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COMMUNICATION AND INFORMATION SERVICES – NATO REQUIREMENTS, PART I

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ABSTRACT

Recent publication is summing up the most important requirements, by which "Heads of State and Government of NATO member countries" have defined the basic tasks and guidelines for the alliance and the member states in order to guarantee their security. These also highly affected command and control supporting communication and information services, systems, beyond that the cyber operation related concepts and developments – latter field becoming of more and more importance. In this part of the article, the author analysed the security threats of the NATO and the according response of them. This part covers the first ten years of the analysed NATO summits, from 1999.

KEYWORDS: communication and information system, cyber defence, development, modernization, NATO Summit

1. Introduction

Nowadays it became focal, that NATO has to deal with constantly changing, renewing security threats, since security environment got worse greatly. Among the new threats are climate change, intensifying threat of terrorism, migration and several other dangers, which require the developing of defence capabilities and armed forces, as an element of international and national level reaction.

International tendencies support, that during any defence activity, the principle of possessing sufficient quantity of information from reliable and secure source is of exceptional importance. Key feature of this is the utilisation of state-of-the-art infocommunication systems with high level of information protection capabilities, which is a feature of recent systems in defence sphere only partially.

Shaping and maintaining requirements needed for the basic purpose of national armed forces, and securing the offered capabilities towards NATO is a key priority for the defence ministries and military.

The securing of suveregnity, protection and security of national interest and citizens require the development of military capabilities. To this end, the member states began their long term defence and military development programs in the recent years, by which the agility of the alliance is raised through national capabilities. Key goal is to strenghten the abilities of the armed forces and to make their operability more efficient. Development involves modernisation of technical devices and personal gear, and the raising of efficiency regarding command and control.

Development of communication and information support is of highest priority, since this secures information flow, process and distribution for the command and control, which beyond supporting leasership, also enables communication between systems and assets.

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2. Security Threats for NATO

Security threats affecting NATO have changed significantly in the 70 years of its existance. By the foundation of the alliance, the main objective of the 12 members was collective defence, through which they aimed to assure their security. This stayed the main purpose of the alliance throughout the four decades of its cold war existance.

With the end of cold war, collective defence became indirect, withouth any potential agressor, instability emerged in other fields. Focus shifted from the direct protection of the allied to the partaking in regional conflict management. As a clear task emerged the sharing of responsibility in ending wars and building peace and stability. Such crisis management operation was the engagement on the Balkans, the ending of that conflict.

At the beginning of the nineties the alliance developed its cooperation with non-member states, organisations and other alliances. Intensifying terrorism further shaped the activity of NATO, which has been realised trough each multinational crisis management operation, such as SFOR (Stabilisation Force in Bosnia and Herzegovina), KFOR (Kosovo Force in Kosovo), ISAF (International Security Assistance Force in Afghanistan), NTM-I (NATO Training Mission – Iraq) and NATO Operation Ocean Shield.

Based on these, NATO actively shares the burden of creating international peace and security, with the basic fundament of the member states partaking in these tasks, and civil-military decision process, based on NATO Crisis Management Process (see Figure no. 1.).



Figure no. 1: *NATO Crisis Management Process*
(Source: Marinov, 2014)

Fundament of NATO's success is the identification of threats, the way of reacting to them, and the method of maintaining complex danger situations. Nowadays the alliance has to face complex threats, defined by digital threat even nuclear endangering beyond the traditional forms of war. Key to success is in any case the early definition of the situation, based on the possession of sufficient quantity and quality of information. Threats come from beyond the borders of the Alliance, regional conflicts can cause serious impact to the members' and global security, thus stability has to be protected and projected beyond NATO. Comprehensive threats to NATO are:

– existance of weapons of mass destruction;
– global terrorism and its effects;
– threats on energy security;
– environmental challenges;
– cyber attacks, dividing cyber- and phisical sphere;
– constant information attacks, desinformation, fake news;
– a hybrid warfare;
– and the complex security consequences stemmng from the above.

According responce of NATO is:
– collective defence;
– developing quick reaction force;
– constant development and shaping of command structure;
– groving defence expenditure;
– fastening force development;
– groving level of national offering;
– sharing of capabilities;
– common training and field activity;
– unified planning;
– strenghtening national cyber-defence capabilities;
– further development of command and control with state-of-the-art infocommunication support.

NATO is only able to react efficiently to all these threats and the changing security situation trough constant renewing, which is recognised and defined at NATO summitss and other periodical meetings, and professional coordination among others.

3. The NATO Summits in the Last Twenty Years

NATO summits are not held perodically, but according to some important events of the alliance. These meetings are always organised in one of the member states and led by the Security General. The decisions and new guidelines defining the life of the alliance are clarified on these occassions, also the invitation of new members and strenghtening of partnerships (NATO, 2018, pp. 10-16).

Decisions are summarised in resolutions, and published in the form of announcements. Afterwards the member states begin with work, by the leading of the competent organisation. (see Figure no. 2.) With the control of North Atlantic Council as the primer decision making organisation of the Alliance, or in case of military action with the leading of Military Committee (NATO MC) coordination of work begins within the frames of military leadership structure. NATO MC supports the processing of universal strategic concepts by creating documents (MC), being proposals on preparing military force and the realisation of readiness plans.

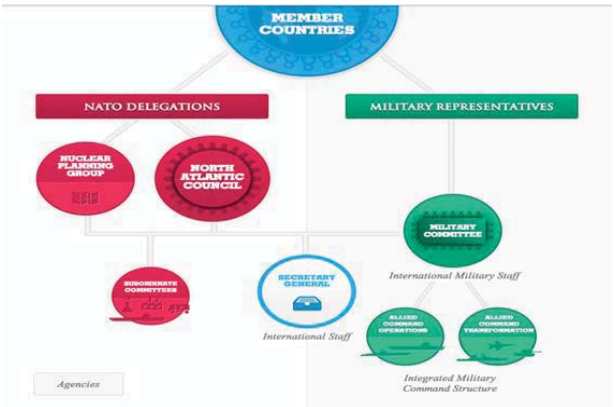


Figure no. 2: *NATO working structure*
(Source: NATO, 2020)

3.1. Washington Summit (April 24-25 1999)

At the beginning of the new millenium, the points of Washington Declaration counted as milestones, shaping the future vision of the Alliance greatly. The meeting came to life in the times of the third stage of Balkan wars, Operation Allied Forces, which also greatly affected the decisions made for the future. The summit defined three fields of highest importance, also as the directions of future activity. These are the new strategy concept, the Defence Capacity Initiative and the Membership Action Plan. These decisions ensure recent and future security for the alliance, through these is it able to measure and manage them the right way, and to realise stability (NATO, 1999).

According to the strategic concept, the most important task of the Alliance is the elimination of security threats stemming from conflicts and instable states, with a focus on the Middle-East and North-African region.

The renewal of the strategic concept greatly affected command and control, and also infocommunication support, since the broadened collective defence – reacting on terrorism, organised crime, and challenges threatening NATO's security interests – inducts new capabilities towards the regions outside the Alliance, such as:

– deployability;

– development of force/assets in order to raise defence capabilities;

– logistic support;

– increasing of efficiency for successfull work;

– increasing of efficiency in command and control through development and utilisation of compatible information systems.

"Defence capabilities will be increased through improvements in the deployability and mobility of Alliance forces, their sustainability […], and command and control and information systems. In this connection, we […] develop the C3 system architecture by 2002 to form a basis for an integrated Alliance core capability allowing interoperability with national systems" (NATO, 1999).

This Summit defined the requirements and capabilities for the upcoming years. Regarding communication and information systems, higher level of information support has to be prepared, with a focus on compatibility and interoperability as prime challenges, at the same time the evolving of information in great volumes, constantly changing technology and technical challenges.

3.2. Prague Summit (21-22 November 2002)

According to the above strategic concept – based mainly on the experiences of Balkans missions – was shaped the capability development guideline, which defined agility and deployability, sustainability, successfull combat deployment, survivability and efficient communication as future requirements. The Alliance proceeded with the development of the strategic concept based on these, and discussed it at a later event, also creating a written document. On these summits the discussion was always maintained with a scope on actual challenges, threats and requirements, also being mirrored in the later (actual) concept of the Alliance. This also serves as a fundament for the capability development strategy of NATO and the member states.

Prague NATO summit collected further aspects of capability development, based on the recent Kosovo crisis and the terrorist attacks of 09.11.2001. A "comprehensive action package" was created, further strenghtening the strategic concept and the capabilities of the Alliance. According to the document, defence of NATO and allied member states against external attacks is of highest priority, with a focus on the protection of citizens and territory, further also the missions with the call of decreasing threats

stemming from WMD proliferation and terrorism. For all these purposes, forces have to created, which are adaptable, ready to cooperate, quick to deploy to the area of action – involving the field of transportation –, are able to operate on long term if necessary, and these forces have to be prepared to the management of possible nuclear, biological and chemical attacks (NATO, 2002).

With these in mind was the creation of NATO Response Forces (NRF) prepared, with the aim of being combat ready till 2004, and fully deployable till 2006. The concept envisions the creation and management of a force that is able to dislocate to the place of crisis right after the political decision, and to act independently either in article five defence operations, or in non-article five crisis response. Regarding its structure, NRF contains ground forces, air force, maritime and special operations component, suiting to the fundaments of 21st century warfare, also combat support elements, such as signal corps. Thus the allied nations need to stress the preparing of the offered forces, to the development of sufficient capabilities, and infocommunication background ready for cooperation.

Another important decision of Prague summit was the creation, revision of NATO Command Structure, which supports Euro-Atlantic cooperation, and the efficiency of leadership decision making structure. The structure created then is the fundament of the recent system.

In summary, this summit has put a stress on the ability to cooperate, intelligence, modern command and control principles, and support capabilities, further it prioritized the development of modern warfare capability, the protection of computer networks and cyber defence.

3.3. Istanbul Summit (28-29 June 2004)

According to the Washington summit, as described above, Istambul summit of 2004 priorised operational deployability and utilisation, for which purpose the Alliance requires more complex (dround forces, air force, navy) cooperation from the member states.

Increased support of NATO-led International Security Assistance Force (ISAF) was required, in order to secure the forthcoming elections in Afghanistan. According to that had the Afghan forces been prepared in their capabilities and their technical background as well. Provincial Reconstruction Team-ek (PRTs) play a further key role in the strenghtening of stability in the region. Further increasing of cooperative abilities is inevital for successful operation, also being put into focus because of the multinational fashion of the mission.

The organisation of units, maintaining modern technological toolbox, new principals of command and control, and being more „utilisable" and deployable was necessary, being a task for the member nations, and their possible deployment enforces the commitment of the aAlliance towards international peace and stability. (Istanbul Summit Communiqué, 2004)

Weapons of Mass Destruction (WMD) and the proliferation of terrorism means increased threat for the Alliance, as being prooved by the terrorist attacks of Istambul (2003. november 15. és november 20.) and Madrid (2004. március 11.). For this reason intelligence tasks and the ability of information sharing among member states are to be strenghtened. Further development of quick reaction capability, the provision of NRF forces is important in the future in order to meet requirements. For the sake of successful fighting and the engagement against WMD-s NATO Multinational CBRN Defence Battalion came to life.

In order to support universal capabilities and secure the realisation of given tasks, focus has beeen put on gaining information and the ability to share it. Key features here are compatibility and

interoperability, which can be realised through focusing on adequate patterns. Cooperation in multinational operations (ISAF, KFOR, etc.) greatly enables the development of infocommunication capabilities of partaking nations, since cooperative abilities are inevitable for the success on the grond. According to this a great stress has to be put on meeting NATO STANAG requirements, securing the technological and technical component of interoerability. Istambul summit defined eight key territories of necessary development, among them *"deployable and secure command, control and communications"* (NATO, 2004, p. 52).

3.4. Riga Summit (28-29 November 2006)

Focal point of the summit in Riga was the repeated revision of security situation and the future securtiy environment. Most serious threat still stems from terrorism, instable states, regional cryses and abuse of inevitable resources (such as energy).

Key field of the meeting was the analisation of the situation in Afghanistan. Greater emphasis has been put on regional reconstruction, requiring greater level of civilian presence and cooperational capability.

Important question were the new dimensions of action against terrorist attacks. Utilisation of most modern tools has to be set in the foreground, which are able to strenghten efficient reaction to new types of hostile attacks, and prevention. For this purpose, all member states have to constantly develop, further strenghtening the military capabilites of the Alliance.

Field of mobility was again in focus on the summit, as a key feature for efficient and timely reaction, and also the need to perfection of partaking in multinational missions outside the Alliance in regions without providing host nation support. Expeditionary capability is of high importance, enabling the constant presence of allied multinational forces, and their ability of self management in the crisis area. According to the actual global security state, it can be visualised, that the Alliance has to deploy more smaller, flexible and agile group on international stage, being able to be active in a broad spectrum.

Full operability of NRF was announced as well. The force is created from member states' offered troops, and after national preparing they achieve NATO-training, ending with the highest level certificate. (NATO, 2006) The above supports development of cooperability and infocommunication support of efficient C2 greatly.

The summit defined the ever greater need for Network Enabled Capability (NEC), meaning the sharing, quick and secure transmission of information among operative Allied forces, and it's protection in case of attacks against computer networks. This can be regarded as one of the most important striving in the period, supporting the development of communication and information capabilities. NEC is of high importance regarding information dominance, which is a key feature for the success of operation. Point is, that possessing sufficient amount of information enables the commander to make quicker and more precise decisions. Due to NEC the commanders and subordinates at all level are able to understand the given situation and react to it quicker. This enables a quality decision making process, every element of which is able to cooperate in real time for the highest efficiency. NATO NEC capabilities are contained in NATO Network Enabled Capability Feasibilty Study, which defines the basic methods, goals and key features of its creation (Buckman, 2005; Toth, 2015):

- unified aspect in network based information infrastructure;
- processing of a secure, structured data processing and providing mechanism;
- creation of IP based interoperable communication infrastructure;

– the processing of an unified interface pattern system to reach interoperability;

– patternising of softvare radios for the aim of securing uninterfered allied communication;

– development of NATO-level network information infrastructure.

Further developments aim the protection against CBRN threats, which also develops the defence of forces in order to reach success.

In summary, several decisions were taken in Riga affecting the development of infocommunication systems, with NEC based on information process and distribution as a key element.

3.5. Bucharest Summit (02-04 April 2008)

Bucharest Summit of 2008 didn't bring any decisional breaktrough in the life of the Alliance, but stability strivings have been defined as prime aim. Intelligence and change of information, as key elements of combating terrorism ere decided to be strenghtened, further supporting the presence and protection of forces involved in NATO missions. It was emphasized, that NATO is continously ready to quick reaction against any sort of threat, but closer cooperation is required for the sake of managing actual and future dangers of international security. Initiative and offerings of the member states – strategic air lift and air lift within theater of operation – enhanced stronger presence (regarding international operation primarily), which was a highly important field of the meeting. ISAF in Afghenistan is still of great importance, aiming the stability and reconstruction of the region. These are realised through the creation of 25 provincial reconstruction groups and the deployment of around 42 000 soldiers in the mission area (Gallis, 2008). During the tasks, ability of cooperation becomes of ever greater importance, since the complex operational activity necessitates the involvement of greater forces, which requires unified command and control principles, operational plans and infocommunication activity supporting them throughout the common operations. Shaping common operational picture can be realised only via CIS support based on the sharing of information, being state-of-the-art, and meeting NATO STANAG standards.

Agreement was fostered on strenghtening network provided capabilities in order to achieve information dominance, which requires integrated C2 system for more efficient realisation of operations. NATO is still dedicated to patternisation, the development of high level cooperability, and the protection and security of information networks.

Terrorist activity and the initiative against it bear the attributes of assimetric warfare, but terrorist groups can utilise beyond conventional weapnry also WDS-s, which makes Allied engagement difficult, thus the development of capabilities in this field cannot be negliged either. Further strenghtening of information capabilities involves integrated air command and control system; increased maritime situational awareness; and timely delivery of the Alliance Ground Surveillance capability, and special operation capability in the field of interoperability.

Beyond these Policy on Cyber Defence was created, according to which, NATO and the member states have to protect their critical information systems, share their experience, and maintain capabilities, through which helping each-other can be realised.

The summit announced the success of NATO strategic communication, which was defined as further being of necessity and high importance. The alliance doesn't only utilise open diplomacy tools, but great emphasys is put on the importance of strategic communication in operations, such as ISAF (Nemeth, 2013).

4. Conclusions

NATO has gone a rute of great changes in its organisational structure and capabilities as well, in the last 20 years. Response to the changes of global security environment and the striving to meet renewing threats required constant changes from the member states. Renewing threats can only be met with renewing responses, this secures the security of the Alliance and its members.

While Washington summit had the primary goal of develop efficiency of defence capabilities in the whole spectrum of multinational operations, and interoperability among members and also the Alliance and its partners, later the need for collective defence increased again, putting focus beyond conventional military operations later to those regarding cyber defence as well (mainly after the mid of 2010's).

The Cyber Defence Policy was the top of this period regarding the new technical and technological achievements, and the needs of information security. In addition to information sharing, more and more emphasis was placed on information security and protection, which should be the key of the successful communication and information support.

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