

CONCEPT DEVELOPMENT & EXPERIMENTATION AS TOOL FOR CAPABILITY DEVELOPMENT

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***Abstract:** Purpose of this paper is to depict Concept Development & Experimentation (CD&E) process as tools for transformation in NATO. CD&E process supports development and experimentation by providing a common framework, decision support and practical guidelines for capability development. In first part the author shows possible patterns of military concepts and describes their parameters. In the second part article depicts relationship between the operating concepts and the defence planning process. They clarify the operating concept application issues in the process of the armed forces development.*

The paper is one of outcome of the defence research project named "Operational Concepts of the Armed Forces of the Czech Republic in Joint Operations", that was solved at the University of Defence in Brno (CZ). Project solved the "Proposal of operational concept of the Armed Forces of the Czech Republic in joint operations" and "Methodology of generation and development of operational concepts".

Keywords: Concept Development, Defence Planning, Capability

1. Introduction

Concept Development and Experimentation (CD&E) is one of the tools that drives armed forces transformation by supporting the structured development of creative and innovative ideas into feasible solutions for capability development. CD&E is vital part of capability development, providing potential solutions to conceptual gaps identified within military capabilities shortfalls.

The application of the term "concept" within the military environment is presently so common. Meaning, purpose and content has loosed its original importance and frequency of word usage faces to confusion in sense, terminology, and thus the content. The aim of this article is to explain some general issues related to concepts, in the context of the "military concept".

2. Military Concepts Description and Classification

The term "CONCEPT" is used both inside and outside the Armed Forces in mutable contexts and for different purposes. For illustrations of areas where the term "concept" is used regularly are:

operational planning (as concept of operations), **doctrine** (defence concept / joint operations concept), **long term defence planning** (strategic and operational concepts) and **functional development** (functional concepts, system concepts).

Every development forces which intends to conduct a concept development process, must select the purpose of its specific concept development. Then the term "concept" must be familiar to that aim, as an element in the CD&E adaptation. The task for organization is to formulate a definition of the term "concept" that is broad and general enough to cover the

needs of specializations required when adapting the CD&E method.

In scientific articles, magazines, reference books and reports there is lots of formulations of the term “concept” together with definitions of “concept”, a number of key words emerge such as idea, general solution, suggested solution, hypothesis, problem area (including problem, opportunities, challenges) and capability. Generally true description of term “concept” is as follows:

”A general proposed solution that encompasses an overarching and firm idea of how a problem can be solved or of how advantage can be taken of an opportunity, with the aim of fulfilling a capability requirement in a given context.”

The word “concept” comes from the Latin word “*conceptum/conceptus*” – something visualised or an idea, which in turn derives from the word “*concipio*” – to capture, to receive or to understand.

In according to this definition of “concept” this term includes a description of the issue to be addressed (a problem or opportunity), why it is to be addressed (a capability requirement) and how it is to be addressed (the essential idea).

2.1. Classification of Concepts

There are a number of options allowing classification of military concepts. In general we can classify military concepts in according to:

temporal perspective

hierarchical categorization

purpose of the concept and

level of maturity

2.2. Temporal perspective of concepts

Historical Concepts describe their subject (topic) and methods of application in some historical context. They are often not expressed exactly in time, rather derived from historical records. At the time of their applicability they are not clearly codified (legalized). As example are Schlieffen Plan, Blitzkrieg or Air-Land Battle Concept.

Current Concepts describe their subject and own applicability in present days with

current organization, methods and technologies. Can be clearly endorsed in existing documents (doctrine) and may arise from current conditions. As example there are documents: Joint Vision 2010, Joint Vision 2020, Capstone Concept for Joint Operations (USA 2010).

Future Concepts express an idea of how their subject (topic) will be used in future context. Future concepts are initially untested, should be the subject of experimentation and discussion. Future concepts can be developed and legalized or invalidated. Only after the future concept is experimentally verified and confirmed its accuracy and is legalized, then provides the basis for force planning, planning development and sustaining of military capabilities.

Interim concepts (DCDC (2008) are concepts that are approved for further development and validation before they can be given final approval. The term interim concept describes a development stage, rather than a specific product. A mature interim concept after approval becomes an applied concept.

Applied concepts (DCDC (2008) are interim concepts that have received final approval. Applied concepts are used within capability development and defence planning. The time horizon for an applied concept is in the order of 10-20 years. An applied concept describes the way in which several future capabilities are used within the framework of a future operation to solve a specific problem or address a capability gap. Applied concepts are also used to develop Concepts of Employment (CONEMP) and Concepts of Use (CONUSE).

Analytical concepts are generated as an initial reaction to changes in policy, future trends and innovative thinking and provide a foundation for continued development. Analytical concepts are also used to describe and provide the context in which interim and applied concepts are developed. The time horizon for an analytical concept

is in the order of 15-20 years.

2.3. Concepts hierarchy and typology

Having a concept hierarchy promotes the understanding of the relationship between concepts, and the identification of the aim, purpose, and scope of each. Although not rigid, this hierarchy reflects that concepts can stand-alone or link to other concepts. Concepts are systematically arranged within a family of concepts into the hierarchy:

Institutional concepts are describing the organization and materially technical facilities of a military institution;

Capstone Concept (NATO 2008): the purpose is to direct and guide the development and application of force. This is achieved primarily by the capstone concept describing a broad range of activities for various possible operations. A capstone concept also describes what is required to achieve strategic goals.

Operating concepts describe how a

commander will perform a military function or type of operation. It identifies the effects necessary to achieve the end state and the capabilities required. Describing the method of employment of the military forces;

Functional concepts, describe the activity (performance, behavior) of the individual military functions and sub-functions. Functional concepts describe a particular capability and/or set of effects which suggest a solution to a specific or applied requirement.

Enabling (integrating) concepts, describing the capabilities required for the activity of the military functions and sub-functions. Enabling/integrating concept creates the conditions for one or more other concepts.

In this sense the system of military concepts needs to be comprehensive and interrelated, see Figure 1

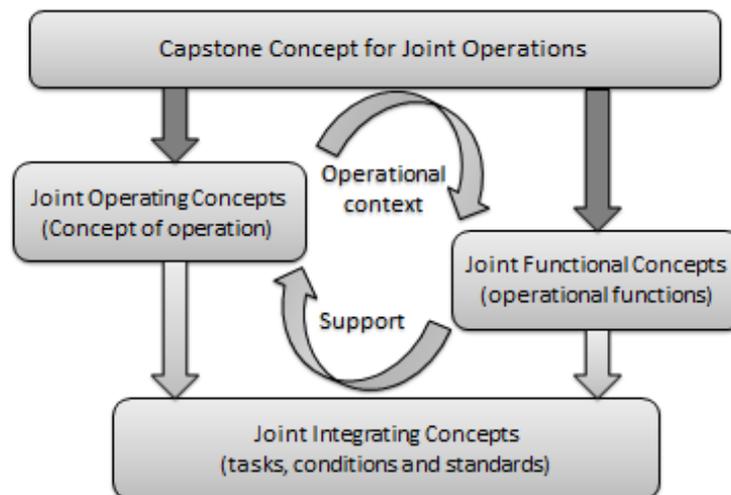


Figure 1: Hierarchy of military concepts

There is no agreement amongst the states (NATO, EU) that work with concept development as regards either possible categories for concepts or definitions of them. Capstone, enabling and applied

concepts can be found in several classification groupings, but with differing descriptions, which of course further complicates the picture. In order to be able to conduct a viable and meaningful

communication in an international context it must be clear how the national structure relates to the structure that have been agreed on with the most important coalition

partners. The table below Tab 1 shows that there are relatively complicated relationships within the Anglo-Saxon culture alone.

Table 1: Comparison of Concept designations and hierarchy. Source: Author

United Kingdom	Australia	Canada	USA	Czech Republic	TTCP
High Level (High Level Operational Concept)	Joint	Capstone	Capstone Concept for Joint Operations (CCJO)	High Level Operating Concept (2003)	Defence level
Military Task Operating Concept	Australian Military Strategy	Joint Operating Concepts (JOC)	Mission		Operating/Operational Concept
Analytical Environmental	Environmental	Environmental	Service Concepts (Army Operatin Concept)	Service Concept (Air support and Heli Concept)	Services Concept, Environmental (Land, Air, Navy)
Hybrid Concepts	Integrating /Enabling Concept	Integrating Concept	Joint Concepts		Integrating / Enabling Concept
		Functional Concept	Joint Functional Concepts	Functional Concept	Functional Concept

3. Underlying arguments for concept development

According to Schmitt (2002) there are only two reasons to start concept development:

- either there is a requirement to find a solution to a new military problem or
- there is a requirement to find a solution to an existing problem.

The first case involves finding a better solution to an existing problem than the currently applied solution. A better solution may have emerged as a result of a new development in technology, organization,

tactics or some other area.

In the second case a new problem has been identified, for which as yet no suitable solution has been found, either in the present or imagined in the foreseeable future. The problem may have arisen as a result of a combination of political, social, economic, technological or other factors (PMESII, DIME), but the problem can also result from revised objectives for an existing situation.

4. Operating concepts and defense planning

The military concepts are multipurpose documents. They are not used merely as one of the starting points to define required future capabilities of the armed forces but they also form the foundation of military doctrines. They also represent a basis for the lower degree operating concepts, or the institutional or functional concepts. They unify the joint efforts and principal directions towards the achievement of future goals and missions of the armed forces. Upon aligning the existing and required capabilities in the defense planning process it is not possible to eliminate all risks. Under restricted availability of resources it is necessary to focus the efforts on the priorities of the development of capabilities addressing the most probable risks and risks with the highest impact. (Bučka, Mačovský, 2012).

4.1. Defense Planning Process

The objective of NATO defense planning is to set up a framework, within which defense planning of the individual countries may be harmonized as efficiently as possible in order to ensure the goal satisfies NATO military needs. The objective of defense planning at the national level is to build and maintain the armed forces corresponding to the needs and ambitions of the country to ensure its security, defense

and possibly even contribute to maintaining peace and stability in the world. The defense planning is a set of activities, procedures and relations executed by the governmental authorities in order to achieve the goals and tasks of the country's defense.

5. Conclusion

The military concepts represent the foundation for future military forces development. Capstone and operating concept development create framework for subsequent developments of supporting concepts. Military concepts describe the broad capabilities the Armed Forces that will require in the future and explain how they will apply available resources to overwhelm adaptive threats to accomplish challenging missions in the complex future operational environments. It is necessary for the strategic management to have analytical information for their decision making. In the majority countries within the NATO and EU, the concepts of the future employment of the armed forces are those which initiate the transformation of these forces. In the process of defense planning the operating concept should be one of the crucial military documents. The author (as OPERKON project manager) follows the "best practice" and result (outputs) of the OPERKON defence research project.

References

- [1] Bučka, Pavel, Mačovský, Ivan. *Obranné plánovanie a manažment zdrojov*. In: Medzinárodná vedecko-odborná konferencia „*Manažment, teória, výučba a prax 2012*“. Medzinárodná vedecko-odborná konferencia. Liptovský Mikuláš : Akadémia ozbrojených síl generála Milana Rastislava Štefánika, 26.-29. Septembra 2012. ISBN 978-80-8040-352-9. - S. 241-244
- [2] Galatík, Vlastimil, Ivo Pikner , Ján Spišák. *Zásady tvorby operačných koncepcií*. Univerzita obrany, BRNO 2010, ISBN: 978-80-7231-755-4
- [3] *Guide to Capability-Based Planning*. The Technical Cooperation Program, Joint Systems and Analysis Group, TR-JSA-TP3-2-2004, Virginia, USA, 2004, 15 pp.
- [4] Schmitt, John F. *A Practical Guide for Developing and Writing Military Concepts*. Defense Adaptive Red Team: Working Paper #02-4 [online]. December 2002, č. 4, s. 1-26 [cit. 2012-06-10]. Dostupné z http://www.au.af.mil/au/awc/awcgate/dod/dart_guide.pdf
- [5] Spišák, Ján. Military concepts – a background for future capabilities development. *Ekonomika a management*, 2013, Brno, vol. 7, no. 1/2013, p. 75-81. ISSN 1802-3975
- [6] Pikner, Ivo; Spišák, Ján; Galatík, Vlastimil; Zůna, Pavel. *Military Operating Concepts*

Development. Belgie: SHOPMYBOOK, Peleman Industries NV, Rijksweg 7, 2870, Puurs, Belgium, 2013, 88 p. ISBN 978-16-1627-370-5

- [7] Pikner, Ivo; Galatik, Vlastimil. *Future Operational Environment And Military Concepts*. In: The 16th International Conference The Knowledge-Based Organization MANAGEMENT AND MILITARY SCIENCES. Sibiu, Rumunsko: NICOLAE BĂLCESCU” LAND FORCES ACADEMY, 2010, p. 157-162. ISSN 1843-6722