COMMAND AND CONTROL STRATEGIES IN A BROADER HIBRYD COMBAT ENVIRONMENT

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The main goal of this paper is to analyze the new theoretical concepts that provide a vision regarding the future armed conflicts, determined by the technological advance and the increased dynamics of the information flows between different levels of authority within modern societies. The paper starts with an analysis of today's international environment (characterized by the existence of competing cultural contexts and political opinions which generate frictions, crisis and eventually military conflict), followed by a comprehensive plea regarding the necessity of changing the current military operating concepts. Finally there are presented two solutions that address the desired conceptual change, which fit the uncertainty of future conflicts: the "Army Operating Concept" developed by the US Army Training and Doctrine Command, and "Future Operating Environment 2035", developed by the UK Concepts and Doctrine Centre's (DCDC).

Keywords: *future armed conflicts, hybrid warfare, military operating concepts.*

1. INTRODUCTION

The main goal of this paper is to analyze the new theoretical concepts that provide a vision regarding the future armed conflicts, determined by the technological advance and the increased dynamics of the information flows between different levels of authority within modern societies.

The classical war concepts may not apply at all (or apply partially) to the new PMESII (Political, Military, Economic, Social, Information, and Infrastructure) environments. The latest crises reveal the existence of a complex mix of peacekeeping, stability, and war fighting operations, which require a different approach in applying command and control strategies.

It's a widely known fact that military actions tends to produce unpredictable behavior and often chaotic consequences that disregard orderly, efficient, and precise control. The approach to command and control concepts must find a way to manage this often chaotic inherent complexity.

The command and control system has three basic elements:

- *People* - they gather information, communicate, and cooperate one another, make decisions, take action for the fulfillment of a common goal;
- *Information* - the representation of reality used to provide control or structure to decisions and actions; it serves two purposes: create situational awareness as prerequisite for a decision and direct actions in the execution of the decision and
- *Support structure* - aids the people who create, disseminate, and use information; consist of *"... facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned forces pursuant to the missions assigned"* [1].

Despite of the accelerated technological developments, the human component will continue to remain a dominant one, because all conflicts are a result of competing political opinions, different cultural contexts and disagreements generated by the competition for resources or redistribution of power.

In these conditions, the military commanders at a strategic level have less control upon the complex phenomenon which is war, in comparison with common computer operators. The act of command and control should be view as a complex system characterized by reciprocal action and feedback, which implies that effective

command and control must be responsive to changes of the situation, rather than being only focused on achieving internal efficiency. Unlike peace times, in war/crisis situations the military organization is never in a state of stable equilibrium, but in a continuous process of adaptation to the surroundings (the enemy) [2].

2. THE DESCRIPTION OF THE CURRENT ENVIRONMENT

Today international environment is characterized by the existence of competing cultural contexts and political opinions which generate frictions, crisis and eventually military conflicts. Even the technology progressed in an unprecedented rate, war remains human in nature, triggered by the clash of wills upon the redistribution of power and/or competition for resources.

Aside from the "traditional" view upon war, with sides well defined fighting with known weapons and following precise rules of engagement, lately we witness emerging trends which comprise new and more robust challenges, such as [3]:

- increasing importance of cyberspace and space domains;
- proliferation of weapons of mass destruction;
- operations among populations in dense urban terrain;
- ease of technology transfer to state and non-state actors and
- transparent nature of military operations due to ubiquitous media.

All those trends brought together create a more inclusive, complex and broader environment. The term "*complex*" could be defined as an environment that is not only unknown, but unknowable and constantly changing. The hybrid nature of the environment impacts the nature of the war, which turns during the latest decades in a complex mix of peacekeeping, stability, and warfighting operations, referred as "Hybrid War" or "4 Block War" [4]. The military commanders cannot accurately predict anymore *who*, *where* and *what coalition* forces they will fight against.

Due to advances in technology we are observing an increased lethality at tactical level in close combat actions, improved long-range capabilities concerted with ongoing effort to develop anti-access and area denial capabilities, and the emergence of cyber and electromagnetic threats. Increasingly states and non-state actors are learning and mimic successful tactics, procedures and techniques, in order to apply hybrid strategies that match to some extent forces which rely on „classical" military power means.

Even though progress in technology will continue to influence the character of warfare, the effect of new technologies is often not as great as expected. The already obsolete concept of "*Revolution in military affairs (RMA)*" was based on the assumption that technological means would enable precise military operations, deliver rapid advantage and consist the key to victory in future wars. The RMA concept also triggers changes in military strategy and tactics driven by advances in information technology.

The relatively recent actions in Afghanistan, Iraq and Syria have proven that planning of military actions based on linear projections was simply non effective, because it did not anticipate enemy adaptations, the usage of noncombatants as shields in the irregular urban warfare and the evolution of those conflicts in directions that were difficult to anticipate in the beginning.

The opponents, either nation states or non-state actors (such as transnational terrorists, insurgents, and criminal organizations) tend to employ both traditional, unconventional and hybrid strategies. In order to acquire success they will *avoid* strengths, *disrupt* advantages in communications, long-range precision fires, and surveillance and *emulate* military capabilities through military technologies transfer. Consequently, the ability to achieve dominance in land, air, maritime, space, and cyberspace domains will become increasingly harder to be obtained. We are also observing a growth of the "insider threat" (propaganda and disinformation to affect public perception).

3. THE NEED FOR CHANGE FROM A CONCEPTUAL POINT OF VIEW

One of the most important responsibilities of the theoreticians ("professional thinkers") within the military science domain is to clearly foresee the way future armed conflicts will unfold. This vision of the future should ensure that military forces are properly shaped and adequately directed to achieve success in any potential challenging security environment.

The resulting military operating concepts should address challenges generated by a change in the national or international environment, by updated national security guidance, or by the need to address a known breach in existing capabilities.

The new military operating concepts should strive to provide answers for three major uncertain subjects:

- What level of conflict is the concept going to address: strategic, operational, or tactical
- What is the environment we think military forces will operate in, and
- What is the problem we are trying to solve.

Confronted with one or more of the challenges named before, the military organization must adjust or change the ways it conducts battles and acquire new innovation based capabilities. It is useful for the sake of reasoning to enumerate the four factors that facilitate the process of military change [5]:

- *Leaders within military organizations* – influences external to military frequently have an uncertain impact (e.g. political leaders' interpretations of the international environment; decisions related with military budget and conscription); consequently the role of military leaders is crucial in developing specific programs and policies that cope with possible constrains;
- *Training practices, personnel policies, organizations, equipment, and leader development programs* – the change of doctrine must be implemented through a comprehensive set of reform measures;
- *Authority over the development of the entire organization* – broad authority is required for an extensive and successful change;
- *Stability in an organization's mission and resources* – given by the fact that the process of developing and implementing peacetime military changes can take several decades.

The Command and Control concepts and strategies evolve through time, being adapted to the historical conditions. The example of the US "AirLand Battle" concept (published in 1981) is relevant for the argumentation. Its specific purpose was to ensure that in a situation which encompass a known enemy (Soviet Union), a known location (central Europe) and known coalition forces (NATO), the blue team should "fight outnumbered and win", using specific weapons - the famous "Big 5": M1 Abrams Tank, Bradley Fighting Vehicle, Apache and Black Hawk helicopters, and Patriot missile system (figure 1).

Figure 1. The 1970s Big Five.

The "AirLand Battle" concept solved the problem in a logical manner: the weapons systems were designed to deliver superior firepower, service as many targets as possible in the shortest time possible and the forces were designed to be able to shoot on the move and quickly maneuver to create local superiority.

Since than, the nature of warfare was altered by political, social, economic, and

technological developments and especially in today's international environment, military organizations must adapt to remain effective. Command and Control concepts and strategies should be designed to deal specifically with the unknown. Some authors argue that the future is not only unknown, but it is unpredictable, which result in the need to employ for winning not just the military, but also economic, cultural and political means.

The creation of a new set of „Big 5" like specific weapons could also be anticipated, but the future conflicts cannot be reduced into only weapons programs. They will require the existence of specific prerequisites such as: augmented soldiers and improved team performance; the development of adaptive / innovative leaders and institutions capable to understand and operate in complex hybrid environments; establishment of complete interoperability; assemble of scalable and tailorable joint formations; leveraging concepts and technologies to maintain capability overmatch while speeding deployment and reducing logistical demand.

Those prerequisites will materialize in a new Big 5 set (figure 2):

- Optimized Soldier and Team Performance;
- Joint/Interorganization Interoperable;
- Capabilities Overmatch;
- Scalable and Tailorable Joint Combined Arms Forces;
- Adaptive Professionals and Institutions to operate in complex environments.

Figure 2. The today's and future's Big Five.

The new Big 5 is based on a network-enabled force which presents significant improvements and on a thorough planning / conducting of military operations grounded in social and cultural realities. The military operations should take in consideration larger goals, which include and ensure coordination of diplomatic, political, economic, military and strategic communications efforts.

There are authors which claim that despite the appearance of transformational technologies, the nature of war remains the same. In this regard, the concept of „5Cs" (*congested, cluttered, contested, connected and constrained*), describing the characteristics of the future joint battlespace was first introduced by UK Ministry of Defense in 2010 [6] and amended / expanded in 2015 [7].

The amendment introduced was that the commanders should not assume that the „5Cs" will always apply together, interplay and overlap in every combat environment. The meanings of the terms applied to an operating environment are:

- *Congested* - densely populated by civilian, commercial and military activity; *uncongested* - low density due to violent conflicts or natural disasters;
- *Cluttered* - informal and disorderly environment resulting in an inability to easily distinguish individuals, items or events; *uncluttered* - planned and orderly;

- *Contested* - such an act could lead to competition, confrontation or ultimately conflict with the adversary;
- *Connected* - the resource domains (international, supranational, and global) in which common-pool resources are found (oceans, the atmosphere and outer space) will present increased connectivity;
- *Constrained* - the conduct of military operations is restrained by legal and societal norms, including the case of new technologies' usage (cyber capabilities, new weapon systems).

Finally, we must not permit assumptions about transformational technologies to cloud our thinking about the nature of war. Many promising technologies have not arrived as early as originally projected or when they arrived did not become the "silver bullet" we had planned on. Although we continue in technology development, we cannot predict when tactically relevant weapons will arrive for land forces and cannot develop our concepts that are not grounded.

4. POTENTIAL CONCEPTUAL SOLUTIONS

To answer the need for a conceptual change which fits the uncertainty of future conflicts, we will present two complementary approaches. The first one, developed by the US Army Training and Doctrine Command is the "***Army Operating Concept***", which *„provides a vision of future armed conflict based on grounded projections of the future operational environment, advances in technology, directed missions, emerging threats and adversary capabilities"*[8].

The vision of future armed conflicts takes in consideration on one hand the defense strategy, policy goals, objectives, missions, emerging operational environments, advances in technology, and in the other hand anticipated enemy, threat, and adversary capabilities.

The concept states how future Army forces will operate in order to influence the security environments prevent conflicts and "Win in a Complex World". It starts by stating the Army mission in the new operational context, given by the anticipated threats and the future operational environment, underlining the continuity and change in armed conflicts. The principles of future combat power generation (and application) at strategic, operational and tactical levels are also described, along with the core competencies and capabilities needed to achieve operational overmatch at decisive points.

The concept describes how commanders, using military art and science, will employ the capabilities described in the concept, in order to to create sustainable political outcomes while defeating enemies and adversaries who will challenge U.S. advantages in all combat domains: land, air, maritime, space, and cyberspace. The command and control measures described in the new concept are meant to enable forces to achieve operational overmatch and grasp, retain, and exploit the initiative.

Two main thesis were emphasized and redefined: the need for leaders to adapt their mindset, "*assess the situation continuously, develop innovative solutions to problems, and remain mentally and physically agile to capitalize on opportunities*" and *"think ahead in time and determine how to connect tactical and operational objectives to strategic goals"*.[9]

Also, the traditional notion of *Joint Combined Arms Operations* was expanded to include not only the integration of joint capabilities, but the broad range of efforts necessary to accomplish the mission. Also, the key mission presented here is the „expeditionary maneuver", supposed to deter, prevent or rapidly resolve a conflict, based on the presence of prepositioned forward troops. The troops will be augmented by forces capable to deploy and transition quickly into operations. The force structure combat decisions will not being taken based on warfighting functions, because this separation is artificial.

The future forces must employ a set of characteristics, such as [8]:

- *initiative* - determine the terms of operations and keeping the enemy incapable of responding;
- *situational understanding through action* - operate dispersed over wide areas and being able to integrate intelligence and operations;
- *mobility* - concentrate and disperse rapidly;
- *adaptability* - anticipate perils and opportunities; adjust operations to seize, retain, and exploit the initiative;
- *simultaneity* - engage forces to overcome the enemy both physically and psychologically; act in the physical battleground and into other spaces (such as public perception, subversion, and criminality);
- *depth* - control a territory large enough to prevent enemy forces from recovering, and
- *endurance* - sustain high tempo and lengthy operations;

The document provides the basis for identifying decisions about doctrine, organization, training, materiel, leadership and education, personnel, and facilities. It does not simply describe potential technologies with military application, but the capabilities needed to implement a solution for the critical problems of future force development.

The second theoretical endeavour is the ***"Future Operating Environment 2035"***, developed by the Concepts and Doctrine Centre's (DCDC) in 2015, which *„provide a long-term analysis of the key characteristics of the operating environment in 2035, to provide evidence-based insights that can inform future Defence capability development"* [7]. The main goals of the military capabilities will be to „protect the mainland and overseas territories [...], shape the international environment and support the UK's wider prosperity [...] and respond to events and project power to protect national interests, alone or with allies". [7]

The document introduces a new concept called „*forward defense*", justified by the increasing difficulty of preventing conflict escalation, and reducing/eliminating the threats. It is envisaged that technological development will allow more nations (and even non-state actors) to use effective anti-access and area denial capabilities, fact which will require advanced command and control strategies in order to aquire a layered innovative defense based on cyber, and precision weapons, automated systems, flexible joint logistic hubs, supported by an adaptable and industrial base.

5. CONCLUSIONS

The new command and control strategies mentioned in the previous paragraph could be a solution for the armed forces worldwide, but will require an extensive assessment, experimentation, evaluation and testing of the proposed innovative solutions and their corresponding capabilities. The learning process implied should be continuous, with a constant adaptation of the initial assumptions, due to the unknown nature of the enemy that have to be faced in the future decades.

The supportive military forces of the new theoretical concepts must present three charactersics essential to „fight and win in a complex world": adaptive leaders, resilient soldiers, and cohesive teams. The forces must integrate new technological capabilities and posess the appropriate combination of mobility, protection and lethality.

In the future, defense technologies will proliferate rapidly, and states, nonstate and hybrid actors will prefer different approaches for the conflict beside the unlikely conventional battle. In those conditions, the advantage will be given not by technology alone, but by a combination of training, teamwork, leadership and technology. The current and future fights are over the control of teritories and people's perception through information campaigns. The actions of Daesh in the Middle East and the conflict in Eastern Ukraine are two recent examples that support this assumption.

REFERENCES

[1] JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, as amended through April 2010

[2] US Marine Corps, *Command and Control Doctrinal Publication*, 1996, Chapter 1, page 46, By U. S. Marine Corps

[3] David G. PERKINS, *Army Operating Concept: Delivering the Future*, U.S. Army Training and Doctrine Command, October 2014

[4] James N. MATTIS, Frank G. HOFFMAN, *Future Warfare. The rise of hybrid wars*, US Naval institute proceedings, November 2005

[5] Nielsen, S. - *An Army Transformed: The U.S. Army's Post-Vietnam Recovery and the Dynamics of Change in Military Organizations*, Strategic Studies Institute, 2010, pp. 3.

[6] Concepts and Doctrine Centre's (DCDC), *Strategic Trends Programme: Future Character of Conflict*, UK MoD, 2010

[7] Concepts and Doctrine Centre's (DCDC), *Strategic Trends Programme: Future Operating Environment 2035*, UK MoD, 2015

[8] TRADOC Pamphlet 525-3-1, *The US Army Operating Concept for 2020-2040*, Department of the Army Headquarters, United States Army C1, Training and Doctrine Command, 31 October 2014

[9] H. R. MCMASTER, *Continuity and Change: The Army Operating Concept and Clear Thinking about Future War*, Military Review, March-April 2015