NETWORK-CENTRIC WARFARE
AND SOME PARTICULAR ASPECTS
OF LOGISTICS BASED ON NETWORKING

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Within the framework of the current revolution in military affairs, at the End of the Cold War a new concept was born: the concept of War Based on Computer Networking or NCW Network Centric-Warfare which was established as a central element of modern military operationsDetermined by theprogress recorded in the field of communication systems of all types, technology of information (HI-Tech, IT), war based on computer networking brings a change in the war paradigm and its inherent components In this respect, logistics based on computer networking represents one of the ways in which the reality of the battlefield is preserved which enhances the joint perspective upon the military forces.

Key words: *the revolution in the military affairs, war based on networking, the information era, logistics based on networking, sensor systems.*

Nowadays' environment is characterized by critical insecurity caused by terrorism, economic instability, reshaping the areas of influence. All these risks and threats create a new architecture and a new approach that could have been foreseen since Cold War. If during the Cold War period the evaluation of risks and menaces against security was relatively easy to achieve because of the predictability of the phenomena in the area, presently they generate a wide range of doubt that should be taken into consideration, as it is able to reshape the war paradigm.

A new kind of dangers and risks, with far greater implications than the classical ones, can be noticed whereas the range of threats has become more complex than in the past. All these reconfigurations have implicitly urged towards redesigning underlying concepts and modernizing the means dedicated to counter such threats, respectively adapting them to new patterns of conflict and phases of actions that will further develop.

From the perspective of military affairs, state and regional security and defense as shaped by globalization, remain the most critical both in terms of the extension of asymmetric threats, and the need of the states to preserve their own attributes. The role of military structures, as well as of international peacekeeping forces is to mitigate or stop the conflicts and crises ensuing among different actors. All the imbalances emerging in the security environment require the design of counter strategies capable to respond to the multifarious and diverse threats.

The XXI century has brought an explosion in scientific innovations and technology and hence, war phenomena are reconfigured following the trend of this progress.

In this respect, the swift pace in the field of communication systems of all types and in all the other fields of activity, including the military one, is spectacular and the performance is beyond expectations. However, the progress of information technology has created unforeseen terrorist and cyber terrorist menaces The latter, as a result of using computer networking in order to cause major prejudice, to generate fear or simply to intimidate society at large represents an asymmetric threat likely to occur through the permanent exploitation of networking vulnerabilities.

The latest developments and performance in information technology such as virtual networks or the service-oriented architecture create new opportunities within the virtual space and attract more and more users. Despite all these advantages there are also

a number of downsides like the weakening control over systems, resources and services likewise offered. Communication globalization and the boom of technologies have created classical risks in the new virtual environment, like information crime, information espionage, extension of terrorist action capacities, by using the internet network as an instrument for radicalization or training of extremist groups.

In this complex context the concept of Netcentric Warfare has arisen as a product of the high tech technologies used nowadays and mostly of information technology and it was used for the first time by the USA during the war in Afghanistan and during the Iraqi campaign in March-April 2003.

Concerning the wars in Iraq and Afghanistan, there were almost the same main actors that used "the same categories of weapons and equipment, but the wars differed totally in their development. The essential differences were determined not only by high tech and high precision weaponry massively used the conflict in 2003 but also for the integration of all components of army categories in the concept of "War Based on Computer Networking" (Network Centric Warfare) during the second campaign in Iraq." [1]

As an effect of the information era, the NCW obviously highlights a new technological boost at the decision making level of the military actions, and also implies an acceleration of the decision taking rhythms by processing the information correspondingly empowered by sensors. This evolution from platform based technology to that based on networking has been extended to the recent key developments in information technology and communications.

The NCW concept coincides with the debut of a major development of modern society. However, as with any avant-garde approach it is momentarily accessible only to entities that own advanced technologies (high-tech), information technology (IT) and the hardware and software required by these. NCW is based on pooling together the wide range of elements implicated in connecting the collectors, the effectors, and the deciding parties in order to create an operational capability. The components of this concept are represented by each individual, piece of information and network,

all of them integrating the capabilities of the aforementioned entities.

At strategic level, NCW allows for the maintenance of information supremacy and lead over the adversary "across the whole spectrum of war conduct, all along with the development and maintenance of strategic initiative, and also the achievement of political objectives with minimal loss".[2]

At operational and tactical levels, NCW allows for the conduct of operations and actions in a flexible and continuous mode, ensures systems' capacity of adaptation and ensures operational skills at the command and control level of the tactical and operational actions, at all levels, horizontally or vertically the chain of command, by taking into account the requisites of operational planning.

With a view to all of the above, a force based on computer networking and that can "conduct operations based on networking, … is an essential element that allows the conduct of operations based on computer networking".[3]

NCW changes radically the planning and development of future wars, regardless their spectrum and offers a new view on the leadership of all the components of a state participant in the war, of forces deployed in the theatre of operations and also of operationalized groups and reserve forces situated in a far distance.

The new configuration of risks and vulnerabilities to national security, the diversity of mission types in which the armed forces can be engaged, the process of transformation and adaptation of military systems triggered by the contemporary revolution in military affairs require the optimization of technology, concepts and training programs. These changes in the conduct of operations trigger, by means of necessity, changes in the means employed to secure logistic support. Consequently, they give rise to real revolutions in military logistic systems.

Military logistics must adapt to these challenges of the third millennium that are marked by the progress induced by contemporary military affairs. Hence it needs to use a series of new concepts characteristic of all the NATO member countries. For an efficient operational logistic support that is well adapted to general military

transformation, the logistic structures must work together as a real network, and be connected in multiple command-control-cooperation-interoperable type of units in the operational environment. Thus, in the context of the changes in the operational environment, the system will get high performance regarding the deployment and redeployment capacities without any stalls in the logistic flow.

The metamorphosis of operational logistics implies not only reshaping structures and modernizing technologies, but also creating a new strategy, by adapting the overall logistic phenomenon in its entirety. Such a modern vision upon the logistic component consists in fact in achieving military operational interoperability.

Changes foreseen within the military organization imply that this should become rapidly deployable, sustainable and moreover requisitely efficient. In order to achieve the aimed efficiency a change of doctrine and strategy of warfare is needed, because "the most advanced technologies, if they are not used within the framework of a military doctrine and made appropriate according to a convenient type of organization" may create a contrary effect [4].

We may admit that logistics is a determining factor or an element implied in any military action, further more as the actual global environment of security is marked by invisible threats and risks, and its speed of reaction makes the difference between the logistic system of a decrepit military system and the challenges brought up by the revolution of contemporary military affairs.

Western Military Experts appreciate that "the next world war will start with cyber attacks which, instead of attacking human beings, will destroy the computers and the communication systems." [5]

The transformation of the logistic system, as part of wide changes within army forces, defines the need to adapt it, to harmonize it to the requisites if the new types of potential confrontations.

In order to be useful, the military logistics must ensure the prompt and high-tech intervention but also projective at right time at the right place in the necessary quantity and all throughout the military operation, it must be capable to ensure the needed equipment and adequate support.

In such a perspective, military logistics will trigger technological progress and will develop a specific logistic system based on networks of sensors with better capabilities, more adaptable and flexible.

Network Enabled Logistics (NEL) represents a new operational concept based on networking and on the information, which consists in developing joint actions based on effects and that confer superiority of action to the logistic support. It is based on functional, flexible and self-synchronizing dynamic processes. This concept designs and coordinates actions which will ensure success in the field of all military operations.

The LBR concept consists in amendments of structures, endowment, of efficient and effective achievement of logistic support. The start point that represents the foundation of this concept is that "….establishment has profoundly changed because of the information, and the military field must apply changes according to the rhythm of transformation of the society. Current social changes were generated by the integrated evolution of business, economic processes and organizations, information technology and were dictated by the new standards of efficiency [6].

LBR gives the possibility to enhance rapid reaction and decision making in actions of the superior echelons and it is not conditioned by the nature of the mission, the structure of the force group, or by its geo location.

Constructing such types of logistic structures taking into account that the RBR must consist in a few principles which may prove worth the action within a network so that: using the JOINT model; NATO compatible structures; force standardization; avoiding redundant echelons; making command and action structures more operational; network structuring.

- In order to answer the RBR conditions, the new type of logistic support will need: [7]delivery of logistic support in solicited areas by implementing the relation needs-support-effect for all types of military operations;
- extension of the supply area from all possible sources;
- logistic operations integrated in a network structure which enhances

speed of command, quality of effects and adaptability;

- ensuring a logistic support for rapid development of the force and of rapid operations and decisive operations of it, including by adapted usage of military bases and maneuver of force – objective type.

Taking all this into consideration, we may add that future perspectives of logistics will imply: "chains of linear distribution, even if those will be predictive and optimized, however they will be able to activate only in traditional structures, in the command and control chain".[8]

The NCW concept appeared as a result of the progress of information technology and its implications in developing the techniques, procedures and processes of logistic support.

However, the transformations produced in the technological field, all by themselves will not be able to produce the expected effects. There emerges the need to modify the plan of the logistic system, to adapt appropriately the organizational environment at the logistic level.

We are therefore to point out that NCW is designing a new structure of forces and a new approach of the logistic support concept. If NCW represents a problem of culture and technology, the latest is creating an advantage all throughout the battle. It implies by no means a change at a cultural level in order to adopt this technology [9].

LBR and its concrete components are disposed at the operative level of war, in the General Staff structures, and also at the level of the central network and at the level of the battlefield, that is at the tactical level of war.

Step by step the new logistic structures will pass from units of army forces (categories of forces) to integrated inter categories of forces, modular, dynamic and flexible, which should include: structures for establishing a network of information sensors, command structures, control, communications, computers which belong to the central network, as action structures.

By this concept of logistic support of inter categories of forces, these logistic units will contribute to the integration of the Land force capabilities with those of the air and Navy forces so that to ensure participation opportunities in multinational joint operations developed by forces within the North Atlantic Treaty or by forces integrated into coalitions.

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