Military Police and Military Intelligence, as other military components of the Ministry of Defence, are specified in dedicated acts.

<sup>4</sup> MINISTRY OF DEFENCE (ed.). *Dlouhodobý výhled pro obranu 2035*. 1<sup>st</sup> edition. Praha: Ministerstvo obrany České republiky - VHÚ Praha, 2019, p. 14. ISBN: 978-80-7278-772-2

Their analysis confirmed the characteristics and influence of the critical variables on the shaping of the operational environment described earlier, at the same time providing a more comprehensive view of those areas of capabilities that will or may be decisive for the action of forces in the future environment. At the same time, it has enabled us to identify the key implications for the given areas of capabilities, which should become decisive in defining the development trends of the operational environment, which the Armed Forces of the Czech Republic will operate in.

## IMPLICATIONS FOR THE ARMED FORCES AND THEIR CAPABILITIES

The analysis of the anticipated development of the security environment<sup>5</sup> has shown that a large-scale conventional attack against the territory of NATO or EU member states, requiring a massive deployment of military force, is unlikely, yet, due to the deterioration of the security situation on the European continent, this eventuality cannot be completely ruled out. The sources of future conflicts will be, in particular, competition for energy and natural resources, regional rivalry, culture and value based contradictions, growing tensions between the wealthy and the poor, and ongoing disputes in various areas and environments. The armed forces will thus operate in a wide range of clashes and conflicts, regional, national and inter-state, including actions against international organized crime and global terrorism. Future crises and conflicts will have both military and civilian aspects, will be characterized by asymmetric and irregular actions involving non-state actors, who will make greater use of unrestricted methods of conflict and will focus on non-traditional goals.<sup>6</sup> In this context, the ability to detect and identify threats and evaluate possible risks to the interests of the Czech Republic, including those arising from the Czech membership in NATO and the EU, will need to be developed in a timely manner.

Present and future operations are and will continue to be of a very complex nature. In addition to the traditional three-dimensional understanding, i.e., the ground, sea, air and space dimensions, the intangible, i.e., information dimension, will be used much more intensively. The mass use of forces and means will be replaced by the increasing mobility of smaller groups, increasing range and increasing accuracy of their action. Accurate and timely deployment of the corresponding forces, mobility and sustainability in the operation until the task is completed, including their protection, will be crucial. The nature of tasks to be accomplished and activities performed in the operation - alteration and concurrence of the combat activity with stabilization and reconstruction efforts - will also change dynamically. The armed forces will operate in cooperation with a number of other non-military organizations, with whom they will need to coordinate their activities. From the point of view of the overall development of the security situation in the world, the basic assumption remains that securing the defence of the Czech Republic will be based primarily on the principle of participation in joint foreign operations under the leadership of NATO, the EU, the UN, or ad-hoc coalitions. This principle is based on the need for a rapid and effective solution to the emerging crisis, threatening the local security situation, before the crisis grows into a much larger conflict, which may

---

<sup>5</sup> STOJAR Richard et al. *Bezpečnostní prostředí - Sektorová analýza a implikace pro Ozbrojené síly České republiky*. Brno: CBVSS- University of Defence, 2019. ISBN 978-80-7582-340-3.

<sup>6</sup> EUROPEAN DEFENCE AGENCY (ed.). *An Initial Long Term Vision for European Defence Capability and Capacity Needs*. EDA. Brussels, Belgium, 2006. pp. 6-8.

overwhelm the borders of the region and possibly affect the territory of the Euro-Atlantic countries. For NATO, the main priority will remain in the collective defence of member countries and the resulting tasks in the field of defence planning, planning of operations and creating task groups to conduct the planned operations.<sup>7</sup> Conversely, the implementation of crisis management operations outside the EU member states remains a priority for the EU.<sup>8</sup> The comprehensive nature of the NATO and EU operations, conducted outside the Euro-Atlantic region, will mainly take the form of stabilization operations with a transition to the reconstruction phase, which will increase the share of the activities of civilian components, while the activity of the troops will focus mainly on ensuring a safe environment for the actions of non-military actors in order to ensure the functioning of local government and administration as quickly as possible, thereby creating conditions for a successful transition to peaceful life. At the same time, the requirements for the ability of the armed forces to conduct training and preparation of local armed forces will increase in order to prepare the latter to take responsibility for ensuring security as quickly as possible.

## **Background**

The starting point for the activity of the armed forces remains in their ability to operate in joint operations, which in terms of their complexity require much more cooperation with civilian (government, non-governmental, non-military) organizations and other actors operating in the shared area of operations. Within the next twenty years, the most likely form of deployment of the armed forces of the Czech Republic will be their active participation in NATO and EU operations, in a relatively wide range of deployments, wherein the tasks of collective defence will be simultaneously or gradually performed under NATO's ambition along with peacemaking, peacekeeping and humanitarian assistance to the civilian population, and last but not least, operations of an advisory and training nature. The structure, size, equipment with the respective weapons systems, logistic support, and training for individuals and units will be adapted to such defined range of possible uses of the armed forces.

## **Main areas of military capability development**

The overall diversity of challenges and threats may impose the need to conduct these operations outside the territory of the country, over a considerable distance, in order to eliminate them quickly and effectively from the very beginning. This also implies the necessary capabilities that the armed forces must possess. At the same time, however, there is a continuing requirement to preserve those capabilities that remain essential to meet the needs of national security and defence. The conceptual framework for the creation and development of military capabilities, based on the defence planning process both under NATO and the EU,<sup>9</sup> sets out 7 *Main Capability Areas* that need to be maintained and developed.

---

<sup>7</sup> *Alliance's Strategic Concept*, a NATO document, Brussels, Belgium, 2010, p. 6, paragraph 20

<sup>8</sup> EU COUNCIL (ed.). *Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community*, Brussels, Belgium, 2007. ISSN 1725-5163.

<sup>9</sup> SHAPE/ACT (ed.). *Bi-SC Capability Hierarchy*. SH/PLANS/JCAP/FCP/15-310118. Mons, Belgium, 2015.

The building of the Armed Forces of the Czech Republic is currently underway and will continue to be pursued in the future in the context of these main areas of capabilities; it will meet the requirements specified in detail for individual areas in order to ensure defence against external attack, ensure the sovereignty and territorial integrity of the Czech Republic, and meet international obligations, including the contribution to ensuring collective defence. The aim is therefore to build a mobile armed force, highly efficient, resilient, deployable, sustainable, flexible and interoperable, equipped with appropriate information, intelligence and fire support.<sup>10</sup>

In this context, it should be noted that a number of capabilities, necessary to meet the alliance, EU and, of course, national ambitions, are currently fully implemented in the armed forces and it is necessary to maintain their required level. In addition to the already implemented and maintained capabilities, there are a number of identified requirements for capabilities that are currently the subject of the planned building and their subsequent implementation. In terms of requirements placed on the Armed Forces of the Czech Republic, the individual main capability areas and their specifications do not distinguish between requirements that have been already implemented, which are subject to identification of the manner of their subsequent employment, and requirements that can be viewed from a remote perspective. This means that the specification is based on the general need to adapt the armed forces and their capabilities from the perspective of the future operational environment, wherein the units will operate and will be confronted with the need to fulfil the specified operational task.<sup>11</sup>

## Prepare

Future operations will be characterized by the fact that the armed forces involved will be only one of several actors; their role will be largely limited to the implementation of the applicable scenarios, with the main task of achieving the military objective of the operation. Compared to the past, a much wider field of action will be created for non-military actors in the operation, for governmental and non-governmental organizations, which will play a crucial role in the successful completion of the operation and the achievement of its planned political goal.

In the light of this, it should be borne in mind that the implementation of military operations will not be possible without prior extensive discussion in the political, economic, social, cultural, technological, and technical contexts, which may lead to a deterioration in the position of the elements of the armed forces responsible for the planning, preparation, and implementation of the entire operation.

Currently, *adaptability* and *flexibility* are becoming a key factor for effective deployment of units in any operation. Operations that will be conducted in the near and distant future will require the planning, preparation, and maintenance of a timely, sufficient, and effective military presence in the area of operation. This will require the *ability to generate forces* through an appropriately *set system of planning forces and means*, primarily destined for operational deployment in multinational operations outside the

---

<sup>10</sup> MO ČR (ed.) *Koncepce výstavby Armády České republiky 2030*. Ministry of Defence of the Czech Republic - VĚÚ Praha. 2019. p. 15

<sup>11</sup> Nomenclature for individual main capability areas in Czech is based on the document *Dlouhodobý výhled pro obranu 2035 (Long-Term Perspective for Defence 2035)*. These terms are not literal translations of their respective English counterparts.



territory of the country, which will also entail an increased emphasis on the following areas:

***Mutual coordination of activities.*** This represents not only the interconnection of activities of various types of forces, having primarily the all-military character of synergies, but will determine, in particular, the level of coordination, synchronization and interoperability between military and non-military elements of the operation. The emphasis must be on the ability to plan the operation jointly, to monitor its progress at all times and to take appropriate measures in the event of disruption of the initially adopted plan.

***Manoeuvrability and mobility.*** This includes not only the speed of the manoeuvre and the reaction of forces, but also the ability to quickly reconfigure them in response to a newly created situation. The armed forces must show sufficient flexibility and speed in coordinating the manoeuvres of the combined military grouping, especially in the case of its composition with multiple components of forces (ground, air, or any other). This condition must be sufficiently visible within the command structures, including intelligence and survey components, and needs to be sufficiently implemented in cooperation with the civilian, governmental, and non-governmental actors participating in the operation.

***Modularity and selectivity.*** This represents the ability to make the correct choice of means at a given stage of the operation, corresponding to the desired objective of the operation. In essence, it is a choice/selection of kinetic or non-kinetic systems aimed at achieving lethal (deadly) or non-lethal (not deadly) effects. This aspect is also justified in view of the need to minimize collateral damage to the civilian population and infrastructure.

***Creative use of the personnel of the armed forces.*** The armed forces must have qualified and professional military personnel, who will perfectly control all defined systems. There is also a change in the character of the soldier as a member of the armed forces. More than ever, the complexity of the conflict will require high adaptability of each individual soldier. New weapons technologies and upgraded weapons systems cannot be seen as merely improved tools designed to destroy the enemy. In the eyes of the local population, the former bearer of violence and the instrument of political power designed to promote the will of another state becomes the defender and protector of the civilian population.

## **Protect**

The deployment of forces in future operations will require an increased level of protection, especially against those types of weapons which, for legislative, moral, or ethical reasons, prevent their use by our own forces, but which can still be deployed and used by the enemy. This category of weapons includes, in particular, weapons of mass destruction (CBRN). Due to the likelihood of their possible use and the resulting consequences, it will be necessary to prepare effective protection of our own forces. The priority will be in providing treatment for the affected soldiers and units and evacuating them. It becomes a critical requirement to minimize the vulnerability of personnel, equipment, material, infrastructure, and various systems as well as to minimize the risk in any of the deployed units' own operational activities. Ensuring the least possible impact of the enemy action against allied forces will be the task mainly for the following areas:

**Countermeasures to prevent access and operations in the area of interest (Counter Area Denial).** The armed forces must be able to create favourable conditions for conducting operations in areas that are influenced by A2/AD<sup>12</sup> capabilities of the enemy. The ability to detect, locate, use, and neutralize the effects of mines, improvised explosive devices (IEDs), as well as conventional or unconventional weapons and ammunition (CBRN) will be crucial for the successful conduct of operations.

**Directions of communication:** In the near future, Global Commons and directions of communication among allied forces will be overloaded and threatened with attack by hostile actors. Dissemination of A2AD technologies and disputes over Global Commons will create significant risks for the deployment of forces and operations. Confrontation will be particularly challenging in location with reduced manoeuvrability - valleys, passes, bridges, sea straits, etc.

**Comprehensive protection.** A future crisis could overcome the ability of local civilian authorities to respond in a timely and effective manner, thus necessitating the intervention of the armed forces. In some cases, assistance of the armed forces may be required to protect critical infrastructure, vital networks, and communication routes from a wide range of threats. This will include the protection of key governmental, health, legal, financial, transport, energy, agricultural, and other bodies, organizations, and facilities, and, where appropriate, elements referred to as “national symbols”. Preliminary plans will be essential for these cases.

**Security of communication and information systems:** The armed forces must be prepared to operate in a deteriorated cybernetic environment and to contribute to the effective security of information. Thus, they must be able to ensure that designated information, material, personnel, activities, and facilities are protected against espionage, sabotage, subversion, and terrorism, as well as against loss or unauthorized disclosure. The deployed units must be prepared to defend themselves against all forms of cyber attack, manipulation of data and information in the cyber domain, and attempts to disrupt the operation of communication and information systems. The units in the area of operation will use modern information technology, enabling verification of their own information and data, their accuracy, reliability and credibility of the sources which they come from. As far as the technological level of those systems is concerned, they should, inter alia, comply with the established technical and operational standards and should therefore also be fully interoperable when used within a multinational force.

**Unmanned, autonomous, and robotic systems.** The proliferation of low-cost UASs is becoming a common phenomenon. Their use by both state and non-state actors in military operations will become even more frequent. This will allow them to conduct observation and management of troops on the battlefield, replenishment of supplies, transport of weapons and materials. For this reason, the armed forces will have to be able to take advantage of technological developments in this area and limit the ability of the enemy to gain access to these types of technology.

**Defence against weapons of mass destruction (CBRN):** The key capability of all deployed units of the armed forces must be the ability to remove or reduce the effectiveness of hostile chemical, biological, radiological, or nuclear threats as well as vulnerability to spills of toxic industrial materials and to prevent the proliferation and use of weapons of mass destruction.

---

<sup>12</sup> Anti-Access, Area Denial

## Engage

Operations conducted in the future will increasingly require the rapid deployment of forces, on land, in the air, or at sea, while combat in urban areas will become a specific form of future operations. Likewise, the combined military nature of the forces will require an effective security and supply system. The nature of the operations will require the troops to have both weapons designed to physically destroy enemy forces and to eliminate them with non-lethal means. Future operations will require an accurate and selective form of searching for and targeting targets, with the minimization of collateral damage in their liquidation or neutralization, especially in urban agglomerations. The accompanying phenomenon will be the effort to eliminate as much as possible the negative impacts on the environment in the areas of deployment. It is clear that this aspect, together with the development of the operation and its impact on the overall social-political development of the region, will be under a constant supervision of media.

Individual capabilities in this area are related to operational tasks that directly contribute to the achievement of partial objectives in the context of the planned strategic political and military objectives of the entire operation (political end state, military end state). These include all capabilities necessary to defeat the enemy in the course of combat activity as well as other capabilities required for further operational activities, such as the extraction of our own units, evacuation of non-combatants, prevention of an outbreak of armed conflict, or participation in stabilization and reconstruction operations associated with professional-military advisory activities, training of local security forces, and monitoring of the security situation in the area of operation.

**Joint manoeuvring.** The ability to manoeuvre effectively will be required in all operational domains, blending across all levels of warfare, from tactical to strategic. Emphasis will be placed on conducting joint coordinated manoeuvring using the capabilities of various types of forces in order to eliminate the coherence of the enemy and thus to obtain a strategic momentum. The need for increased manoeuvre efficiency will mainly concern ground forces, which will be expected to ensure free access and maintain free movement in the areas of interest, while maintaining the principle of economy of deployed forces. On the other hand, the requirement for the most efficient manoeuvring with a minimum potential of deployed forces will require an increased level of logistic support as well as improved ability to communicate and provide information even at the lowest levels of command and control.

Units in operations must be able to achieve and maintain superiority in cyberspace because this will become the primary communication and information domain throughout the course of preparation and conduct of the operation. Specifically important will be the permanent involvement of special forces, which will have to maintain and increase the ability to quickly deploy resources, without signs of detection by the enemy.

**Joint firing.** Effective fire support must be achieved by the availability of a wide range of weapons systems with various types of parameters and the resulting effects. The deployed forces will be required to be able to use both lethal and non-lethal firepower in a coordinated and effective manner in order to neutralize the living power of the enemy, destroy its equipment and infrastructure, which in turn will enable decisive manoeuvring in all domains and, at the same time, eliminate the undesirable effects of their activities. The key factor will be the development of new and improved weapons systems as well as the implementation of operational and technical standards.

***Kinetic operations.*** In view of the increasing tendency of conducting operations in an urbanized environment, deployed units will have to use accurate fire while minimizing collateral damage to the environment and cultural and historical monuments. For this purpose, it will be necessary to have the ability to accurately and quickly locate the target and detect an effective method of its elimination.

***Cooperation in cyberspace:*** Activities in cyberspace require a thoughtful and well-planned communication strategy, the proper integration of which will maximize the impact on the target audience. It is necessary to assume a comprehensive understanding of cyberspace, which is not limited only to technical implications, but also includes the impact on human individuals and their decision-making. It will be necessary to create and implement standardized operational procedures for the successful conduct of armed force activities in this area. Due to the growing importance of the cognitive domain, it will be necessary to plan and conduct activities in the field of mass communication in order to prevent possible disinformation influences by the enemy. The cognitive domain represents a dimension that must continue to be used to manoeuvre and gain advantage over the enemy. This activity is not only limited to the production and distribution of news or the use of media, but also concerns the ways in which the activities of the armed forces will be interpreted not only by the local population, but also in the media.

## **Project**

The ability to efficiently transport, transfer and deploy units will be one of the basic prerequisites for the success of the operation not only in its initial stages, but also during the operation itself, in order to ensure further supply and replenishment of units. The armed forces will need to have the means to ensure strategic transport, especially air transport. They must also have ground and air means to ensure the fastest possible reception, concentration and dispatch of both material and units (RSOM - Reception, Staging and Onward Movement) to other locations.

***Preparing the operation.*** In the context of the preparation of the operation, the armed forces will be required to provide technical and organizational support for rapid and effective concentration in the assembly areas and subsequent loading into the means of transport (ships, vehicles, aircraft). The development of A2/AD capabilities manifests an increased likelihood of activity in an unfavourable environment, partly controlled by enemy forces. This will result in the requirement to conduct (violent) operations enabling access and then to ensure safe manoeuvring inside this space.

***Transport and deployment of forces.*** The transport of units and their deployment in the area of operation increases demands for a wide range of infrastructure, especially supply routes and communication and information infrastructure, to ensure the organization of the command and control system at the required level according to the specified standards. Deployed units must have teams for cooperation with local authorities and NGO components to provide technical and material support (power generation, securing local drinking water resources, etc.). The deployed units of armed forces must be able to carry out autonomous and independent logistic manoeuvring toward the designated RSOM area. In the area of passage of the allied forces, our own units must possess the capabilities of standardized and automated planning and implementation of the receipt of material in the required quantity and quality, its internal handling and redistribution, carrying out further transfer in the area of operation and subsequent integration into the task force. This activity will require full compatibility of

the classified means of communication and information used as well as the use of standardized means for planning and operation management of logistic support as part of a multinational operation.

**Operating bases.** In terms of preparation and conduct of future operations, the ability to build and maintain adequate accommodation and logistic infrastructure in the area of operation and to ensure communication and transport links with the required logistic and supply centres, either on our own national territory or in the vicinity of the area of operation, will be among the key factors. For this reason, it is necessary to ensure the ability to build, maintain, operate, and protect the respective port and airport infrastructure and equipment (SPOD - Sea Port of Debarkation and APOD - Air Port of Debarkation).

## **Sustain**

The progress of operations and their final outcome will be influenced to a large extent by the level of logistic support, which will have to cope with barriers in providing supplies, especially in the area of interoperability. National and allied forces will have to ensure that stocks (in the required quality and quantity) will flow continuously to all units, especially those operating deep in the operation area. Future technological progress, such as 3D printing, use of alternative energy sources, robotic evacuation systems, and autonomous transport systems, will revolutionize the support for the forces in the areas of maintenance, repair, resupply, and healthcare. The use of new technologies will make it possible to simplify and improve logistic support processes and procedures, thereby reducing operational risk and increasing the extent of activities.

**Movement and transport in the area of operation.** The armed forces must have sufficient capacity to transport and handle the material, store it, and redistribute it to the deployed forces, ensure continuous maintenance of equipment and material, and, at the same time, deploy, move, and transport the forces throughout the entire range of operations.

**Diversification of logistics.** In order to maintain a sufficient level of self-sufficiency, a logistic network of partner military forces and non-military organizations must be established and maintained, to help maintain the course of the operation in multiple domains. These networks will have to include local commercial suppliers or third-party entities capable of providing logistic support even in areas that are difficult to access.

**Logistic-engineering support.** Primarily, it concerns the ability to build infrastructure and buildings to provide logistic support. This implies the ability to use military engineer personnel, equipment, and material required for general logistic and technical support and support for forces and civilians under threat together with the ability to execute tasks involving the deliberate, long-term preparation as well as indirect support for forces deployed in the operation.

**Mobility and transport.** The need for a high level of manoeuvrability and mobility in the future operational environment will also place exceptionally high demands on the material security of forces. The support for both national and allied forces in the area of deployment will be provided in accordance with the established supply processes, determined by the alliance or national operational, administrative, and technical standards. The expected technological progress will lead to a shift in the support for the forces, especially in the areas of maintenance, repair, resupply, and healthcare. The use

of new technologies will enable the units to simplify and improve their logistic support process, thereby reducing operational risk and consequently increasing the scope of operational activities that the unit can carry out.

**Support for future forces.** The manoeuvring of combat units will also affect the logistic support system. Various elements of logistic support will be more decentralized and will operate with more autonomy. The modular building of units, which is one of the main principles of creating task clusters, will also require appropriate modular and flexible logistic structures, respecting the standards for creating material stocks, their maintenance and subsequent distribution to units in the area of operation.

**Military engineering.** Expeditionary operations, especially in urban agglomerations, may face significant A2/AD challenges. This will increase the requirement for the mobility of our own forces and their ability to deny the enemy access, as a key factor in achieving and maintaining freedom and reinforcing the protection of our own forces at all levels. Engineering resources will have to provide support for critical infrastructure (both military and civilian) to contribute to maintaining interoperability with non-military entities.

**Sustainable medical support.** Serious health crises and pandemics can quickly overwhelm the capacity of local health services, which will then have to turn to the international community for help. Forces will have to be able to deploy their medical staff and resources quickly in response to these situations, which may arise in a highly complex environment. Future technologies will be able to improve and strengthen medical assistance through robotics, information technology systems, use of microchips, and other technologies that will enable medical interventions to be carried out remotely.

## Inform

Success in the planning, preparation, and conduct of future operations will depend on effective intelligence and the ability to collect, sort, analyse, and share the information obtained. The need to gain information and intelligence superiority entails the need to control and effectively defend the cyberspace. Thus, along with the area of command and control, the development and introduction of new technologies will be the most challenging in the area of intelligence.

**Collecting information.** The armed forces will need to be able to locate, track, monitor, and share information about threats in all domains, including cyberspace and outer space. The use of nanosatellites and space platforms to support the forces will bring significant benefits. In the years to come, the armed forces are expected to have state-of-the-art automated equipment for satellite surveillance of the operation area and for the transmission of information in secret mode and in real time. The use of automated systems for intelligence, surveillance, and reconnaissance (ISR) will become an indispensable basis for achieving superiority over the enemy. Elements of armed forces will have to be able to identify targets using technologies of stealth, masking, and deception, especially in urban agglomerations, including conducting underground combat. This information, integrated with the information of the other allied forces, will enable our own forces to react quickly to any changes in activities.

**Analysing information.** The armed forces will need to accelerate and streamline the phases of the reporting cycle due to the large amount of data available and the growing number of sources and sensors. Therefore, it will be necessary to modernize the existing indicators and alert mechanisms to help manage potential threats and optimize the decision-making process. It will be necessary to create, maintain, and share an archive of

information and knowledge about the operational environment that will enable joint planning using advanced technologies, including artificial intelligence, virtual reality, modelling, and simulation. The dissemination and expansion of various networks will require a sophisticated ability to capture and understand the environment not only at the strategic or operational, but also tactical level. This will require tools to collect and analyse big data to support the decision-making process.

***Creating 3D map images.*** The ability to quickly produce and distribute geospatial representations (so-called maps of the future) will be required to support operations conducted mainly in built-up areas with high-rise buildings, extensive underground infrastructure, settlements with difficult orientation (e.g., slums), etc. To ensure accurate plans, detailed research and monitoring over urbanized areas will be required. The creation of 3D map images will provide the armed forces with more accurate information that will enable them to identify critical points of the operation and to plan pre-emptive action in order to reduce operational risk.

***Distribution and sharing of information:*** The distribution of intelligence products requires a standardized management and sharing system. In the future, it will be necessary to extend the management to organizations that are not military by their very nature. In order to be able to monitor and evaluate the demand for force intervention, data outside the military environment will be needed, such as demographic indicators, energy sources, direction of migration waves, natural disasters, flow of food supplies, etc.

### **Consult, Command and Control (C3)**

The area of command and control is a crucial element for ensuring a flexible and effective decision-making process, as well as the ability of the armed forces to respond flexibly to new security threats. Future operations will require an effective exchange of information between the political and military leaderships, the ability to plan, communicate, and coordinate civil-military activities with all of the actors present in the area of operation or directly involved in the operation.

***Requirements for modern technologies:*** Modern technologies will facilitate the command and control system by automated and timely exchange of data and information, capable of supporting solutions to complex problems in an operational environment with insufficient or completely absent information and technology infrastructure.

***The decision-making process:*** Capability requirements to support the decision-making process at all levels will include the introduction of automated system tools capable of ensuring secure transmission and protection of information and equipment, facilitating internal and external coordination at various levels of command. Within NATO, each member state will have to have access to a complete information picture in order to be able to carry out its tasks effectively and in cooperation with the other allies.

***Integration of transnational command and control systems:*** The key requirement for the command and control system will be interoperability and ability to communicate with a large number of actors involved in the operation. This requirement will entail the need to protect classified information in a collaborative environment, based on the sharing of classified information. In the area of the operation, this will require external communication with the local government, government bodies, NGOs, as well as, for example, commercial or other contracted companies.

**Reducing the organizational burden:** The requirement to diversify military activities should lead to the establishment of effective command and control structures; this should speed up the decision-making process and improve the management of activities in a complex operational environment. From the point of view of designing command and control structures, the modular formation of task forces should allow for decentralization of capabilities to perform different types of subtasks within the operation.

**Integrated command and control structure:** The implementation of the principle of an integrated chain of command and control will provide the commanders with a comprehensive overview of the actions and activities of all actors in the area of operation. In the same spirit as NATO's integrated air and missile defence, the national armed forces will necessitate command and control systems that can carry out continuous surveillance through a number of sensors, are able to integrate all information, and thus create a specific operational picture in a given operation area.

**Communication:** Capability requirements for standardized communication will lead to the need to control the electromagnetic spectrum and require access to forms of communication other than direct vision systems. Critical communication networks will require resilience of their systems, i.e., armed forces will have to be able to guarantee their full functionality even in complex electromagnetic or cybernetic environments. Command and control structures will require the capability to communicate over long distances to control operations in real time. Capabilities will be crucial to enable the rapid, secure, and timely flow of information between different levels of command.

## CONCLUSION

The armed forces will face increasingly complex challenges in a highly variable form. Some operational approaches and practices from the recent past will be radically changed and adapted to the changing security and operational environment. The principle of concentration of forces has already given way to precise selective actions, without direct deployment of physical forces in a large extent.

In the period after 2035, current operational functions and capabilities will need to be adapted depending on the tasks performed. They will have to support the forms of force manoeuvring in several domains of the operational environment at the same time and respond to the impact of both lethal and non-lethal means in real time. This will be facilitated by connecting multiple global communication systems, not only in the physical, but also in the cognitive domain.

Cooperation with autonomous and robotic elements, including operations of tactical manoeuvring units, will not be considered unusual. It will be particularly important to improve the key platforms the activities of various types of forces will depend on. The establishment of command and control systems, which will be interoperable with partners within integrated forces, will be essential.

The manoeuvres will take place mainly in urban, coastal, or Arctic areas, which will entail the need to prepare the commanders and staff to carry out activities in a physically demanding and complex terrain, with the ability to organize and manage the activities of forces at multiple levels at the same time.

The "mission command" principle will be one of the main principles of commanders' activities, as an indispensable pre-requisite for being able to manoeuvre with various



resources in real time, while increasing the situational awareness of the operational environment. Hidden and subversive activities of the enemy, big data, use of non-lethal weapons, and effects of forces from outer space will become common phrases in the military community vocabulary.

However, despite all developments and changes, the nature of the modern conflict will retain its eternal character - it will never be possible to determine its place of origin, scope, and dynamics of its development with unequivocal precision. The modern conflict will be uneven in its form as well as in its course, it will be asymmetrical, and its result will be unclear.

Operational Environment. Implications for the Building and Development of Capabilities of the Czech Armed Forces 2020.

**Authors:**

[Ing. Ján Spišák, Ph.D.](#)

[Ing. Zdeněk Petráš, Ph.D.](#)

[Ing. Tomáš Špok, Ph.D.](#)

[Ing. Jan Gireth, Ph.D.](#)

[Ing. Richard Saibert, Ph.D.](#)

**Ing. Martin Smejkal**

**Graphics and editing:** Mgr. Martin Doleček

**Publisher:** University of Defence, Brno

**Year of issue:** 2021

**Issue:** First

<https://www.unob.cz/en/csmss/Pages/Publications.aspx>