

# SUPPLY AS A BASIC LOGISTIC FUNCTION IN CONTEMPORARY MILITARY CONFLICTS

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**Abstract:** *The paper reveals contemporary challenges in front of supply systems. Supply is considered as a function of solving certain tasks. The article discusses the essence, parameters and characteristics of providers. An exemplary algorithm for deciding on the type and number of providers is published. A structural diagram of the logistic support through outsourcing is presented. The advantages of using contractors are analyzed.*

**Keywords:** *Logistics, supply system, supply chain, type and number of providers, outsourcing, contractors.*

## **1. Introduction**

The constant evolution of the challenges facing the security system, both national and international, is unconditionally a major driving force for the development of military capabilities. Modern security threats are a complex tangle of variable dangers. Increasingly important in our times, we find unfavorable phenomena and processes such as: international terrorism, local and regional conflicts, fragile or disintegrating states, cyber-threats, illicit trafficking in human beings and weapons, threats to energy supplies and their asymmetrical relations, forming an unfavorable environment for development. Additional factors with negative impacts are: continuous climate change, environmental degradation and consequent hazards, natural disasters and man-made accidents, pandemics, etc. While conventional military conflicts are more of a history, the flexible sharing of "hard" and "soft" tools (diplomacy, socio-economic and cultural attractiveness) is becoming an important factor in achieving strategic goals in modern reality.

## **2. The supply system in contemporary military conflicts**

### **2.1. Strategy and logistics**

Undoubtedly, there is a close link between the strategy of conducting the military operation ("hard" force) and its logistics, which determines the development of the logistic system as a process based on military strategic and logistic solutions. In it the logistic system depends mainly on two strategic decisions:

- Military formations readiness.
- Supposed requirements for the implementation of comprehensive logistics.

The first strategic decision determines the logistical challenges in function of the available of formations' reaction time. It is fundamental in terms of the level of material stockpile, its scheduling, its retention in readiness for military use, the deadlines for triggering pre-concluded contracts, etc. The second solution is fundamental to the requirements of the logistic system during the operation (Figure 1).

The built logistic system must ensure certain levels of autonomy, stability and mobility of the battle formations. [4].

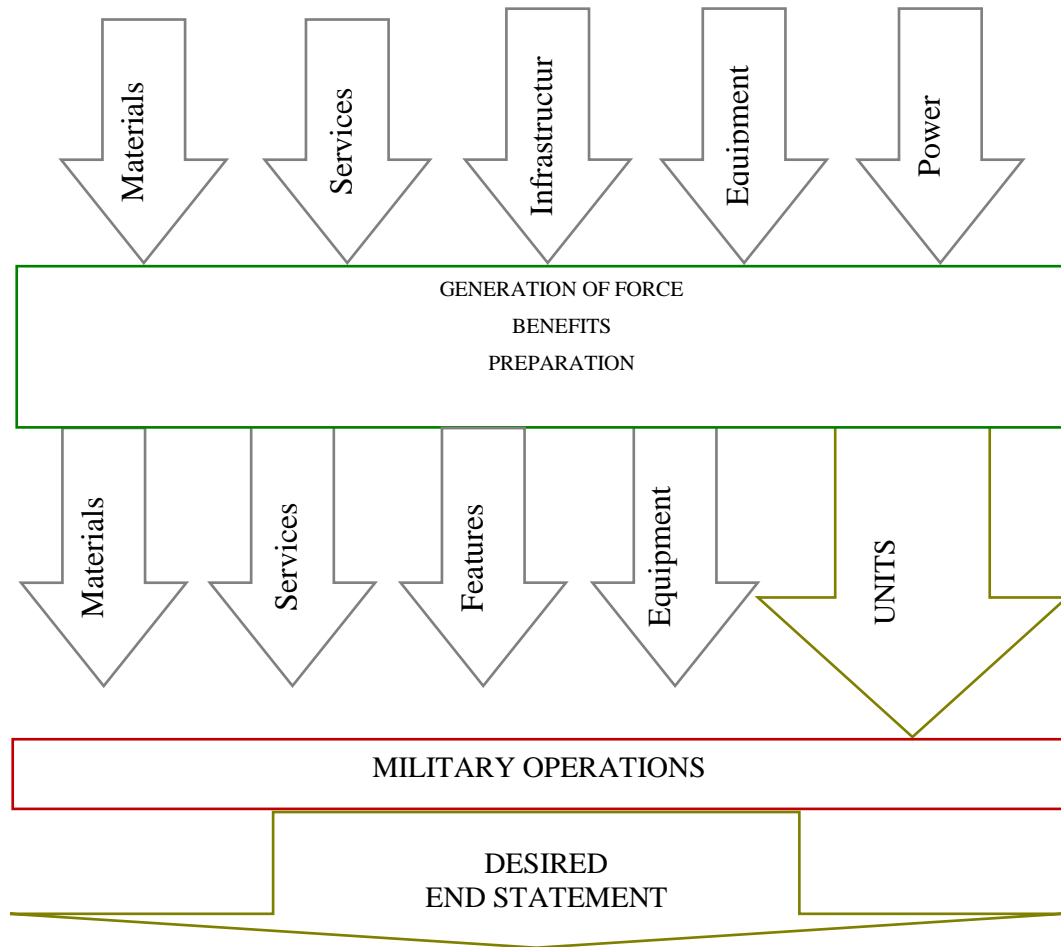


Figure № 1. Influence of logistic system on the desired end statement

A major challenge in front of logistic systems in modern military operations are supply and services. It is a basic functional logistical area which covers: organizing, conducting, coordinating and implementation of events in order to meet the needs of military materials and resources.

The procurement system is built to timely and fully meet the material needs of the formations. Its optimal construction ensures reliable information on the available resources, their qualitative and quantitative status, the available stocks and the needs for the operation.

Established supply chains are a collection of at least three elements: source of resources, supplier and user. Their continuous interaction securing the continuous movement of products, services, financial resources and information flows from and to consumers. They are considered to be internal (exist only for the needs of the military component of the operation), external (based on a comprehensive interaction between the military and civilian components) and mixed. In practice, it is virtually impossible to use any of the listed forms in pure form. The continuous interaction between them leads to the construction of a network of supply chains, which is characterized by numerous working links between physical and information flows, competences and abilities of the staff, as well as personal relationships. Their operation is based on common principles, taking into account the specific requirements of distributed material. The purely military supply chains aim to minimize distance between resources and their customers. This undoubtedly defines the requirements for reliability, flexibility and security. [6]

Supplying as a functional area of logistics in military operations is the solution of the four main tasks, which have been presented in Figure 2.

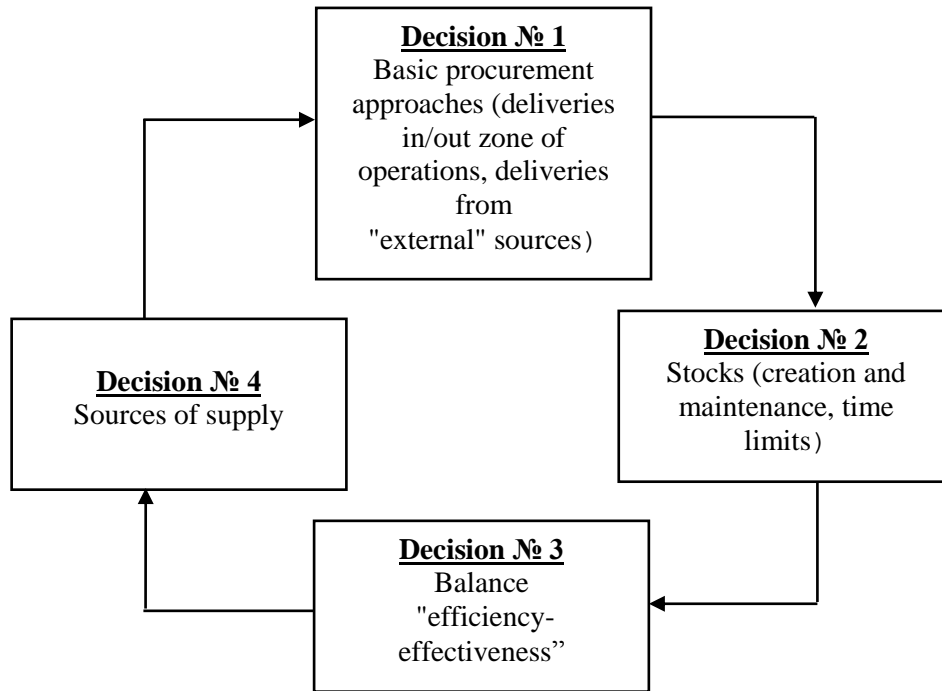


Figure № 2. Key solutions for supply

Making a decision on the deliveries, their receipt in the operation area and the use of "external" sources is justified by the likely duration of the operation and the transport capabilities of the logistic formations. Part of the total amount of materials are in the formations (battles and logistics) during their deployment. Another part is obtained in the mission area, through local suppliers or through the mechanisms of multinational logistics. The third method is delivery with a source outside the operation area. In modern military conflicts the processes of supply are mix of alternatives. The likelihood that the ratio of preferences is reciprocal is minimal. Always one of the approaches will have a leading role. Applying variance in the choice of alternatives as well as their skillful combination contributes to the high sustainability, reliability and flexibility of the supply system and increases the logistic autonomy of the formations.

The decision on stockpiling and echeloning of material means is directly related to the time of preparation of the formation and its upcoming tasks. Those with a high degree of readiness are pre-stocked with the necessary material resources. For the rest, certain postponements are acceptable. However, there is a full synchronization in the provision of material and services within the time-honored framework. There are two stock planning methodologies in NATO. The Level of Efforts methodology, based on the expected daily norms and the Target Oriented Methodology, which requires a minimum of 95% targeting and is independent of time. Applying the second method makes it possible to calculate stocks of material means decisive for the outcome of combat operations. The Sustaining Planning Module (SPM) module from the Logistics Functional Services (LOGFAS) software module is used to identify the minimal initial inventory of material resources. The same module is used to calculate the inventory needed for a long-term logistical supply of material resources.

These two solutions correlate with the operational requirements. The "efficiency-effectiveness" balance solution is actually a way of balancing the needs and budgetary frameworks that are set in the planning of the operation.

## 2.2. Types of suppliers and their role

The decision for supply sources is hampered by the large number of suppliers in the field, quality and quantity requirements, deadlines and financial parameters. It is possible to use different types (national, local and multinational) and number (one, only two, many) suppliers. Their characteristics are presented in Table 1 and the main parameters influencing their choice are presented in Table 2. Combinations of suppliers are available for use (complete or partial) of the supply chains. The choice of suppliers is a function of a high degree of uncertainty and unpredictability in the military operations and possible negative consequences in case of breach of commitments.

Table № 1

Main features of type of suppliers

<u>National supplier</u>	<u>Local supplier</u>	<u>Multinational supplier</u>
Conduct national requirements for the goods and services provided	They support peace building on their own territory	Existence of cultural and linguistic differences
Competitiveness and competition	Provide shortened delivery time intervals, but lower quality may occur	Need for interdependence, compatibility and coordination in the operation area
High degree of influence of national resources	They fulfill specific requirements	Strong dependence on information exchange technologies
Existence of compatibility, flexibility and coordination requirements with other providers in the operation area	They work in hostile environments	Lifecycle maintenance of specific national defense products

Table № 2

Basic parameters of suppliers according to their number

<b>One supplier</b>	<b>The only one supplier</b>	<b>Two supplier</b>	<b>Multiple supplier</b>
The need for high reliability and quality of supply	The only possible supplier (monopolist)	Ability to use local suppliers	Supply of tangible assets and services under established standards
Low supply chain flexibility	Implementation of high specificity deliveries	Capacity to create inventory	Performance requirements
Vulnerability of supply in the operation area	Deliver high-performance deliveries	Opportunity to choose a vendor	Alternate choice of supplier

An exemplary decision-making algorithm for planning and building the logistic system, type and number of suppliers is presented in Figure 3.

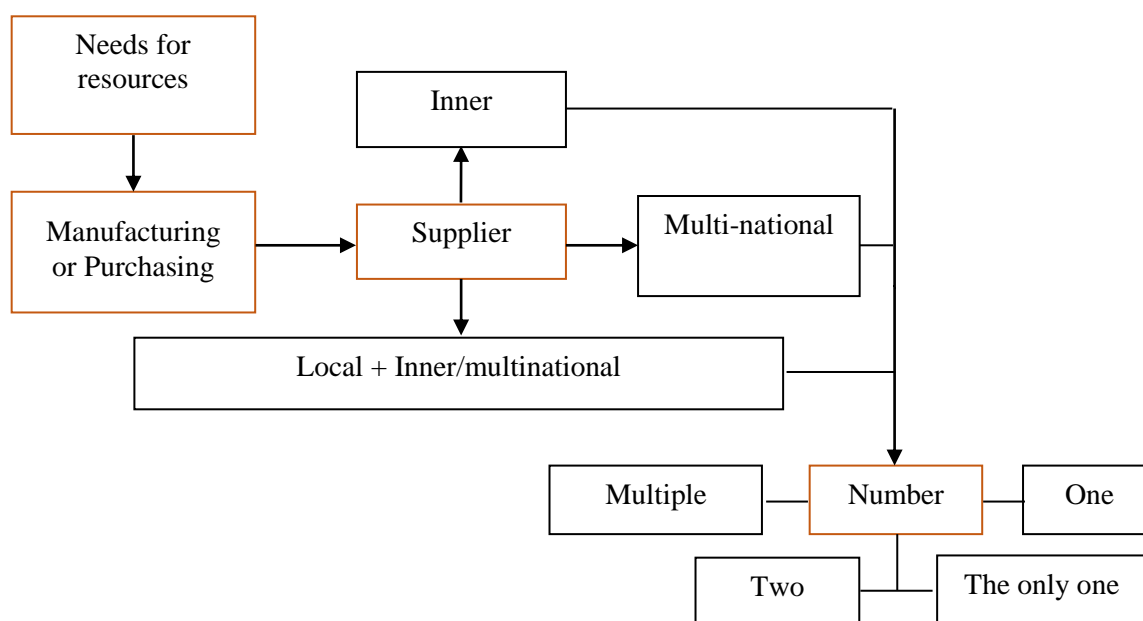


Figure № 3 Example algorithm for decision making on type and number of suppliers

In modern military operations and the constant expansion of the need for a variety of material assets, the role of outsourcing on the planning and implementation of the "supply" functional area is inevitably increasing. Its indisputable advantages can be grouped into several areas: providing specialized services in the operation area, providing high-quality delivery and service delivery over a long period of time, low cost and opportunity to realize a wide range of services. [5]

### 2.3. Contractors - an important element of supply chains

Contractors are part of the complete logistic system for implementing outsourcing solutions. They minimize risks to the recovery of certain deficits but can not fully realize them. The ability to use them quickly requires resources to be stored and maintained in the required characteristics (qualitative and quantitative). This inevitably impedes their operations, being one of the prerequisites for building larger and cumbersome supply chains, creating and storing buffer stocks. The clear long-term vision of their use provides an appropriate timeframe and opportunities for smooth provision of resources and services that would facilitate and optimize the operational planning process. Their use leads to a reduction of "military" logistic personnel in the mission area, but on the other hand creates prerequisites to reduce the flexibility and sustainability of supply chains in unforeseen situations. An exemplary structural diagram of the logistic outsourcing process is presented in Figure 4.

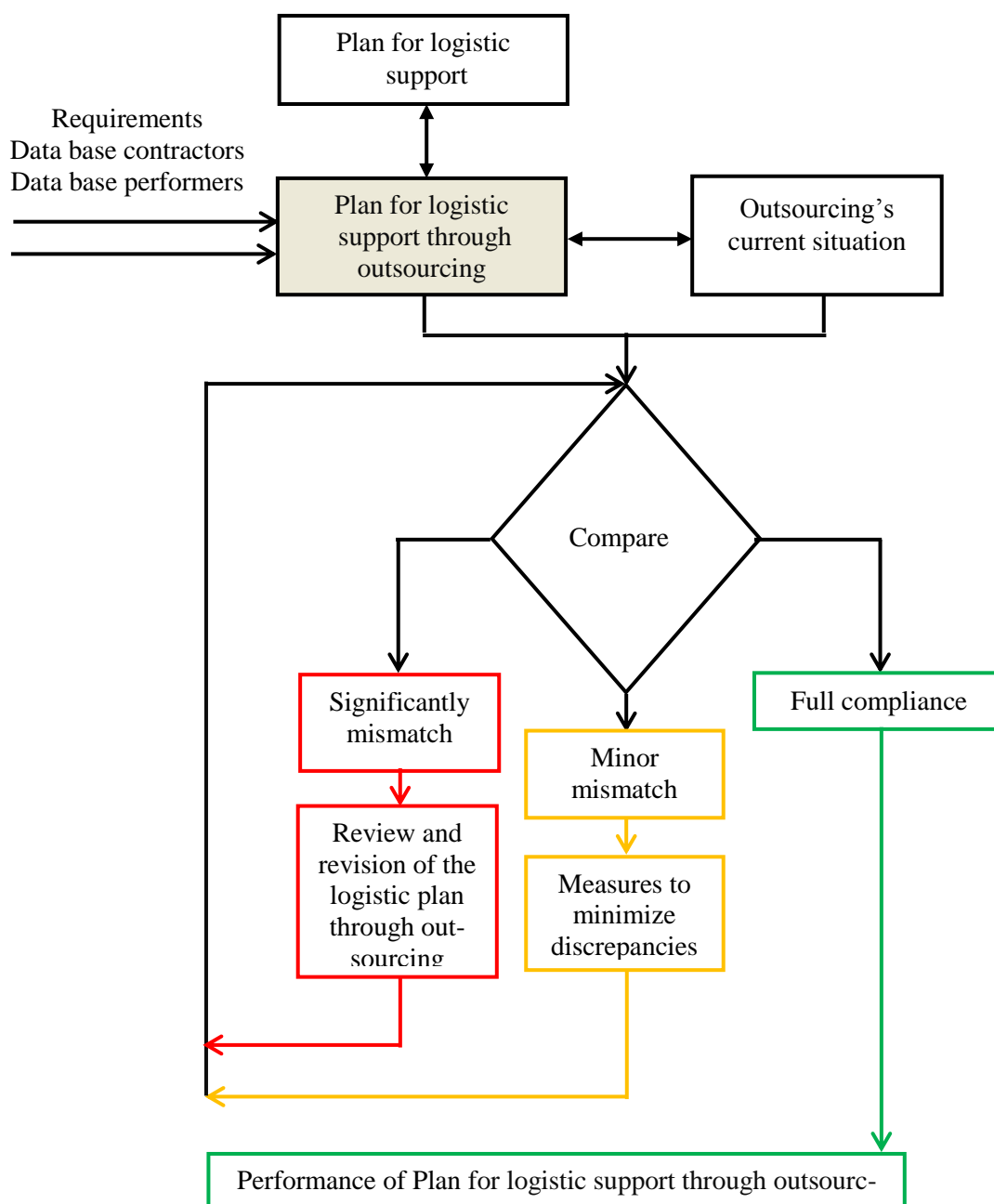


Figure № 4. Structural scheme for logistic support through outsourcing.

Despite the benefits this form of logistic provides, it hides its risks. Lessons learned from the EUFOR RD Congo operation show that, due to inefficient logistic intelligence, gaps in planning and practically missing controls, it has made it impossible to meet agreed deadlines and quality standards.

Possible early and accurate planning of contractors' activities as part of the overall logistic procurement system ensures a low logistical footprint on the overall planning and conduct of the operation. It takes into account all factors of strategic and operational planning and includes the following minimum requirements:

- Existence of difficulties in securing combat and/or logistic support in short or medium term;
- Opportunities for material shortages in the area of operation when increasing the duration of the operation;
- Opportunities to ensure the shortcomings in the short, medium and long term by using contractors;
- Ability to activate contractors and financial security of the process;
- Creating a reliable mechanism and procedures for controlling the activity of contractors;
- Plan for the withdrawal of contractors from the operational area and an alternative option for supplying resources and providing services to change the security environment.

Proper pre-planning of contractors' operations by phases of the operation would have the following advantages:

- Consistency and economy in the planning and financing of contractors' activities;
- Early identification of the financial parameters associated with the contractor's activity as a function of the duration of the operation;
- Define appropriate requirements for contractors' activity and financial parameters for this;
- Strict differentiation of the responsibilities of contractors and those of "military logistics", rights to use common techniques, procedures and mechanisms, order of interaction and mutual assistance;
- Defining a long-term vision for using contractors, defining requirements for them and ways to implement them.

### 3. Conclusion

The specificity of modern military operations places high requirements on the effective operation of the logistic system in all phases of the operation. The close interaction between the civilian and military logistic structures, as well as the use of contractors contributes to the realization of logistic support. Building sustainable supply chains would reduce the logistic footprint on operations.

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