

# **Expertise, Experience, Real Operational need: The key factors for max effectiveness and min cost in Modern Military Operations**

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## **Abstract.**

It is well known that the level of knowledge and experience characterize a technician's performance and his art is supported by various sciences. In accordance to this, the militaries today being professionals must have complete and specialized knowledge, coupled with expertise, dedicated knowledge which would ensure effective action and fulfillment of any given mission, with minimal costs in human and material. In parallel, the military sciences must not only follow the latest technological developments, but ought to evolve and adapt the scientific knowledge to the needs of military technology, to analyze the current and emerging threats, to supply with the appropriate knowhow, dedicated technique and methodology that is directly or indirectly involved staff in military operations.

Following to the above reasoning, the aim of this presentation is to highlight the need of forced coexistence of knowledge and expertise with experience to the current members of Armed Forces. However it is briefly represented, in the form of mathematical equations and with simple operational examples, the chain of relationship among the involved forces and the outcome of the battle in a modern military operation.

It is specifically noted, in all three phases of a military operation, (planning, preparation, execution), the determining factors of the participants' professionalism and the means' quality-technology, (friendly –opponent), which are combined with the extensive knowledge and experience of the opponents, determining the respective plan of action, applied tactics, and involvement in general operational needs.

It is also underlined the importance of those key factors of mission success, affecting efficiency and the cost elements, particularly critical for Greece today. The cost – effectiveness is a function of the applied military action, the particular expertise of the planner – executor and effectiveness of the involved forces and means, (tactic, weaponry, technique, timing, power of strike) and especially the used force multipliers.

Undoubtedly the operational effect will be proportional to the product of the applied quantitative and qualitative force in a given time and a natural consequence of the quality performance of the involved armed forces and the technology used.

**Keywords:** Operational need, military experience, technical knowledge of defense systems-expertise.

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## 1. Introduction

Undoubtedly military science today is diverse and includes all other sciences in its various forms, as required to implement, not only in war but in peace and crisis.

Modern technology as totally dependent on mathematics and computer science could not conceal his greatest contribution to the current military science, and therefore the significance of the various applications in the field of military operations and beyond.

Very well then this workshop is intended to highlight the importance of these components so that the students of military science to fully understand the specific difference between knowledge and application, which determines the level of the scientist. The scientist who in this case is military and he is exclusively evaluated by the result of his application and not merely of his theoretical knowledge.

So on the occasion of the title of the conference, I chose to introduce you, based on my experience and knowledge, the difference between these concepts. They judge a military scientist. In your military career, you ought to cover the full field of knowledge that requires a given military application.

Due to the vast size of this subject and the given time of my speech, I will have to comply it with the conference program in order to present successfully the main topics with some applications – examples.

I will focus on three topics that I consider as the basic for a modern officer who assessed (the science of applied) in the area of responsibility, on the battlefield.

These topics represent the officer's size of theoretical education and training, his military experience and the level of his background on the professional scientific fields of the applied technology in military operations.

So these concepts are none other than their individual knowledge- expertise (specialized - applied knowledge), experience (obtained from the exercise of military science in the field of exercise - battle) and the perception of the existing operational need (which requires knowledge and experience and good and accurate information).

Finally, a simple mathematical formula will prove the value of these parameters and their contribution in the outcome of a given military operation, (quality and cost).

## 2 Analysis of Factors

### 2.1 Overall Assessment Statement

*The result of a military operation is estimated from the following formula that involves three phases, the design, preparation and execution.*

$$R = F/O$$

where

$$R = \text{Total operational result}$$

$$= R_1(\text{planning phase}) \cdot R_2(\text{Preparation Phase}) \cdot R_3(\text{Execution Phase})$$

$F$  = friendly forces,

$O$  = opponent forces.

### 2.2 Results' Assessment of the First Phase

*The estimated result of design ( $R_1$ ), both for the friendly forces and for hostile expressed by the formula:*

$$R_1 = C_1 \cdot E_1 \cdot N_1 \cdot k^*$$

where:

$C_1$  = Staff Capability = (Planning, Preparation, Execution,  
Absolute knowledge of the operational capabilities  
of the means of offensive, defensive).

$E_1$  = Staff Experience (Analysis, Synthesis, Expertise, Information,  
Use of force multipliers)

$N_1$  = Determination of the optimal operational need

*for the implementation  
of the Plan (technocratic expert knowledge)*

$k^*$  = *match fitness field, weather, alternative design (Plan B).*

### 2.3 Results' Assessment of the Second Phase

*The estimated result of the preparation ( $R_2$ ), both the friendly forces and for hostile expressed as the formula:*

$$R_2 = A_2 \cdot E_2 \cdot T_2 \cdot S_2 \cdot b^*$$

*where:*

$A_2$  = *Suitability personnel selected  
= (Expertise, Experience, Discretion),*

$E_2$  = *Organizational Experience  
(Analysis, Synthesis, Expertise, Information,  
Use of Force Multipliers, Understanding of the Planning),*

$T_2$  = *Appropriate training and determination  
of optimal operational need for the implementation  
of the Plan (technocratic expert knowledge),*

$S_2$  = *Information Security (concealment, deception, interference),*

$b^*$  = *Available Budget – Prototype Design.*

### 2.4 Results' Assessment of the Third Phase

*The estimated effect of the execution of the operation ( $R_3$ ), and the confrontation of opponents according to their sequenced factors given by the formula:*

$$R = R_1 \cdot R_2 \cdot R_3 \cdot \lambda^*$$

*where:*

$R_1 \cdot R_2 \cdot R_3$  = *To multiplying fractions  $(F_1/O_1) \cdot (F_2/O_2) \cdot (F_3/O_3)$ .*

$\lambda^* = \textit{imponderables and surprise}$

*Noted that the analysis of the opponent and the determination of the 'O' have to do with such data (information of the order of battle or the readiness status).*

### **3 Applications Theory**

It is often in sciences and particularly in military Science the training to be accompanied by realistic examples, analogue to the level of the audience and of the current confidentiality.

In military science, as you have seen above, the particular values, joys and skills of officers forming the sign (+ or -) of a significant effect on friendly forces.

The well known pilots' rule is also remarkable. "NOT BE PREDICTABLE".

Following this inviolable principle, although I am retired, I would you allow me to analyze some exemplary embodiments orally only and not written, for obvious reasons.

#### **3.1 Example: Battlefield Applications**

##### **– Casual & Empirical Unwritten Rules**

Dear students and esteemed professors, let me to analyze stressing these points of interest, to perceive the importance of the three variables, as they are included in the of the title of this paper.

A hypothetical scenario: Is an uninhabited desert island recapture a time of crisis:

The opponent has a team of commandos ashore with light weaponry on the deserted island which belongs to the friend forces. He has lined up near the island 4 naval units (one gunboat two destroyers and one frigate). Near The coastline (belonging to him) has gathered significant army forces. Medium flight activity with F-16 has also observed.

The friend forces have been ordered to recapture the desert island providing dynamic action, but avoiding generalizing the conflict. His aim is through this action to demonstrate the deterrent ability and the existing fighting power.

### **3.2. Analyzing the Existing to the Example Parameters (Expertise, Experience, Real Operational Needs)**

- **Composition of the Planning team:** Joint Task Force with specialists - knowledge and experience on special operations.
- **Determination of mode of action** (Detailed Plans)
- **Identify operational needs for this operation** (means, personnel, facilities, weather conditions).
- **Preparation:** Selection forces and media, information, concentration, development forces.
- **Way of mission execution** (planning benefits & enemy disadvantages).

Any simile or characterization is random and has nothing to do with actual fact

## **4. Conclusions & Results**

The analysis of the example proves the successful choice of both, (the used means and the way of use) with relatively low cost.

The highly specialized knowledge of the planners about the individual performance – restrictions of some of the used weapon systems was the decisive factor in the timing, effectiveness and how to implement the whole operational plan of the reoccupy.

The quality and quantity of information prior and during the execution of the operation minimized the possibility of unpleasant results.

Let me clarify something as a point of self-criticism. Some younger colleagues influenced by the teachings on the principles of war and related factors, may be like to criticize me for the omission of some of the well known principles of war in this presentation.

It may be acceptable from me, but I can say facing this: Who is the officer with the above qualifications which is unable of analysis, synthesis and current factors adaptation? Of course he will have the skills and the capacity, in the given

circumstance to omit or to hide some or to include those principles in within the detail planning.

This ability, I asses that identifies to him the real leverage of the human factor, underling the required force multiplying factors, leading to the desired cost effective mission success.

Also it is worth to notice, especially in the current difficult situation of Greece, due to the lack of defense budgets the need to find alternatives in the military training and conserving the operational experience.

It is needed more than ever, a form of force multipliers with emphasis on applied informatics. This will cover a percentage of the lack of exercise and it will maintain the area and would keep the well-trained – experienced, especially in the headquarters level.

It is sure that the long period of inactivity of military personnel and the curtailment of the training courses & exercises will impact the inexperience both at headquarters and at the execution level.

This phenomenon if occurs, unfortunately it requires long time and double cost to recover.

May the connoisseurs to understand and occurs on a problem as there's still time.