

Artillery Fire Support Control System Capabilities Character

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Abstract: - The article deals with transformation of specific capabilities of the Czech Republic Army Artillery. Transformation is oriented to command of probable future operations in NATO Network Enabled Capability (NEC). On the present Czech Artillery develops units for NEC background to dynamically cooperate with mechanized units and focus on transformation of NEC conditions reaching elements.

Key-Words: - Artillery, Fire Control System, Network Enabled Capability, Transformation Aspect

1 Introduction

The modern operations can be characterized as complex, dynamically changing, and interlaced by different factors. The Czech Republic security environment threats are going to be hardly predictable.

Complex approach of the international alliance will be necessary to solve the future crisis situation. Coordination of resource using, including military power, will be also unavoidable.

Military units have to be ready for both high and low profile conflicts in the framework of multinational military operations. They have to declare the capabilities to fight enemies, render humanitarian help, execute peace keeping operations, deterrent, and assist in country reconstruction.

Short time ago the government of the Czech Republic accepted the NATO army transformation document and its conceptual framework (Effect-Based Approach to Operations, EBAO). The aims of the Czech Republic Army transformation were defined in the framework of these documents. Main aims are reaching for decision ascendancy, operational effectiveness, deployability, and defensibility.

2 NEC proposition framework of the Czech Republic Army

The basic strategic approach to the Czech Artillery NEC conceptual framework determination is analogy to Czech Military Forces key operation capabilities. These capabilities represent:

- well-timed forces attainability,
- effective intelligence,
- deploy ability and mobility,
- effective employment,
- effective command, control, and communication system,

- logistic defensibility,
- forces stability and protection.

Assignment of the Czech Military Forces key capabilities to the NATO transformation aims (concept EBAO) is possible in the following way:

- Decision Ascendancy achievement presuppose: **Effective Command, Control, and Communication System**, which represents compact system consisting of doctrines, procedures, organizational structures, people, equipment, and connection, guaranteeing on-time and sufficient data for planning, controlling, and verification of activities for all command levels.
- Operational Effectiveness achievement presuppose: **Effective Intelligence**, which is basically important for effective command and control proceedings, because it provides the information about enemy activities, operational background, and high priority targets, **Effective Employment, Forces Stability and Protection**, which focus on preventing, or maximum decreasing of enemy activities effects, our forces attack consequences steaming off, and saving of their combat capabilities.
- Deployability and Defensibility achievement presuppose: **Well-timed Forces Attainability**, which represents forces and means combat (non-combat) readiness in defined time and area, **Deployability and Mobility**, which means force elements deployment capabilities and their capability of translocation to acquire advantageous combat conditions.

Logistic Defensibility, which means capability of combat power saving until the tasks are done.

3 NEC capability framework of the Czech Republic Artillery

The Czech Artillery units can realize specific tasks of fire support which can help to fulfill Czech military forces commission in the multinational operations in new, turbulent conditions.

In accordance with presupposed Artillery functionality and future development can be assumed that Artillery will act lethally at enemy troops and non-lethally at its information and communication systems, sensors, and awareness.

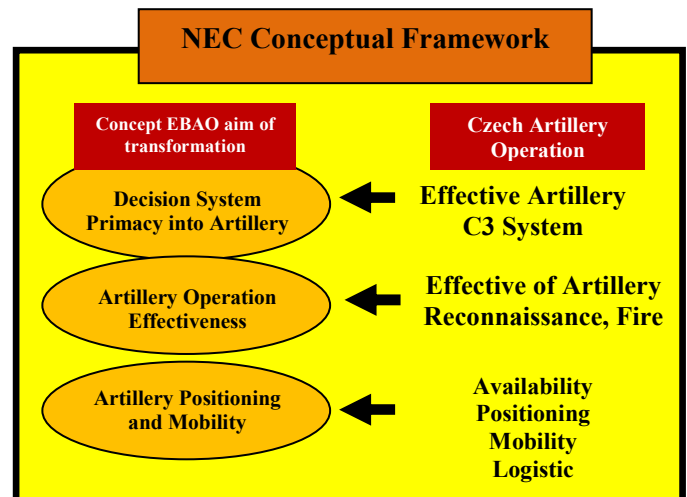
Artillery can also contribute to joint planning process and perspective operations commanding in NEC conditions through its specific integrated sensor systems.

NEC conceptual framework of excluded Czech Republic Artillery capabilities can be determined in the following way:

- **Decision Ascendancy Achievement** presuppose
 - *Effective Artillery Command, Control, and Communication System*, which ensure all functions of command, control and communication of the Czech Artillery reconnaissance system and the executive elements. This system must be able to fulfill complex fire support in NEC conditions.
- **Operational Effectiveness Achievement** presuppose
 - *Effective Artillery Reconnaissance (sensor) system* – recognition abilities about enemy objects, effective using of Targeting cycles system and ISTAR system for adequate reaction suggestion of friendly forces including criteria evaluation effect.
 - *Effective lethal and non-lethal artillery fire* – artillery join connection operations capabilities which means capabilities of power demonstration, fire for effect etc.
 - *Resistant artillery units* – active and passive defense equipment using.
- **Achievement of Deployment Presumption**
 - *Well-time artillery unit's attainability* – to be able to accord the fire support in the operation area.
 - *Artillery positioning and mobility* – Artillery deployments capabilities.
 - *Effective Supply* – logistics support capabilities of artillery units.

The last point (Achievement of Deployment Presumption) is not Fire Support Control System problematic and that is why it is not in detail resolution on next text.

In the Article No. 1 there is NEC conceptual framework. There are the aims for Artillery units transformation for reach of NEC capabilities.



Article 1 Key capability for Czech Artillery transformation

4 Czech Artillery Specific Capabilities Transformation to reach NEC conditions

The main aim of Artillery units is to have modular Fire Control System for effective Task Forces Fire Support. These capabilities of Artillery units will achieve after main parts Fire Control System transformation:

- *Tactic* (dispersed fire positions, non-combat operations) – Table 1,
- *Fire Systems* (effectors) – Table 2,
- *Command and Control* (Fire Support Control System develop, Network Enabled Capabilities) – Table 3,
- *Fire Theory* (long distance fire mistake, dispersed fire positions mistakes) – Table 4,
- *Artillery Reconnaissance and Fire Support Coordination* (sensors) – Table 5.

TACTIC		
Actual System	Transformation	Future System
Artillery Using		
Mainly lethal tasks	Ammunition, Range, Accuracy, Coordination	Mainly non-lethal tasks
Operation Using		
Standard combat operations	Doctrine, Material	Non-standard non-combat operations
Positioning		
Operation capabilities only in our territory	Effectors, logistic, topographic	Operation capabilities all around the world
Combat Line-up		
All time operation artillery units allocated	Fire Support Control System, Logistic	Allocated for particular operation
Combat Deploy		
Pre ready fire positions	Technical Resources, Fire Support Control System	Arbitrary fire positions
Maneuver		
Pre ready combat space	Technical Resources, Fire Support Control System	Arbitrary combat space

Table 1 Czech Artillery Specific Capabilities Transformation to reach NEC conditions - TACTIC

FIRE SYSTEMS		
Actual System	Transformation	Future System
Range		
20 km	Effectors	40 – 50 km
Transport		
Roads, Railway, Boats	Effectors	Roads, Railway, Boats, Airplanes
Ammunition		
Classical Ammunition	Effectors	Special Ammunition
Ammunition Changing		
Only Artillery Ammunition from Warsaw Coalition	Effectors	Artillery Ammunition from NATO Coalition

Table 2 Czech Artillery Specific Capabilities Transformation to reach NEC conditions – FIRE SYSTEMS

COMMAND AND CONTROL SYSTEM		
Actual System	Transformation	Future System
Connection		
Non compatible Fire Control System	Fire Control System	Compatible Fire Control System
Planning		
Formal documents and analog technologies	Fire Control System	Digital technologies and Automated Planning Process Support
Information Hang Over		
Regular combat reports	Fire Control System, Reconnaissance System	Real time information
Tactic and Technical Control Fire		
Fire is up to Soldiers Capabilities	Fire Control System, Reconnaissance System, Fire Coordination System	Automated System Suggestions for real situations
Ammunition Consumption		
Consumption Norms	Theory, Fire Control System	Ammunition Effect Simulation on Target
Time for Combat Mission		
Minutes	Fire Control System, Reconnaissance System, Fire Coordination System	Seconds

Table 3 Czech Artillery Specific Capabilities Transformation to reach NEC conditions – COMMAND AND CONTROL SYSTEM

FIRE THEORY		
Actual System	Transformation	Future System
Artillery Fire Effect		
Theoretical consumption from Consumption Table according to target dimensions	Theory	Consumption according to simulation methods

Table 4 Czech Artillery Specific Capabilities Transformation to reach NEC conditions – FIRE THEORY

ARTILLERY RECONNAISSANCE AND FIRE SUPPORT COORDINATION		
Actual System	Transformation	Future System
Targets Overview		
Targets information only from our resources	Fire Control System Reconnaissance System, Fire Coordination System	Target information from every resources in real time
Decision Details		
Information only from our resources	Fire Control System Fire Coordination System	Information from other resources
Fire Support Coordination		
Fire support is independent on the plans of superior elements	Fire Control System, Fire Coordination System	Fire support is keeping with the plans of superior elements
Effectors Choosing		
Only Artillery	Fire Control System, Fire Coordination System	Fittest Fire Systems
Target Detection Capabilities		
20 - 30 km	Fire Control System Reconnaissance System	40 km

Table 5 Czech Artillery Specific Capabilities Transformation to reach NEC conditions – ARTILLERY RECONNAISSANCE AND FIRE SUPPORT COORDINATION

5 Conclusion

With new Fire Control System will achieve highest effectiveness of Fire Support for Mechanized Task Forces with bigger accuracy, speeding of fire support, timing etc.

This article demonstrated the methods and philosophy of transformation aspects solution for complete transformation of the Czech Artillery Forces.

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