

## UNDERSTANDING THE SITUATION – OPERATIONAL VARIABLES AND THE DIRECT AND POTENTIAL INFLUENCES BETWEEN THEM

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Conflicts between different state or non-state actors that pursue their own interests are a constant of the geopolitical regional and global environment. In this context, the military instrument of national power is more relevant than ever. The common denominator of coherent development and effective application of this instrument is the understanding of the operational environment and of the complex dynamic and volatile situations of the areas of interest. The operational variables represent a conceptual tool used to achieve it. Understanding the connections between these variables – direct or potential – facilitates the application of the military instrument of power in creative and effective ways.

**Keywords:** situation understanding; PMESII; operational variables; operational environment.

Recent history reveals that state and non-state actors will find themselves in conflict. These conflicts are and will remain a constant feature of the regional and global geopolitical environment. The competition to acquire resources that seem to be insufficient in the context of unprecedented

criteria. According to this Institute, conflicts are classified by the level of violence (violent and non-violent), and by their intensity (low, medium and high). The level of violence is determined based on a methodology that studies the means of generating violence (what types of weapons and personnel

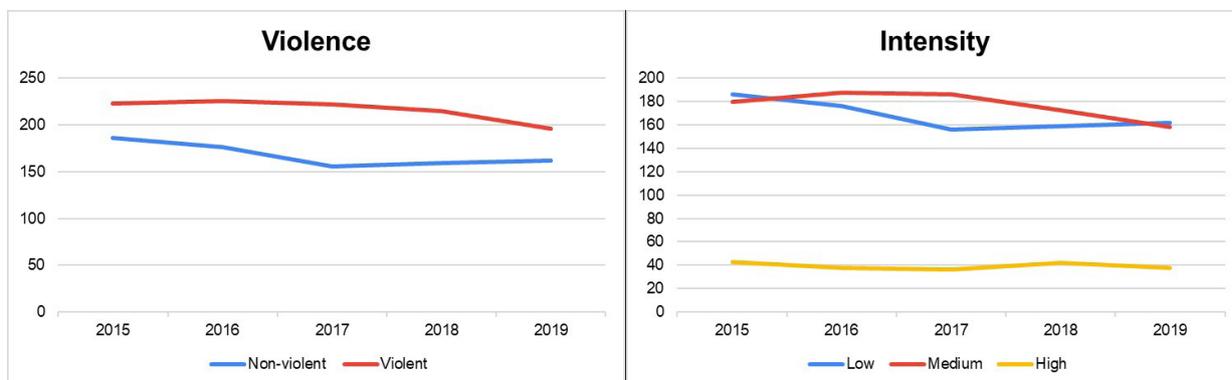


Figure 1 Number of global conflicts between 2015 and 2019<sup>2</sup>

technical and technological evolution, the growing desire for affirmation of dominance as well as the extraordinarily fast-paced society of today determines the emergence of frictions between different social groups.

The Heidelberg Institute for International Conflict Research conducts a quantitative study of conflict and classifies them according to different

are used) and the consequences of this violence (victims, refugees, destruction)<sup>1</sup>. In this context, the Institute publishes annual bulletins on political conflicts, with data about their number and area of emergence. The data published by the Institute for the last five years reveals a constant number of medium and high intensity conflicts.

This is true for violent conflicts as well as for the total number of conflicts, according to the data shown in Figure 1.

Data in Figure 1 shows that the military instrument of national power is and will remain more relevant than ever in promoting national

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interests. Regardless of whether these interests are directly threatened by actors with divergent interests or indirectly by the creation of instability generating crises, the capability of this instrument to effectively act is critical to achieving desired results.

### **Situation Understanding – prerequisite for operational success**

The capability of the military instrument to answer requirements from the political decision makers is determined by the armed forces combat power. Combat power is a concept that describes the operational effectiveness of the armed forces or any of their components<sup>3</sup>.

This concept represents the result of the armed forces capability to understand the operating environment and their determination, as well as capability to act decisively. According to NATO doctrine, combat power has three components: the conceptual component, the moral component and the physical component. None is more important than the others; they overlap and support each other<sup>4</sup>.

The conceptual component of combat power is based on the way doctrine is developed and applied. Developing and applying doctrine (fundamental principles that guide the armed forces actions to achieving their objectives) are intellectual processes. These influence the moral and physical components of combat power. The moral component of combat power refers to the human nature of military entities. The human resource morale is a determining factor and ensures the continuity of the physical and doctrinal components in the dire conditions of conflict. The physical component ensures the means necessary for operations to be conducted. It is made of the personnel, the equipment, the training and the resources adequate for the operating environment and the set objectives.

By analyzing these components of combat power, it can be determined that the understanding of the operating environment shapes each component individually, influencing combat power as a whole. If doctrine is developed without taking into account the particularities and challenges of the operating environment, it will not be able to provide the proper conceptual framework for operation success. Developing some capabilities,

inside the physical component, that are not adequate to the requirements of the operating environment will result in major difficulties in planning and commanding operations. Difficulties in adapting the physical component and the lack of a proper doctrinal framework will eventually lead to a degradation in personnel morale and trust in leadership. All these components of combat power are dependent on the understanding of the operating environment and of the complex, dynamic and volatile situations.

Understanding the operating environment does not only influence the armed forces combat power and its components, as a general parameter that defines the efficacy of the military instrument of a state, at a given time. Understanding the operating environment by the armed forces of a state, developing a coherent doctrinal framework that is adapted to the environment, generating adequate capabilities and a good morale of the human resource do not guarantee the success of any size taskforce tailored to carry on a mandate of an international organization or a national policy makers. The operations process is significantly influenced by the planning component that determines the subsequent stages, of preparing and conducting the operation.

The first step in the systematic process of operational conceptual planning is determining an operational approach. This step has to include: understanding the current situation, understanding the desired end state, formulating the problem, developing an operational approach and developing a plan<sup>5</sup>. Therefore, understanding the situation – defined as a sum of conditions, circumstances and influences – in a certain area of interest is the origin of any conceptual planning process. Erroneous understanding will render the entire planning process invalid.

### **Contemporary operating environment – a multidimensional space**

Situation understanding is critical in achieving success both in regard to the process of consolidation of the armed forces combat power and in regard to operations of any size task force. The first step in understanding the situation is identifying the components and characteristics of the operating environment. This consists of several multidimensional components.

The operating environment can be seen as a multidimensional area in which different actors carry out operations. This environment consists of a multidimensional physical component, a multidimensional informational component and the electromagnetic spectrum component<sup>6</sup>.

The physical one is the most obvious and the most familiar of the operating environment components. This includes the area of operations, the associated area of influence, but also the area of interest, all considered in the light of the relevant dimensions for conducting operations – land, maritime, aerial and space. The importance of understanding the aspects of this component is absolutely necessary, but not sufficient, especially in the context of a complex nature of operations carried out by armed forces in recent times.

The information component of the operating environment is represented by the entities that collect, store, process and disseminate information. This component consists of three closely related dimensions: the physical dimension, the cognitive dimension, and the informational dimension. The physical dimension is the tangible, concrete part of the information component of the operating environment. This dimension offers a perspective on the natural or man-made characteristics of the environment, and on the manner in which they restrict or constrain the population and the information systems. The physical aspects determine the way in which information is exchanged in the operating environment. The way in which information is exchanged is the subject of the informational dimension. Rhythmicity, platforms, and channels that characterize the flow of information are important subjects of the informational dimension. Cyberspace is paramount to understanding the aspects that determine and characterize the way information is moved. Cyberspace overlaps the physical and informational dimensions. The information component would not be useful without its cognitive dimension. It refers to the effects that information has on the behaviors of the actors in the operating environment. The perspective it offers makes it possible to understand present actions of relevant actors, but also to anticipate their potential reactions.

The operating environment would not be complete without the electromagnetic spectrum component. In this component, the most relevant

parts are frequency bands and frequencies associated with the wide variety of systems used by military and non-military actors – radio, radar, laser, electrono-optical, infrared, non-lethal systems that use electromagnetic energy<sup>7</sup>.

As it results from the multidimensional components of the operating environment, there are various actors that are present and interact. These actors adapt their interactions based on their own objectives and perception of the environment. In order to facilitate the understanding of the situation, the operations process uses a systemic approach. This approach is based on the understanding of the interdependencies between systems that are relevant to planning, preparing and conducting operations<sup>8</sup>.

In this effort to understand the situation in a certain area of interest, each of the relevant systems that can influence operations can be characterized by its state and by its relationships with the other systems. The state of the system is an evaluation of its capability to perform its functions. The relationships that characterize the system represent the manner in which it interacts with the other systems of a specific environment, in order to perform its functions. All these systems characterized by states and relationships determine a high complexity of the operating environment. The interactions between the systems, the way in which they adapt to various changes in the environment based on the perception they have on it, determine the dynamic and adaptive characteristic of the operating environment.

#### **Operational variables and the influences between them – determinant factors of operational effectiveness and efficiency**

In order to solve the difficult task of understanding the operating environment, commanders and staff use a set of variables or domains of the operating environment. These variables allow a systemic analysis of the situation and ensure that the staff activity is focused and consistent, regardless of the area of interest or operation type. The NATO armed forces all have similar approaches regarding these variables and they commonly use a set of six such domains of interest – political, military, economic, social, infrastructure, and informational.

The operational variables are used to group relevant systems by category. Conceptually, they

can be viewed as six plans that cross the operating environment and result in six collections of systems, as presented in Figure 2. The operational variables include different systems, such as:

- **Infrastructure (I):** facilities, services and systems that ensure basic services (lines of communication, schools, hospitals, electrical networks, water systems, sewage, irrigation). Lack

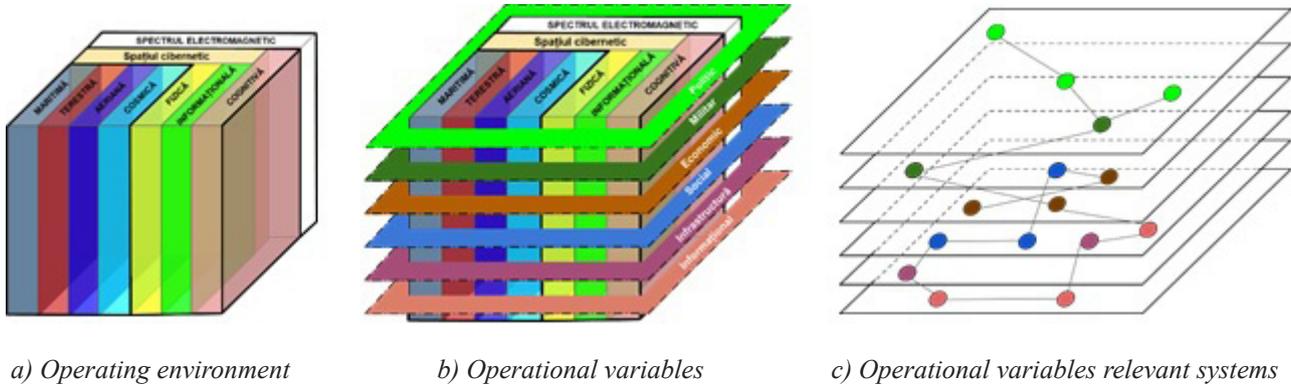


Figure 2 Concept of situation understanding

- **Political (P):** mainly civilian entities, formally or informally appointed, that represent the authority in different areas or environments, by applying various forms of power or political influence. Operating environment may encompass a broad range of political regimes – emergent democracies, totalitarian, and authoritarian regimes. Systems within this variable may be represented by political parties, elected representatives, tribes, ethnic groups;

- **Military (M):** military, security or paramilitary capabilities and the infrastructure used in order to attain specific objectives. Systems within this variable may encompass armed forces, security forces, local militias, paramilitary forces;

- **Economic (E):** entities and infrastructure build for production, distribution and sale of goods and services, income distribution, import-export, corruption. Low living standards may be the root cause of tension and friction within the area of operations. A proper understanding of the systems within this variable will enable the attainment of military objectives;

- **Social (S):** institutions or groups that ensure the people in a certain area are able to manifest themselves and allow them to fulfill their expectations and objectives. Systems within this variable include religion, society, judicial system. Social fragmentation of the area of operations may enable totally different effects of similar actions, so it is necessary to adapt the actions in accordance with the specifics of this variable;

or shortage of essential services may trigger tension and instability within the area of operations. Also, it affects the population perception of friendly forces or legitimate authorities;

- **Information (I):** infrastructure, entities and components that collect, process, store, transmit and disseminate information. Systems within this variable consist in television, radio, mobile networks. Those systems are the primary force in influencing the local, regional and even global public opinion<sup>9</sup>.

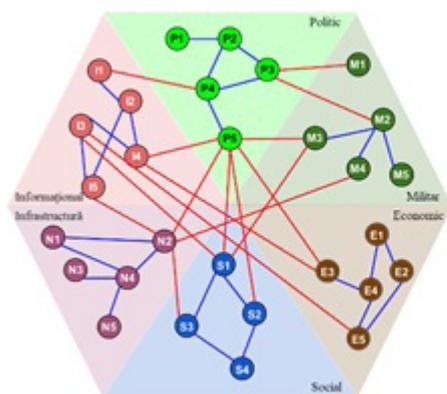
The systems that function in the multiple components and dimensions of the operating environment can be grouped through these operational variables. The relationships among these systems can appear and manifest themselves both between systems of the same variable, and between systems in different variables. As an example, we consider that 29 relevant systems have been identified in the PMESII variables. These systems are characterized by the relationships among them, shown in Figure 3-a (relevant systems of the Infrastructure variable have been noted N, to avoid confusion with systems of the Information variable, which was noted I). Relationships between systems result in influence between them. These influences manifest themselves inside the same operating environment variable, but also between variables. Identifying influences between variables is of special interest for the operations process, because these influences the nature of the operational approach, the operations and the capabilities needed to achieve desired effects, as well as developing branches and sequels.

A system's state or behavior can be modified by exerting an action on that system or on the systems it relates to. Most times, perception of direct actions is correct and immediate, which leads to a timely reaction in an operational perspective. Target systems adapt rapidly, and the desired effects may be achieved in a longer time or by using more resources. In order to make the operations process more efficient, considering the growing limitations in use of the armed forces, it is necessary to use the influences between operational variables. These influences can be direct or potential.

Direct influences are represented by the way in which relationships among systems of PMESII variables manifest themselves when a system is being subjected to an action. For the relevant systems presented in Figure 3-a, we can observe direct relationships between the P variable and the other variables (MESII), through system P5, which is related to systems M3, E3, S1, S2, N2, I4, through system P3, which is related to system M1, and also through system P4, which is related to system I1. By correctly identifying the nature and parameters of the relationships between these systems, we can determine the conditions and circumstances that enable the manifestation of influences between variables. Therefore, if we exert an adequate action on system P5 in variable P, the result will be a behavior or even state modification in systems M3 and I4, without a direct action on these two systems. In conclusion, by exerting a directed controlled influence on the systems of an operational variable, we can get effects in the other variables. So, by setting the conditions for democratic elections, that will legitimately reflect the local people support

for political party P5, local security forces M3 and local state television I4 will be influenced, and these two systems will contribute to provide stability in the area. This indirect approach, which leads either directly to achieving desired effects, or creates the conditions needed to conduct a direct action of a lower intensity is usually, a more effective option. The correct perception of the action is more difficult to attain with a lower level of attribution and intensity.

Potential influences are based on having another variable between the one that is being acted upon and the one that is the intended target of the effect. By using the situation in Figure 3-a, it is apparent that we can get the desired effects on systems in Variable S by using synchronized actions on systems M4 and E5. Under proper conditions, by acting upon system M4, we may generate secondary effects on S3, by means of N2. Similarly, by acting on System E5, we may intend to change behavior in S1, by means of I3. In this context, establishing minimum security conditions in the area by training, endowing and engaging M4 security force, the potable water facility N2 may be rebuilt and reopened, providing clean water and jobs for S3 city people. Identifying potential influences between the various relevant systems is important in anticipating their reactions in different situations. Therefore, branches and sequels, as well as decision points and associated PIRs (priority information requirements) are easier to develop and identify. These potential influences facilitate the creative application of combat power and the fast use of opportunities raised in the operating environment.



a) PMESII relevant systems

P	X					
M	3	X				
E	1	0	X			
S	2	1	0	X		
I	1	2	0	1	X	
I	2	0	2	1	1	X
	P	M	E	S	I	I

b) Direct influences

P	X					
M	2	X				
E	1	1	X			
S	2	3	3	X		
I	0	1	1	2	X	
I	3	3	1	3	1	X
	P	M	E	S	I	I

c) Potential influences

Figure 3 Direct and potential influences between operational variables



In order to transfer these influences between the operational variables from the conceptual plan into the applied one, there is need for use of certain diagrams. The diagrams are especially useful in identifying operational opportunities. Buffer systems that can be used to influence, and further desired effects to target systems can be identified by a graphic display of the quantitative and qualitative aspects that define each relationship between systems. Influences diagram is in Figure 3-b presents the manner in which direct influences between operational variables can be quantitatively depicted. Potential influences are presented in the diagram depicted in Figure 3-c.

Understanding the way in which these influences between the operating environment variables manifest themselves allows the operations process to become more effective, because it facilitates:

- The correct identification of the causes of unacceptable conditions that determine operational necessity;
- Identification of the effects that have to be achieved in order to change the system's behavior towards the end state;
- Identification of the most effective means to achieve the desired effects (actions, forces, and resources);
- Anticipation of the way in which the systems will react to the various changes they perceive in the environment.

Regardless of the area of interest, operation type or available forces and means, understanding the situation has been and will be a paramount factor of success. The ability to visualize the operating environment as a sum of its variables, to identify and assess as correctly as possible the influences between these variables facilitate the application of the entire combat power of armed forces or task forces they generate. The operational approaches that are laying the foundation of operations process need to address both effectiveness and efficiency. Creating synergetic effects and reducing operational costs should be a concern within contemporary operating environment. The ideal proportion of direct and indirect actions, of using lethal and non-lethal means as well as the ability to act under the radar of the adverse systems may very well be the factors that make the difference in the contemporary operating environment.

Operational creativity, timely and adequate use of opportunities are indicators of a modern military leadership, one that does not reject the ambiguity of the contemporary environment but embraces it and turns it into an advantage. No matter how the military evolves, what influence technology has and how fast information is, understanding the situation will be a necessary condition to achieve the desired end state.

#### NOTES:

- 1 <https://hiik.de/hiik/methodology/?lang=en>, accessed on 05.01.2020.
- 2 Obtained by using materials available at <https://hiik.de/conflict-barometer/bisherige-ausgaben/?lang=en>, accessed on 05.01.2020.
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