

INFORMATION SUPPORT FOR THE COMMANDERS' PLANNING AND DECISION-MAKING PROCESS AT COMMAND AND CONTROL TACTICAL LEVEL

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***Abstract:** The objective of this article is to contribute to the discussion on the future development of the planning and decision-making process information support at the command and control tactical level. Information gathering, processing, analysis and distribution are parts of information support, through which the commander gains situational awareness on the battlefield. The understanding and complex situational awareness on the battlefield form a basis for effective manoeuvring. The article describes the requirements of manoeuvre unit commanders for the information about the situation in the area of task performance. It includes the analysis of possibilities for data acquisition, methods of processing and distribution of required information from the battalion commander and staff to unit commanders. Based on the analyses' results the author devises methods of and approaches to the improvement and acceleration of the entire planning and decision-making process.*

Keywords: information support, planning and decision-making process

1. Introduction

The asymmetric method for conducting combat operations, the ever-present civilian population and non-surveyable terrain in the area of military operations during the last few decades make effective employment of large tactical formations impossible. This concept has been replaced by the accurate employment of smaller units with increased mobility, increasing range and higher accuracy of their action. The importance of lower level commanders' initiative at the tactical command and control level has been growing. The decisive factors of smaller units' success are their accurate and well-timed employment, their sufficient and complex situational awareness in the area of operations, and their mobility and sustainability in the operation, including their own protection [1]. To understand the situation completely the unit

commander must consider significant environmental factors in the area of operation. Their understanding will help the commander to illustrate the entire situation display and will facilitate use of their strengths and weaknesses and to avoid gratuitous risks in performance of tasks. These factors are the following operational variables:

Political situation - includes the distribution of power, government responsibility, structure and processes used for influencing the population by local authorities up to international organizations, the understanding of what motivates key groups to help the commander to achieve goals or the final state of an operation.

Military situation – describes the effect of armed forces in the area of operation on friendly units' performance of tasks and the relationship of these forces to the other situational factors.

Economic situation – includes the behaviour of individuals as well as groups, with respect to production, distribution and consumption of resources (e.g. industry, trade development, finances, restrictions).

Social situation – describes partnerships in the operational environment and their social structure which includes institutions, organizations, links and similar groups.

Information environment – includes the complex of individuals, groups and systems which collect, process and disseminate information and act based on it.

Infrastructure – includes the character of infrastructure, clarifies basic equipment and services necessary for the functioning of society.

The environment – describes residences and built-up areas, climate and weather, topography, hydrology, natural resources, biological features and risks and other conditions.

Temporal aspect – includes the analysis of methods for achieving a goal by the enemy (strategy of exhaustion, strategy of mass campaigns to achieve a goal in a short time). [2]

Commanders obtain the information about operational variables in the phase of preparation for the performance of tasks in the operational area in the form of lectures, videos or publications. They study cultural and communication customs in the course of preparatory practical and complex exercises.

2. Battlefield Visualization

In the course of preparation and planning for the performance of tasks every unit commander must also visualize situational factors which may affect the performance of tasks directly in a concrete restricted area and understand their cohesion.

These are as follows:

- **Task:**
 - Of his unit and his superior to clarify his role in the operation;
 - Restrictions for the independent performance of a task (e.g. rules for using a weapon or for achieving control points and coordination lines).
- **Enemy:**
 - Strength, structure, position, technical data of armament and equipment, strengths and weaknesses, enemy's combat action in the past, periodic and spatial attacks and expected concept of operations.
- **Terrain and weather:**
 - Obstacles, defilades and possibilities of camouflaging, possibilities of observation and conduct of fire, key terrain and accesses to the area of operation,
 - Visibility, wind direction and wind force, temperature, rain precipitation, humidity, terrain trafficability, parameters of streams,
 - Terrain and weather effects and possibilities of their use by friendly as well as enemy forces.
- **Friendly forces and equipment:**
 - Combat potential, morale, readiness and experience, strengths and weaknesses, technical data of weapons and vehicles, reinforcement assets, support manpower and equipment;
 - Tasks of adjacent units, their deployment, structure and equipment.
- **Available time:**
 - For planning and preparation of a unit, for planning and preparation of subordinates and for preparedness check.

- **Civil environment preconditions:**
 - Demographic structure, organization, attitudes and opinions of civilian population, cultural and religious buildings and sights. [3]

The commander should have at his disposal the information from all of these areas when starting preparation and planning. He should try to keep updating the information until the mission is accomplished. The decision-making and planning process and its information support are used for classification, processing and summarizing all of these information inputs, and subsequent creation and presentation of decisions.

3. Information Support

Situational awareness and its real display help the commander to take qualified decisions when performing operational tasks. The available data applicable for creating these decisions are processed and take the form of information. The commander creates a situation display of the battlefield, based on which, and using his knowledge and experience, he takes a decision to accomplish a set goal through the information analysis. He uses communication and information support for the effective decision-making and planning process using the functions of communication and information systems. These include acquisition, collection, transfer, information processing, distribution, presentation and security of information.[4]

3.1 Information Support Process

The information support process is a cyclical and continuing activity which can be divided into information about the terrain, weather, environment, task, situation of the enemy and friendly forces and equipment in the area of operations. The result of the entire process is the provision of timely, complex and updated data and information, the logical summarization

and presentation of which help to create a complex situation display on the battlefield. The faster and more clearly the commanders, staff and subordinate commanders have the updated situation display on the battlefield at their disposal, the faster they can understand the relationships of the whole situation. On this basis it is possible to plan further activities of friendly forces or deal with crisis situations more easily and quickly.

4. Planning and Decision-Making Process

The planning and decision-making process can be described as a complex of logically arranged activities which facilitate the commander's understanding of the situation on the battlefield, anticipate the future situation on the battlefield and apply the strategy to achieve objectives. It is a cyclic and continuous activity which does not end with the adoption of a decision. Achieving success or non-success in the operation depends on commander's decisions which are affected by the information about many constantly changing factors of the situation on the battlefield. When planning a manoeuvre every commander has to acquire, process and analyze all available information from all areas of the battlefield with the aim of obtaining current and complex situational awareness in the area of task performance. When he understands all the relationships he is able to plan and conduct future activities. The result of the whole process is issuing a time- and space-synchronized operation plan or order which describes the performance of tasks by the subordinated manpower and equipment. In the course of preparation, the operation order is updated and modified continuously depending on the development of the situation on the battlefield.

4.1 Planning and Decision-Making Process of the Commander and Staff and its Information Support

The planning and decision-making process of the staff is an interconnected methodology of commander's, staff's and subordinated units' activities aimed at situation and task understanding and creating the best variant of the task accomplishment. The whole process consists of seven steps as follows: [5]

4.1.1 Step 1 – Receipt of a mission:

The whole process starts with the receipt of OPLAN (Operation Plan) or OPORD (Operation Order), FRAGO (Fragmentary Order) or WARNO (Warning Order) from the superior.

The aim of this step is to warn the participants in the planning process of the requirements for planning, to determine the time available for the preparation and planning, and to issue instructions for the method of planning. In conclusion, the staff will issue the Warning Order No.1, in which it makes subordinated commanders acquainted with the basic information about the task.

4.1.2 Step 2 – Mission analysis

This includes the analysis of the superior's plan and intents, intelligence preparation of the battlefield, determination of specific and significant tasks resulting from the superior's plan, identification of insufficient information sources, determination of restrictions, identification of critical facts and criteria of predictions, risk management, creation of primary CCIR (Commander's Critical Information Requirements) and EEFI (Essential Elements of Friendly Information), creation of the primary plan for information collection, creation of mission formulation, creation and issue of the initial commander's intent, issue of instructions for planning, creation of the criteria for evaluating activity variants and issue of preliminary combat instruction.

Intelligence Preparation of the Battlefield (IPB):

The IPB is one of the most important parts of the mission analysis. It consists of four parts as follows:

a) Defining the battlefield environment

At the beginning of the IPB the information which the commander needs to know about the area of the future operation is determined. The environment characteristics which may affect the activities of the friendly forces and the enemy are defined. These may be e.g. the terrain, weather, infrastructure, political and economic-social factors, demographic structure of the population, groupings of the enemy and his capabilities.

The following means are used for the basic analysis and description of the environment:

SOU MOP, ARCGIS, the Operation-Tactical System of the Ground Forces, GLOBAL MAPPER, TERRA STUDIO, printed maps, photographs from the area, meteorological satellites, the Staff Information Network, CIA internet sites, CENTRIX, reports from the superior.

b) Description of Battlefield Effects

In this part of the IPB the effects of the battlefield which both parties of the operation will have to take into their consideration are analyzed. The staff intelligence groups identify restrictions or advantages, based on which the activity variants of friendly units will be created. It comprises the analysis of the battlefield environment which includes the following:

- Terrain analysis

- Includes the appraisal of obstacles, covers and defilades, observation possibilities and conduct of fire, key areas and feasible accesses to the area of interest.
- SOU MOP, ARCGIS, the Operation-Tactical System of the

Ground Forces, GLOBAL MAPPER, TERRA STUDIO, printed maps and photographs from the area of operations are used for elaboration.

- **Weather analysis**

- Includes the evaluation of visibility, wind direction and wind force, precipitation, cloudiness, temperature, humidity and their effects on the terrain, personnel and equipment.
- The OBLAK meteorological station, meteorological satellites and the Staff Information Network are used for elaboration.

- **Analysis of other characteristics**

- Includes the analyses of infrastructure, demographic, economic and political situations and the effect of other battlefield characteristics on military operations.
- Personnel databases, CIA internet websites, CENTRIX, reports from the superior, ARCGIS, SOUMOP, the Operation-Tactical System of the Ground Forces, GLOBAL MAPPER, TERRA STUDIO and printed maps are used for elaboration.

c) Threat assessment

In this part the information from the superior, adjacent units or antecedent contingents concerning the organization and method of conducting combat action by the enemy's manpower and equipment are analyzed. Based on the obtained information and records on the enemy's activities in the past, the estimate of his activities in the future is created – the threat model.

Creation of the threat model includes:

- Creation of the plot of the enemy forces' doctrine activities in the environment without any restriction;
- Graphic presentation and description of expected manoeuvre of the enemy's manpower and equipment;

- Determination of high-priority goal types.

The identification of threat capabilities follows:

- Based on the knowledge of the organizational structure, tactical doctrine and expected manoeuvre, the capabilities and possibilities of the enemy's manpower and equipment in the area of operations are determined.

d) Determination of threat activity variants

At the end of the IPB the results of previous parts are integrated into meaningful conclusions. The tactical standard operation procedures of the enemy and the effects of the environment where he operates are summarized. Consequently, the models of the enemy's expected activities in the operation area are created. The next output of this step is the plan of information gathering aimed at the identification of a concrete activity variant of the enemy. [6]

The output products of the task analysis are: initial commander's intent, initial Commander's Critical Information Requirements (CCIR) and Essential Elements of Friendly Information (EEFI), initial commander's instruction for planning, IPB product updating, running estimate and precondition updating, identification of IPB information gaps, updating of the operation time schedule and evaluation criteria of activity variants.

The commander determines his CCIR only for particularly important information relating to basic decisions which he assumes he will take. Through them the commander retains his situational awareness on the battlefield. The CCIR provide the commander with support for the evaluation of effects and visions of the situation, modification of the command and control structure and timely and competent decision-making.

The CCIR are constantly updated and re-evaluated to reflect the changing situation on the battlefield and the commander's intents. [7]

All staff members participate in developing the task analysis according to the areas of their competences. The outputs are developed in the form of surveys, tables, overlays, the Operation-Tactical System of the Ground Forces levels or PowerPoint presentations. At the end of the task analysis, the staff distributes the Warning Order No.2 to unit commanders using radio, data transmission or courier.

4.1.3 Step 3 – Creation of activity variants:

In this step tailor-made teams of staff members will create the activity variants of task accomplishment based on the determined task, initial commander's instructions, and task analysis outputs. Each activity variant must comply with the following criteria; should be executable, acceptable, suitable, recognizable and complete.

4.1.4 Step 4 – Analysis of activity variants:

In this step the simulation of proposed activity variants of friendly manpower and equipment with the expected reaction of the enemy will be carried out. It enables the commander and staff the identification of complications and coordination problems which may be the same for all activity variants.

4.1.5 Step 5 – Comparison of activity variants: In this step variants are evaluated independently of one another based on the determined criteria. The objective is to identify the strengths and weaknesses of activity variants and to find the one which will probably be successful in the task accomplishment.

4.1.6 Step 6 – Variant approval: Based on the comparison of results of evaluated activity variants, the most optimum variant for the accomplishment of the assigned task will be selected and

completed and the commander will modify his intent. The staff will issue Preliminary Combat Instruction No.3 for units.

4.1.7 Step 7 – Issue of operation plan:

The staff will work out a selected variant and create a brief concept of operation. Then, based on STANAG 2014, the operation order or plan is issued and sent to subordinate commanders. Thus, the subordinate commanders will obtain basic data about the situation, task, operational concept, commander's intent, method of manoeuvring, main effort, determination of tasks for units, provision of support and protection, and command and communications. [8]

4.2 Planning and decision-making process of the company commander, subordinate commanders and information support.

This is used for issuing orders of company commanders. It is formed by a set of preparatory and planning activities for the task accomplishment. It consists of eight steps: [9]

4.2.1 Step 1 – Receiving a task:

The planning is initiated by receiving the Warning Order (WARNO), Operation Order (OPORD) or Fragmentary Order (FRAGO) from the superior for performing a task. A new task may also arise due to a sudden change of the situation on the battlefield during the performance of the original task. After receiving a new task the commander will carry out the primary estimate of the situation (task, enemy, friendly unit, terrain, available time, civil environment) on the basis of a received directive or order. Consequently, he will carry out the time calculation for the preparation and planning of the task up to its accomplishment.

4.2.2 Step 2 – Issue of Warning Order:

The Warning Order is less detailed than the received WARNO or OPORD. In this case the commander makes his subordinates acquainted with the primary

estimate of the situation and time calculation. He allows his subordinates to initiate the preparation and the planning and decision-making process for the new task.

4.2.3 Step 3 – Creation of an initial plan:

After the issue of the preliminary combat instruction the commander will develop a similar, but less detailed decision-making process than the battalion commander and staff. It is a continuous process which is repeated always after receiving new information from the superior or due to discovering new facts in performance of tasks. When creating an initial operation plan of a unit the commander takes advantage of the information acquired from WARNO, OPOD or OPLAN from the superior, from available geographic materials and photographs. He obtains additional updated information from the intelligence group/superior's department. This includes the task analysis, creation, analysis and comparison of activity variants and the selection of an activity variant.

Task analysis includes the analysis of the unit task, enemy, terrain and weather, friendly unit, available time and civil preconditions.

Unit task analysis

Based on the superior's plan or order, the commander makes clear the share of his unit in the task performance.

The unit task analysis includes the following:

- The superior's task and intent;
- The superior's concept of operation;
- Specific and significant tasks;
- Restrictions.

Analysis of the enemy

This part of the analysis contains the organizational structure, deployment, strength and capabilities, recent operations, reinforcement capabilities and the expected activity variant of the enemy forces depending on actual

situation.

In the **terrain and weather analysis** the following items are assessed:

- Obstacles for performing manoeuvre, movement, using weapons, equipment and personnel;
- Defilades and covers for camouflaging the movement of friendly as well as enemy forces;
- Possibilities for observation and conduct of fire of friendly as well as enemy weapons;
- Key terrain (area), the occupation of which will affect the task accomplishment;
- Accesses to the key terrain of objective area;
- Weather effects on the activity of personnel, equipment and weapons: visibility, wind, precipitation, cloudiness, temperature and humidity.

Analysis of a friendly unit and reinforcement assets includes:

- Combat potential, morale, unit readiness, experience, strengths and weaknesses of subordinate commanders;
- Determination of available sources;
- Direct support units, their strength, equipment and condition of weapons.

Analysis of available time includes:

- Clarification of how much available time is at disposal for the preparation, movement, conduct of combat operations and sustainability in the operation area;
- Assessment of events which may occur and how they will affect the time schedule.

Analysis of civil preconditions:

- Includes the area, infrastructure, capabilities, organization, people and their leaders, events;
- Is carried out based on the information of the superior, his knowledge and estimates.

Creation of unit activity variants

The results of task analysis will provide the commander with general situational awareness in the area of task performance, on the basis of which he will create activity variants for the task accomplishment. Within this step the commander will carry out the analysis of combat power of friendly as well as enemy forces. Its reason is to determine whether the unit has enough combat power to defeat the enemy. Consequently, unit commanders will propose, in the form of brainstorming, variants for the task accomplishment. For each activity variant they will develop a tactical plot in the map and a written description of manoeuvre. Using the war-gaming method the commander will simulate planned actions of friendly forces, expected reactions of the enemy and possible counteractions. Consequently, the commander will compare each variant with the enemy's most probable activity variant and evaluate its strengths and weaknesses, advantages and disadvantages. Based on this evaluation and his own judgement, he will select which activity variant will be carried out.

4.2.4 Step 4 – Initial unit movement:

After the initial creation of the operation plan the commander and his unit will carry out the required movement which is necessary for the preparation and occupation of the starting position for the task performance. This may include the movement to the area of task performance, the occupation of the line of attack departure, the occupation of a defence position and the employment of reconnaissance elements.

4.2.5 Step 5 - Reconnoitring:

If the conditions allow, the commander will reconnoitre the operation area through his own or his subordinates' observation. The current information so acquired will complete his entire situational awareness in the area which

he obtains from the products of the intelligence preparation of the battlefield. He will gain the additional information he needs to know for the task accomplishment through the task analysis and during war-gaming. He will also pass his requirements for information to his superior who will include them in his reconnaissance plan.

4.2.6 Step 6 – Plan completion:

In this step the commander will include the results of his own reconnaissance in the selected activity variant and will complete the whole operation plan. If time allows, he will coordinate activities with adjacent units.

4.2.7 Step 7 – Issue of operation order:

Commanders of smaller units issue the operation order orally and use graphics or other checking means. An ideal point for issuing an operation order is in the operation area with a view of task target and other terrain aspects. For security reasons or due to other restrictions it is also possible to issue the operation order using a terrain model, detailed scheme, map or other aids describing the operation area and situation.

4.2.8 Step 8 – Plan control and improvement:

In the end of the planning process the commanders supervise, check and evaluate the unit preparation, improve the operation plan, coordinate the activities with adjacent units and check unit members and equipment. Drill of activities is also a part of the preparation for task performance. It identifies the areas which require more control and rehearsal. It is carried out through inquiry and testing the unit manoeuvre.

5. Common operational picture of the situation on the battlefield

The basis for creating the plan and commander's decision is his complex situational awareness in the operation area. For its creation he uses the whole process of information support. It may be

in the form of the tactical situation plot on a printed map or its display on the map photograph in a portable computer. The commander obtains the information for its creation in the form of reports, directives, orders or data from his superior or through his own observation and reconnaissance.

The basis is formed by the outputs from the task analysis - battlefield visualization.

The situation display in the operation area includes the following:

- Boundaries or zones of task performance in the operation area;
- Character of the terrain, weather forecast and their effects on the activities of friendly and enemy forces;
- Enemy situation, deployment of his manpower and equipment and expected concept of operations;
- Friendly forces situation:
 - Tasks, condition and current deployment of friendly unit's manpower and equipment;
 - Tasks, condition and current deployment of adjacent units' manpower and equipment;
 - Tasks, condition and deployment of manpower and equipment of combat and logistic support;
- Situation of civil preconditions:
 - Location of people's residences, their situation plans and facilities;
 - Nationality composition of the population, their organization, leaders, events infrastructure, cultural buildings and sights.

Every commander, combat means or individual must have access to newly acquired information from the superior as well as adjacent units and share it. In the same way they also must share the data about their location, weapon and ammunition stocks and combat readiness for which the BLUE FORCE TRACKER system is used. All commanders will acquire a unified view

of the deployment and stocks of friendly manpower and equipment on the battlefield through the mutual automated information flow concerning friendly manpower and equipment. Due to that they can cooperate and coordinate their activities more effectively and restrict the losses caused by the activities of friendly manpower and equipment.

The key element of the commander's planning and decision-making process is information exchange and interoperability of the entire command and control system. The data service is a means for supporting necessary information flow. It must enable effective time and space interconnection of data resulting from reconnaissance, observation, target acquisition and intelligence activities and provide flexible and effective information transfer to all command and control elements. [10]

6. Conclusion

The collection of input data is carried out using many different sources. Their analysis and processing into the form of information is performed by the analysts who derive their conclusions and estimates based on their knowledge and experience. The commander distributes the processed and summarized information to his subordinates based on their tasks, operation area, possibilities and capabilities. The unit commander includes these facts in his decision-making process. In case of a changed and updated situation in the operation area he will modify his unit manoeuvre. Thus people are irreplaceable in providing information support in the decision-making process. The total time between the receipt of a task and its execution may be extended depending on the quantity, character and complexity of input data and information from different sources.

Many analytical operations and estimates can be converted into program algorithms using up-to-date computer technology and programming. After entering the input data, task and criteria, set e.g. based on possibilities and capabilities of a certain unit, the computer program will generate the variants of task accomplishment automatically. At the end of the whole process the commander will select only the activity variant which is the most

acceptable for him. The total time for performing the planning and decision-making process is reduced considerably, which can be used especially in coping with crisis situations. Through the use of the algorithms set appropriately, the errors caused by the human factor, as well as personnel requirements for developing the decision, are also minimized.

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